

AL-FARABI KAZAKH NATIONAL UNIVERSITY

Medicine and Healthcare Faculty

**Higher School of Medicine
Department of Fundamental Medicine**



EDUCATIONAL AND METHODOLOGICAL COMPLEX OF DISCIPLINE

MECHANISMS OF DEFENCE AND HEALTH

BM086 - Medicine

Educational program 6B10114 - Medicine

Course – 2

Semester – 3

Number of credits – 11 (ECTS 11)


Almaty 2023

The educational and methodological complex of the discipline was compiled by masters of natural sciences Shynykul Zh. and PhD Sarybaeva M.A.


Based on the educational program BM086 General medicine

Considered and recommended at a meeting of the fundamental medicine department.

from "30" 08 2023, protocol No

Head of the department  Sarsenova L.K.
(signature)

Recommended by the Methodological Council of the Higher School of Medicine "16" 10 2023, protocol No

Chairman of the Academic Committee of M&HC  Sarsenova L.K.

SYLLABUS
Fall semester 2023-2024 academic year
Educational program 6B10114 - Medicine
for discipline "Mechanisms of Defense and Health"

| 1. ACADEMIC INFORMATION ABOUT THE SUBJECT | | | |
|--|---|--|---|
| 1.1 | Faculty/school: Higher school of medicine | 1.6 | Number of credits (ECTS): General number of credits: 11 lectures 5/ practical classes 6 |
| 1.2 | Educational program (EP): 6B10114 – Medicine | 1.7 | Prerequisites: Morphology and physiology of human body |
| 1.3 | Agency and year of EP accreditation IAAR 2021 | 1.8 | Independent work of the student: 3,7 |
| 1.4 | Name of subject: Mechanisms of Defense and Health | 1.9 | Independent work of the student under the guidance of a teacher (IWST): 1,8 |
| 1.5 | Subject ID: 103509 | 1.10 | Mandatory component -yes |
| 2. Description of subject | | | |
| Formation of a holistic view of the features of the molecular organization and metabolism of the most important organs and tissues of the body, their regulation, biochemical mechanisms for maintaining homeostasis; about the development and functioning of the immune system, immunobiochemistry. Modern concepts of various mechanisms of immune defense and response and their role in maintaining homeostasis are considered. | | | |
| 3 Purpose of subject | | | |
| To form a holistic view of the features of the molecular organization and metabolism of the most important organs and tissues of the body and their regulation; about the structure of the immune system, its role in maintaining homeostasis, the mechanisms of immunoregulation, the interaction of macro and microorganism. | | | |
| 4. Learning outcomes (LO) of subject | | | |
| | LO of subject | LO according to the educational program, with which the LO is associated by subject | |
| | 1.Describe the main biochemical processes and metabolism at the molecular level with an understanding of the principles of maintaining the stability of the internal environment of the body; | 1. Demonstrate understanding and apply knowledge of biomedical, clinical, epidemiological, and social-behavioral sciences, including common, evolving, and continually updated knowledge to solve clinical problems; | |
| | 2 Apply knowledge of normal metabolism and its regulation under different physiological conditions | 2.Demonstrate interpersonal and communication skills to effectively share information and collaborate with patients, their families, and health care providers, including using information technology to provide safe and effective patient care. | |
| | 3 Apply knowledge of molecular genetic mechanisms to maintain homeostasis, gene expression and epigenetics | 3.Recognize the importance of and demonstrate responsibility for their actions within the current regulatory framework of the health care system and be guided in their practice to provide optimal health care; | |
| | 4 Describe the components of the immune system, the mechanisms of immune defense are normal and the adaptive immune response, the development of the immune system; genes responsible for the functioning of the immune system and immunoregulation | 4.Demonstrate understanding and apply knowledge of biomedical, clinical, epidemiological, and social-behavioral sciences, including common, evolving, and continually updated knowledge to solve clinical problems. | |
| | 5.Apply knowledge of the normal immune response to various types of infections (viral, bacterial, fungal, parasitic) | | |
| 5. Formative assessment methods: | | | |
| 5.1 | Control work - yes | 5.5 | Essay -yes |

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| 5.2 | Laboratory classes- no | 5.6 | Case-study -yes |
| 5.3 | Project (individual/group)- group project | 5.7 | Portfolio of scientific papers |
| 5.4 | Mutual evaluation | 5.8 | Exam written, platform-univer |

