

AL-FARABI KAZAKH NATIONAL UNIVERSITY
Medicine and Health Care Faculty
Department of Fundamental Medicine

AFFIRM
Dean of the Faculty

Kalmakhanov S.B.
" ____ " ____ 2026

EDUCATIONAL AND METHODOLOGICAL COMPLEX OF DISCIPLINE

MORPHOLOGY AND PHYSIOLOGY OF HUMAN BODY

BM087 “Dentistry”
Educational program “6B10113 Dentistry”

Course – 1
Semester – 2
Number of credits – 10 (ECTS)

Almaty, 2026

Educational and methodical complex of discipline was compiled by Aitbayeva E.B.

Based on educational program “6B10113 Dentistry”

**Considered and recommended at a meeting of the fundamental medicine department
from “___” _____, protocol №_____**

Head of department _____ Kalykova A.S.

Chairman of the Academic Committee of M&HC _____ Kurmanova G.M.

SYLLABUS
Spring semester 2026 academic year
Educational program "6BM10113 Dentistry"

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| 1. | General information about the discipline | | |
| 1.1 | Faculty/School: Medicine and Healthcare Department of Fundamental Medicine | 1.6 | Credits (ECTS): General number of credits: 10 (150 hours) lectures 0 / practical classes 10 |
| 1.2 | Educational program (EP): 6BM10113 Dentistry | 1.7 | IWS/IWM/IWD: 6.6credits (100 hours) |
| 1.3 | Accreditation Agency and Year of Accreditation of the Educational Program: “Eurasian Center for Accreditation and Quality Assurance in Education and Healthcare” (ECA), 2025 | 1.8 | IWTS/ IWMTS/ IWDTS: 3.3 credits (50 hours) |
| 1.4 | Title of the Discipline: Morphology and physiology of human body | 1.9 | Prerequisites: Post-requisites: General pathology |
| 1.5 | DisciplineID: 94347 Discipline Code: MiF1202 | 1.10 | Status of the Discipline: basic and major disciplines (BD, MD) |
| 2. | Course Description | | |
| | Formation of knowledge about the morphology (anatomy and histology) and physiology of organs and systems of the human body (musculoskeletal and skin as an organ, respiratory, cardiovascular, hematopoietic, digestive, urinary, reproductive) in the age and gender aspects of human organ systems to understand the processes of life and maintaining homeostasis | | |
| 3 | Aim of the Discipline | | |
| | Forming integrated knowledge of the normal typical structure and functioning of cells and organs of the human body, taking into account age, sex and individual characteristics, anatomical and topographic relationships and regulation of the functions of cells, organs and systems in normal conditions.. | | |
| 4. | Learning outcomes (LO) by discipline (3-5) | | |
| | LO disciplines | LO according to the educational program, with which the LO is associated by discipline (LO No. from the EP passport) | |
| 1 | Demonstrate knowledge of anatomy, topography and visualization in the age and human organ systems; | Proficiency level-1 | 1. Apply in practice and integrate knowledge in the field of biomedical, clinical, epidemiological and social-behavioral sciences, including generally accepted, evolving and constantly updated knowledge to solve clinical problems, implement into the care of individuals and populations. 7. Demonstrate the qualities necessary to maintain continuous personal and professional growth, continuous improvement in the quality of medical care based on continuous self-assessment and lifelong learning; |
| 2 | Be able to identify cellular and non-cellular structures that make up the tissues of organ systems on microscopic specimens with an understanding of their formation and function; | Proficiency level-1 | |
| 3 | Demonstrate knowledge of the physiological processes that determine the activity and mechanisms of regulation of human organs and systems (digestion, excretion, movement, blood formation, functioning of the senses); | Proficiency level-2 | |
| 4 | Understand and apply knowledge of the neuro-endocrine regulation of | Proficiency level-1 | |

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| | homeostasis, metabolism in different situations; | | |
| 5. | Understand the processes and anatomical and physiological processes during pregnancy, development and growth, involutional changes, with various physiological stress variants; | Proficiency level-1 | |
| 6. | Demonstrate knowledge of the physiology of higher nervous activity and the cognitive process; | Proficiency level-1 | |
| 7. | Be able to conduct research on basic physiological functions; | Proficiency level-2 | 6. Demonstrate professionalism and commitment to conscientious performance of professional duties based on high standards of ethics and humanism; |
| 8. | Demonstrate the ability to identify learning gaps and create strategies to enhance one's own knowledge and skills. | Proficiency level-2 | 11. Apply knowledge of the complex of factors that determine health and disease for the purpose of prevention, health advocacy and promotion of a healthy lifestyle |
| 9. | Demonstrate analytical skills in the integration of knowledge of the anatomy, histology and function of the human body to understand and evaluate normal life processes. | Proficiency level-2 | |
| 10. | Independently find, analyze and summarize educational and scientific information in relation to situations related to the course content; | Proficiency level-2 | |
| 11. | Work in a team, defend your point of view reasonably, consider the opinions of others, provide and receive feedback correctly using interpersonal and group communication skills. | Proficiency level-2 | 6. Demonstrate professionalism and commitment to conscientious performance of professional duties based on high standards of ethics and humanism; |
| 12. | Recognize the importance and observe ethical principles, demonstrate responsibility and honesty in all educational interactions; | Proficiency level-2 | 11. Apply knowledge of the complex of factors that determine health and disease for the purpose of prevention, health advocacy and promotion of a healthy lifestyle |
| 13. | Communicate effectively with other students and teachers regarding medical and scientific information, articulate their opinions clearly when discussing the morphological structure and physiological processes, and work effectively as a member of the team. | Proficiency level-1 | 6. Demonstrate professionalism and commitment to conscientious performance of professional duties based on high standards of ethics and humanism; |
| 5. | Summative assessment methods (mark (yes – no) / specify your own): | | |
| 5.1 | MCQ testing for understanding and application | 5.5 | Scientific project SSRW (student's scientific research work) |
| 5.2 | Practical skills – OSPE | 5.6 | Case-study -yes |
| 5.3 | Independent work –team work according the instruction to IWS | 5.7 | Midterm Control: <ul style="list-style-type: none"> • Stage 1 –MCQ • Stage 2 – OSPE |
| 5.4 | | 5.8 | Final Examination: <ul style="list-style-type: none"> • Stage 1 –MCQ |

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| | | | • Stage 2 – OSPE |
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| 6. | Detailed information about the discipline | | | | | |
| 6.1 | Academic year: 2026 | 6.3 | Schedule (class days, time): by schedule | | | |
| 6.2 | Semester:2 | 6.4 | Location (educational building, classroom, platform, and link for distance learning, if applicable): Tole bi 96, classrooms by schedule | | | |
| 7. | Discipline leader | | | | | |
| Position | | Full name | Departm ent | Contact information (tel., e-mail) | Consultations before exams | |
| Anatomy | | Baidaulet Tlek | | baidaulet.tilek@med-kaznu.com | By the schedule | |
| Anatomy | | Omarova Dina | | omarova.dina@med-kaznu.com | By the schedule | |
| Histology | | Edilova Aigul | | edilova.aigul@med-kaznu.com | By the schedule | |
| 8. | The content of the discipline | | | | | |
| Week | Name of the discipline | | | | Quantity of hours | Max. points |
| 1 | Seminar: Introduction to anatomy and physiology. Anatomical Position; Anatomical Planes; Directional Terms; Major Body Regions (Axial and Appendicular Region);Body Cavities and Membranes; Organ Systems. | | | | 4 | 3 |
| | Seminar: The integumentary system Structure and functions of the skin; Structure and functions of the Cutaneous Glands, dermal circulation; | | | | 5 | 3 |
| | Seminar: Histology. Epithelium tissues.Blood and lymph.Hemopoiesis | | | | 3 | 3 |
| 2 | Seminar: The skeletal system I Overview of skeletal system and Osseous Tissue; Gross Anatomy of Bones; Bone Development and Metabolism. | | | | 4 | 3 |
| | Seminar: The skeletal system II Bones associated with the Skull (Cranial and Facial Bones) | | | | 5 | 3 |
| | Seminar: Histology. Connective tissues.Cartilaginous and bone tissues. | | | | 3 | 3 |
| 3 | Seminar: Histology. Muscle tissue. Nervous tissue. Neuron. Neuroglia. | | | | 2 | 3 |
| | Seminar: The skeletal system III. General Features of the Vertebral Column, General Structure of a Vertebra, Intervertebral Discs; | | | | 4 | 3 |
| | Seminar: The skeletal system IV. The pectoral girdle and upper limb; The pelvic girdle and lower limb. Joints and Their Classification Jaw and knee joints; | | | | 5 | 3 |
| 4 | The muscular system I. Muscle function, muscle attachment. Functional groups of muscles, their innervation and blood supply, muscle nomenclature, and teaching strategy. | | | | 4 | 3 |
| | Seminar: The muscular system II Muscles of the facial expression, head and neck | | | | 5 | 3 |

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| 5 | Seminar: The muscular system III -IV Muscles of the trunk; Muscles of Respiration; Acting on the Shoulder and Arm; Muscles Acting on the Forearm, the Wrist and Hand. | 4 | 3 |
| | Seminar: The muscular system V-VI Muscles Acting on the Hip and Femur; Muscles Acting on the Knee. Muscles Acting on the Leg, Foot, Intrinsic Muscles of the Foot. Whole-Muscle Contraction; Muscle Metabolism. | 5 | 3 |
| 6 | Seminar: Circulatory system Blood I Introduction, Blood Types; Erythrocytes; Leukocytes. Platelets; Hemostasis. | 4 | 3 |
| | Seminar: Heart I-II. Overview of the Cardiovascular System; Systemic and pulmonary circuit; Gross Anatomy of the heart. Cardiac Muscle and the Cardiac Conduction System. Electrical and Contractile Activity of the Heart. Cardiac cycle and heart sound. Cardiac output. | 5 | 3 |
| 7 | Seminar: Vessels. General Anatomy of the Blood Vessels Capillary Exchange. Physiology of Circulation. Circulatory Routes and Blood Vessels of Axial and Appendicular Region. | 5 | 3 |
| | Seminar: The Lymphatic System and Immune System | 4 | 3 |
| 8 | Seminar: The Respiratory System I General Anatomy of the Respiratory System. | 4 | 3 |
| | Seminar: The Respiratory System II Pulmonary Ventilation Gas Exchange and Transport | 3 | 3 |
| | Current control histology | 1 | 12 |
| | Current control anatomy+physiology | 1 | 26 |
| | ISW | | 5 |
| | RK-1 | | 100 |
| 9 | Seminar: Urinary system 1. Anatomy of the urinary system (kidney, ureters, urinary bladder, and urethra) Functions of the urinary system. | 4 | 3 |
| | Seminar: Urine Formation I: Glomerular Filtration+Urine Formation II: Tubular Reabsorption and Secretion. Urine Formation III: Water Conservation | 5 | 3 |
| | Seminar: Histology. Structural features of the oral mucosa. Lips, cheeks, gingiva, floor of the oral cavity and the transitional folds of the lips and cheeks, tongue, hard palate, soft palate and uvula. Salivary glands. | 3 | 3 |
| 10 | Seminar: Fluid and electrolyte balance. Acid-base balance | 4 | 3 |
| | Seminar: The digestive system I General Anatomy and Digestive Processes. The mouth. The esophagus. | 5 | 3 |
| | Seminar: Histology. Development of deciduous (primary) and permanent teeth. Structure and functions of the periodontium. Cementum, periodontal ligament, alveolar process and dental alveolus, physiological and reparative remodeling of the dental alveolar wall, gingiva. Gingival sulcus and periodontal pocket. | 2 | 3 |
| 11 | Seminar: The digestive system II The Stomach The Liver, Gallbladder, and Pancreas. | 4 | 3 |
| | Seminar: The digestive system III The Small Intestine and Large Intestine ; Chemical Digestion and Absorption. Nutrition and Metabolism Nutrition; Metabolic States and Metabolic Rate | 5 | 3 |

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| 12 | Seminar: The Spinal Cord. The Spinal nerves. Somatic Reflexes | 4 | 3 |
| | Seminar: Brain I Overview of the brain Brain II Principal Divisions of the Brain | 5 | 3 |
| 13 | Seminar: Cranial Nerves. | 5 | 3 |
| | Seminar: The Autonomic Nervous System | 4 | 3 |
| 14 | Seminar: Sense organs Properties and Types of Sensory Receptors The General Senses; Chemical sensation -taste. | 4 | 3 |
| | Seminar: Eye and Vision. Hearing and Equilibrium. | 5 | 3 |
| 15 | Seminar: Overview of the Endocrine System Endocrine Physiology. The Hypothalamus and Pituitary Gland ; Other Endocrine Glands | 3 | 3 |
| | Seminar: The Male Reproductive System. Male Reproductive Anatomy. Male reproductive physiology. | 3 | 3 |
| | Seminar: The Female Reproductive System. Female Reproductive Anatomy. Female reproductive physiology. | 3 | 3 |
| | Current control -2 Histology | 1 | 8 |
| | Current control anatomy+physiology | 1 | 36 |
| | ISW | | 5 |
| | | RK2 | 100 |
| Summary : | | | 100 |

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| Final control (Exam) | | Summative evaluation: 2 stages: 1-stage – MCQ testing for understanding and application – 60% 2- stage – OSPE - 40% |
| 1 | Methods of formative assessment: TBL – Team Based Learning CBL – Case Based Learning quiz, test, interactive test, self-assessment test, mutual evaluation/reviewing/commenting | |
| 2 | Summative Assessment Methods (from Section 5): <ul style="list-style-type: none">○ testing using video, drawings, photographs, diagrams, microphotographs or OSPE using dummies and micro preparations - as part of the current / midterm / final control: final results No. 1, 3;○ solution of situational problems, analysis of cases - within the framework of the current / midterm / final control - final results No. 2, 4, 5, 6, 9;10;11;12○ interview / oral interview - within the framework of the current / milestone / final control - final results No. 2, 4, 5, 6;12;13 | |
| 10. | Summative assessment | |
| Nº | Forms of control | Forms of control |
| 1 | Practical lessons | 3% from MT1 |
| 3 | IWS | 5% from MT1 |
| 4 | Current control-1 Histology M&P | 12 from MT1 26 from MT1 |
| Border control 1 | | 100% |
| 1 | Practical lessons | 3% from MT1 |
| 2 | IWS | 5% from MT1 |
| 3 | Current control-2 Histology | 8 from MT1 |

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| | M&P | 36 from MT1 | |
| Border control 2 | | 100% | |
| 9 | Exam | 2 stages: 1st stage - testing on MCQ for understanding and application 60% 2nd stage – OSPE 40% | |
| 10 | Final score: | Ongoing Assessment – 60% + Final Examination – 40% | |
| 10. | Score | | |
| Rating by letter system | Digital equivalent | Points (% content) | Assessment Description (changes should be made only at the level of the decision of the Academic Committee on the quality of the faculty) |
| A | 4,0 | 95-100 | Excellent. Exceeds the highest job standards. |
| A- | 3,67 | 90-94 | Excellent. Meets the highest job standards. |
| B+ | 3,33 | 85-89 | Good. Very good. Meets high job standards. |
| B | 3,0 | 80-84 | Good. Meets most of the job standards. |
| B- | 2,67 | 75-79 | Good. More than enough. Shows some reasonable ownership of the material. |
| C+ | 2,33 | 70-74 | Good. Acceptable. Meets the basic standards of the task. |
| C | 2,0 | 65-69 | Satisfactory. Acceptable. Meets some basic job standards. |
| C- | 1,67 | 60-64 | Satisfactory. Acceptable. Meets some basic job standards. |
| D+ | 1,33 | 55-59 | Satisfactory. Minimally acceptable. |
| D | 1,0 | 50-54 | Satisfactory. Minimally acceptable. The lowest level of knowledge and completion of the task. |
| FX | 0,5 | 25-49 | Unsatisfactory. Minimally acceptable. |
| F | 0 | 0-24 | Unsatisfactory. Very low productivity. |
| 11. | Educational resources (use the full link and specify where you can access the texts/materials) | | |
| Literature | Basic literature: 1. Saladin, Kenneth S: Anatomy & Physiology. The Unity of Form and Function (2016, McGraw-Hill Education). 2. Costanzo, Linda S.: BRS Physiology. Board Review Series.7 edition. -Wolters Kluwer Health, 2018.- 307p. - ISBN 1496367693, 9781496367693 3. Leslie P. Gartner: Color Atlas and Text of Histology. - 7th Edition. - Wolters Kluwer, 2017. ISBN 1496346734, 9781496346735 4. Russell K. Hobbie, Bradley J. Roth: Intermediate Physics for Medicine and Biology. - Springer, 2015. - ISBN 3319126822, 9783319126821 5. Andersson D, Medical Terminology: The Best and Most Effective Way to Memorize, Pronounce and Understand Medical Terms: Second Edition, ISBN-13 : 978-1519066626, 2016 6. Shoibekova, Alima Zhorabaevna. Latin and Fundamentals of Medical Terminology for Medical Students with Training English [Text] : educational man. / A. Zh. Shoibekova, 2016. - 163, [1] p. | | |

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| | <p>7. Sembulingam, K. Essentials of Medical Physiology [Text] : [monogr.] / K. Sembulingam, P. Sembulingam ; Madha Medical College [et al.]. - 7th ed. - New Delhi ; London ; Philadelphia : Jaypee, 2016. - 1112 p. : il. - Ind.: p. 1069-1112. - ISBN 978-93-85999-11-6</p> <p>Additional literature:</p> <p>8. Standring, Susan: Gray's Anatomy: The Anatomical Basis of Clinical Practice. - 41 Elsevier Limited, 2016</p> <p>9. Elaine N. Marieb, Lori A. Smith: Human Anatomy & Physiology Laboratory Manual, Main Version. - 11 edition. - Pearson Education, 2015. - ISBN 9780133999143</p> <p>10. Scanlon V. C, Essentials of Anatomy and Physiology 8th Edition, F.A. Davis Company, 2018</p> <p>11. Victor P. Eroschenko, Atlas of Histology with Functional Correlations 13th Edition, LWW, 2017</p> <p>12. William Bialek: Biophysics: Searching for Principles. -Princeton University Press, 2012. - ISBN 0691138915, 9780691138916</p> <p>13. Ghosh, Byas Deb. Human Anatomy [Text] : For Students / B. D. Ghosh; [Anatomical Society of India (West Bengal Chapter) et al.]. - 2nd ed. - New Delhi; Panama City ; London : Jaypee, 2013. - 948 p. : il. - Ind.: p. 913-948. - ISBN 978-93-5025-942-9</p> <p>14. Mazumdar, Sibani. Anatomy at a Glance [Text] : An Exam-Oriented Text / S. Mazumdar ; Calcutta National Medical College [et al.]. - 2nd ed. - New Delhi; London ; Philadelphia : Jaypee, 2014. - 534 p. : il. - Ind.: p. 525-534. - ISBN 978-93-5152-355-0 : App.: p. 519-520. Glossary: p. 521-524.</p> <p>15. Baktybayeva, Lyaila Kyrgyzbayevna. Base of Physiology [Text]: laboratory practicum / L. K. Baktybayeva, G. T. Zhamanbayeva, M. S. Kulbayeva; Al-Farabi Kazakh National University. - Almaty : Qazaq University, 2017. - 146 p. : il. - Bibliogr.: p. 145. - ISBN 978-601-04-3138-6</p> |
| Electronic resources | <ol style="list-style-type: none"> https://app.lecturio.com/#/ https://3d4medical.com/ https://www.youtube.com/channel/UCc_I2c2bUtO0p4DVeo6-Kxg https://sites.google.com/a/umich.edu/bluelink/curricula/anatomy-403?authuser=0 https://histologyknmu.wixsite.com/info/gistologicheskije-sajty http://www.histology-world.com/contents/contents.htm http://www.histologyguide.com/slidebox/02-epithelium.html https://histology.medicine.umich.edu/resources https://web.duke.edu/histology/ http://virtualslides.med.umich.edu/Histology/view.apml?listview=1& |
| Simulators in the simulation center | Anatomical model center, 3D Complete Anatomy |
| Special software | 1. Google classroom - available in the public domain. |
| 12. | Student Requirements |
| <p>The student</p> <ul style="list-style-type: none"> – attends all classes and lectures – actively participates in classroom classes during formative assessment, in group work – performs tasks on time | |

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| | <ul style="list-style-type: none"> – shows respect for teachers, university staff and students – carefully handles university property (models, desks, chairs, etc.) – observes cleanliness and order on campus and classrooms – uses gadgets in classes only with the teacher's permission – for all issues within the discipline is addressed to the teacher of this discipline, for general academic issues – to his advisor – correspondence is carried out only through a messenger approved by the teacher, at the time regulated by the teacher |
| 13. | Discipline policy Discipline policy is determined by the University's Academic Policy and the University's Academic Integrity Policy . If the links do not open, then you can find the relevant documents in IS Univer. Rules of Professional Conduct: <ol style="list-style-type: none"> 1) Appearance: <ul style="list-style-type: none"> ✓ office style of clothing (shorts, short skirts, open T-shirts are not allowed to attend university, jeans are not allowed in the clinic) ✓ Clean and ironed coat ✓ medical mask ✓ neat hairstyle, long hair should be gathered in a ponytail, or a bun, for both girls and guys. Neatly short cut nails. Bright, dark manicure is prohibited. It is permissible to cover the nails with transparent varnish. 2) Mandatory observance of the rules of personal hygiene and safety 3) Systematic preparation for the educational process. 4) Active participation in public events of the departments. <p>The behavior of the student at the exams is regulated by the "Rules for the final control", "Instructions for the final control of the autumn/spring semester of the current academic year" (the current documents are uploaded to the Univer IS and are updated before the start of the session); "Regulations on checking text documents of students for the presence of borrowings."</p> |
| 14 | Principles of inclusive learning <ol style="list-style-type: none"> 1. Constantly preparing for classes: For example, backs up statements with relevant references, makes brief summaries Demonstrates effective teaching skills, assists in teaching others 2. Take responsibility for your learning: For example, manages their learning plan, actively tries to improve, critically evaluates information resources 3. Actively participate in group learning: For example, actively participates in discussions, willingly takes tasks 4. Demonstrate effective group skills For example, takes the initiative, shows respect and correctness towards others, helps to resolve misunderstandings and conflicts. 5. Skillful communication skills with peers: For example, he listens actively, is receptive to nonverbal and emotional signals Respectful attitude 6. Highly developed professional skills: Eager to complete tasks, seek opportunities for more learning, confident and skilled Compliance with ethics and deontology in relation to patients and medical staff Observance of subordination. 7. High introspection: For example, recognizes the limitations of his knowledge or abilities, without becoming defensive or reproaching others |

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| | <p>8. Highly developed critical thinking: For example, accordingly demonstrates skills in performing key tasks, such as generating hypotheses, applying knowledge to cases from practice, critically evaluating information, making conclusions aloud, explaining the process of reflection</p> <p>9. Fully complies with the rules of academic behavior with understanding, offers improvements in order to increase efficiency. Observes the ethics of communication – both oral and written (in chats and appeals)</p> <p>10. Fully follows the rules with full understanding of them, encourages other members of the group to adhere to the rules Strictly adheres to the principles of medical ethics and PRIMUM NON NOCERE</p> | |
| 15. | <p>Distance/Online Learning – Prohibited in Clinical Discipline (части, выделенные зеленым, пожалуйста, не изменяйте)</p> <p>1. According to the order of the Ministry of Education and Science of the Republic of Kazakhstan No. 17513 dated October 9, 2018 "On approval of the List of areas of training with higher and postgraduate education, training in which in the form of external studies and online education is not allowed". According to the above regulatory document, specialties with the discipline code of health care: bachelor's degree (6B101), master's degree (7M101), residency (7R101), doctoral studies, (8D101) - training in the form of external study and online education - is not allowed. Thus, students are prohibited from distance learning in any form. It is only allowed to work out a lesson in a discipline due to the absence of a student for reasons beyond his control and the presence of a timely confirming document (example: a health problem and presenting a confirming document - a medical certificate, a signal sheet of the PHC, an extract from a consultative appointment with a medical specialist - a doctor)</p> | |
| 16. | Approval and review | |
| Department head | | Kalykova A.S. |
| Committee on the Quality of Teaching and Learning of the Faculty | | Kurmanova G.M. |

RUBRICATOR FOR ASSESSING LEARNING OUTCOMES

Team based learning – TBL

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| | % |
| Individual -- (IRAT) | 30 |
| Group -- (GRAT) | 20 |
| Appeal | 10 |
| Case rating - | 30 |
| Companion rating (bonus) | 10 |
| | 100% |

Case-based learning CBL

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| | | % |
| 1 | Knowledge and understanding of anatomical and physiological foundations | 30 |
| 2 | Analysis of the clinical case/situation | 20 |
| 3 | Logic and justification of the solution | 10 |
| 4 | Presentation and design of the outcome | 10 |
| 5 | Teamwork and collaboration | 10 |
| 6 | Identification of specific issues and questions related to the case | 10 |
| 7 | Companion rating (bonus) | 10 |
| | | 100% |

Point-rating assessment of “shot” answers (maximum 100 points).

| № | Criteria | 10 | 8 | 6 | 4 | 2 |
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| | | <i>Excellent</i> | <i>Good</i> | <i>Satisfactory</i> | <i>Need correction</i> | <i>Unsatisfactory</i> |
| | <i>Assessment of knowledge of anatomical structures and terminology</i> | | | | | |
| 1 | Identification of anatomical structures on models | Student confidently and accurately identifies all the presented anatomical structures on the model/drawing/specimen | Identifies most of the structures; makes occasional minor mistakes that do not distort the essence. | Identifies some of the structures, but with noticeable mistakes. | Incorrectly identifies a significant portion of the structures; knowledge is fragmentary. | Cannot identify or name the structures; the answer is completely incorrect.. |
| 2 | Use of Latin terminology | All terms are correctly named in Latin; confident application. | Mostly uses Latin terms correctly; makes minor mistakes. | Uses Latin terms inconsistently; partially replaces them with common words. | Rarely uses Latin terms; makes mistakes, mostly uses common names. | Does not use Latin terminology; no knowledge demonstrated. |
| 3 | Explanation of topography and spatial relationships | Complete, logical, and consistent explanation of topography and interrelations between structures. | Overall correct explanation, but with minor omissions.. | Provides a limited or partially correct explanation of relationships; explanation needs improvement. | Fragmentary explanation with significant errors. | No understanding of topography; cannot explain spatial relationships. |
| 4 | Functional characteristics | Fully and consistently explains the functions of all anatomical structures; correctly relates them to physiological processes and clinical significance. | Explains functions with minor gaps; provides some clinical examples. | Provides limited knowledge of functions; weak or absent clinical correlation. | Very limited knowledge of functions; explanation incomplete. | Step omitted by the student; no understanding of functional characteristics. |
| 5 | Clarity and presentation of the | Presents the material confidently, | Presents the material generally clearly, but with | Presentation is insufficiently clear; frequent mistakes | Presentation is unclear, incoherent, contains many errors. | Answer is absent or completely unclear. |

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| | answer | logically, with precise terminology. | occasional mistakes or hesitations. | in terminology. | | |
| Assessment of the quality of written and oral response | | | | | | |
| | | 10 | 8 | 6 | 4 | 2 |
| | | <i>Excellent</i> | <i>Good</i> | <i>Satisfactory</i> | <i>Need correction</i> | <i>Unsatisfactory</i> |
| 6 | Knowledge of physiological processes and mechanisms | Complete and accurate knowledge of physiological processes and their mechanisms; confident explanation. | Overall correct knowledge, with 1–2 minor inaccuracies. | Partial knowledge; some gaps and inaccuracies. | Limited knowledge, significant errors in explanation. | Lack of knowledge of physiological processes. |
| 7 | Completeness and logical presentation of the material | All key aspects are included and presented logically, demonstrating full understanding. | Main aspects are included, with minor logical inconsistencies. | Only part of the aspects are included; logic is partially maintained, depth is insufficient. | A limited number of aspects are covered; presentation is fragmentary. | Main aspects are missing; no logical structure is observed.. |
| 8 | Integration of knowledge and intersystem relationships | Excellent integration of anatomical and physiological knowledge, with clear connections to the topic. | Good integration, though some connections are not fully developed. | Limited use of theory; partial integration. | Minimal integration; connections between knowledge are fragmented. | No integration of theoretical knowledge |
| 9 | Examples and clinical-physiological illustrations | Provides relevant and illustrative examples, including clinical cases. | Examples are provided and generally relevant, but limited. | Examples are partially related to the topic, not always convincing. | Examples are rare, weak, or unclear. | No examples provided. |
| 10 | Depth of analysis and theoretical | In-depth analysis, well-grounded; all key aspects are | Sufficient analysis with partial theoretical | Basic level of analysis; | Minimal analysis; weak justification. | No analysis or justification. |

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| | justification | identified and interpreted. | justification; some gaps present. | justification is superficial. | | |
| | TOTAL | 100 | 80 | 60 | 40 | 20 |

Point-rating assessment of IWS (maximum 100 points).

| № | Criteria (evaluated on a point-based system) | 20-25 | 15-20 | 10-15 | 5-10 | 0-5 |
|---|---|--|---|--|---|--|
| | | Excellent | Good | Acceptable | Needs Improvement | Unsatisfactory |
| 1 | Evidence-based and reliability of information | Modern scientific sources are used, references are provided, data is based on evidence-based medicine | Information is generally reliable, but not all data are supported by references | Incomplete or outdated information, references are partly given | Weak or random sources are used | Information is unreliable, sources are absent |
| 2 | Creative task (creativity) | Original and non-standard solution (poster, video, model, creative form of presentation) | Creative task completed, contains original elements | Creative part is simple, little creativity | Task completed formally, without creativity | No creative task provided |
| 3 | Teamwork | All team members actively participated, work was evenly distributed, excellent interaction | Most members participated, interaction was productive | Only part of the team worked, weak coordination | Minimal interaction, work done by a few students | No teamwork |
| 4 | Presentation delivery | Confident, logical, and consistent delivery; students are fluent in the material, use professional terminology, interact | Generally confident delivery, material presented clearly but not always consistently; minor | Students mostly read from slides, little use of own wording; minimal | Delivery unconfident, many mistakes, material not structured, no audience contact | No presentation was delivered, or the material was read formally |

| | | | | | | |
|--|---------|--|---|------------------------|----|------------------------------|
| | | with the audience, answer questions | mistakes; limited audience interaction | audience engagement | | without understandin g |
| | Overall | 100 | 80 | 60 | 40 | 20 |

Checklist for Assessing the Histological Stage (maximum 100 points)

| No | | 20–25 points (Excellent) | 15–20 points (Good) | 10–15 points (Satisfactory) | 5–10 points (Needs improvement) | 0–5 points (Error) |
|----|--|--|---|--|--|---|
| 1 | Name of the tissue/organ under the microscope | The name of the organ/tissue is completely correct | Minor mistake (e.g., incorrect ending or slight deviation in formulation) | The tissue/organ is generally identified correctly, but there is a terminological error (e.g., two similar types confused) | Answer is partially correct, but the structure is named inaccurately or incompletely | Answer is completely incorrect or missing |
| 2 | Individual structural elements (objects of study) | All main structures are listed without errors | One element is missing or a minor mistake is present | Only part of the elements are identified, or extra structures are listed | Most structures are incorrect or important elements are missing | Structures are not named or the answer is incorrect |
| 3 | Structural features of this tissue | All key structural features corresponding to this tissue are described accurately | One feature is missing or there is a minor mistake in the description | The description is partially correct but does not reflect the full picture of the tissue's structure | Major mistakes in the description, incomplete understanding of tissue features | Description is incorrect or absent |
| 4 | Function | The function is fully and correctly described, taking into account the specificity of the tissue/organ | The description is correct, but a small detail is missing | Main functions are indicated, but with mistakes or important aspects omitted | The function is described incorrectly or too generally | Answer is completely absent or incorrect |
| | TOTAL | 100 | 80 | 60 | 40 | 20 |