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|--|---|--|---|
| 6. Detailed information about the subject | | | |
| 6.1 | Academic year: 2023-2024 | 6.3 | Schedule (days of classes, time): Mon-Sat 8:00-19:00 |
| 6.2 | Semester:3 | 6.4 | Location (academic building, office, platform and link to the training meeting using DOT):Educational building 96 Tole bi st. |
| 7. Teacher | | | |
| Position | Full Name | Contact information (tel., e-mail) | Time for consultations or by appointment |
| | Kudiyarova Zhanar | kudiyarova.zhanar@med-kaznu.com 87057252938 | according to the schedule |
| | Shynykul Zhanseryk | Shynykul.zhanseryk@med-kaznu.com 87474401059 | according to the schedule |
| | Tauassarov Makpal | Tauassarova.makpal@med-kaznu.com +77783557722 | according to the schedule |
| | Sarybayeva Madina | sarybayeva.madina@med-kaznu.com 87086310233 | according to the schedule |
| | Demzhanova Gulnafis | Demzhanova.gulnafis@med-kaznu.com 87712962556 | according to the schedule |
| 8. Subject content | | | |
| FOUNDATION OF BIOCHEMISTRY | | | |
| Week # | Topics and tasks | Hours | |
| 1. | Lecture: The foundations of biochemistry. | 3 | |
| | Practical lesson: The foundations of biochemistry | 4 | |
| | Task (if available) | | |
| | Literature for reading (textbook, pages and chapters) David L. Nelson, Michael M. Cox. Lehninger Principles of Biochemistry 7th Edition, W. H. Freeman and Company, 2017. — 3270 p. - ISBN: 9781464126116. Chapter 1. | | |
| 2. | Lecture: Biochemical Evolution. Protein Structure and Function | 3 | |
| | Practical lesson: Biochemical Evolution. Protein Structure and Function | 4 | |
| | Task (if available) | | |
| | Literature for reading (textbook, pages and chapters) David L. Nelson, Michael M. Cox. Lehninger Principles of Biochemistry 7th Edition, W. H. Freeman and Company, 2017. — 3270 p. - ISBN: 9781464126116. Chapter 5. | | |
| | IWST - consultations on IWS, models, discussion of results of written works, etc | | |
| 3. | Lecture: Enzymes: basic concepts and kinetics, catalytic strategies | 3 | |
| | Practical lesson: Enzymes: basic concepts and kinetics, catalytic strategies | 4 | |
| | Task (if available) | | |
| | Literature for reading (textbook, pages and chapters) David L. Nelson, Michael M. Cox. Lehninger Principles of Biochemistry 7th Edition, W. H. Freeman and Company, 2017. — 3270 p. - ISBN: 9781464126116. Chapter 6. | | |
| 4. | Lecture: Carbohydrates: classification, general properties, biological importance, role of carbohydrates in human metabolism. | 3 | |

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| | Practical lesson: Carbohydrates: classification, general properties, biological importance, role of carbohydrates in human metabolism. | 4 |
| | Literature for reading (textbook, pages and chapters) Denis Ferrier. Lippincott's illustrated Reviews 7th edition, Lippincott Williams & Wilkins, 2017.- 552 p. - ISBN-10: 1496344499. Chapter | |
| | Literature for reading (textbook, pages and chapters) | |
| 5. | Lecture: Lipids & Cell membranes. | 3 |
| | Practical lesson: Lipids & Cell membranes. | 4 |
| | Task (if available) Independent work of a student with a teacher - a round table | |
| | Literature for reading (textbook, pages and chapters) Denis Ferrier. Lippincott's illustrated Reviews 7th edition, Lippincott Williams & Wilkins, 2017.- 552 p. - ISBN-10: 1496344499. | |
| 6. | Lecture: Transducing & Storing Energy. | 3 |
| | Practical lesson: Transducing & Storing Energy. | 4 |
| 7. | Lecture: Carbohydrate digestion. Glucose, galactose and fructose metabolism. Glucose oxidation via glycolysis. Glycogenesis. Glycogenolysis. Gluconeogenesis. Pentose phosphate pathway. Glycogen Metabolism. | 3 |
| | Practical lesson: Carbohydrate digestion. Glucose, galactose and fructose metabolism. Glucose oxidation via glycolysis. Glycogenesis. Glycogenolysis. Gluconeogenesis. Pentose phosphate pathway. Glycogen Metabolism. | 4 |
| | Task (if available) Independent work of a student with a teacher - discussion based on case study | |
| | Literature for reading (textbook, pages and chapters) Denis Ferrier. Lippincott's illustrated Reviews 7th edition, Lippincott Williams & Wilkins, 2017.- 552 p. - ISBN-10: 1496344499. | |
| 8. | Lecture: The Citric Acid Cycle. Oxidative Phosphorylation. Electron transport chain. | 3 |
| | Practical lesson: The Citric Acid Cycle. Oxidative Phosphorylation. Electron transport chain. | 1 |
| | Literature for reading (textbook, pages and chapters) Denis Ferrier. Lippincott's illustrated Reviews 7th edition, Lippincott Williams & Wilkins, 2017.- 552 p. - ISBN-10: 1496344499. | |
| 9. | Lecture: Fatty Acid Metabolism | 3 |
| | Practical lesson: Colloquium I on FOUNDATION OF BIOCHEMISTRY | 4 |
| 10. | Lecture: Protein Turnover and Amino Acid Catabolism. The Biosynthesis of Amino Acids | 3 |
| | Practical lesson: Protein Turnover and Amino Acid Catabolism. The Biosynthesis of Amino Acids | 4 |
| | Literature for reading (textbook, pages and chapters) Denis Ferrier. Lippincott's illustrated Reviews 7th edition, Lippincott Williams & Wilkins, 2017.- 552 p. - ISBN-10: 1496344499. | |
| 11. | Lecture: Nucleotide Biosynthesis | 3 |
| | Practical lesson: Nucleotide Biosynthesis | 4 |
| | Literature for reading (textbook, pages and chapters) Denis Ferrier. Lippincott's illustrated Reviews 7th edition, Lippincott Williams & Wilkins, 2017.- 552 p. - ISBN-10: 1496344499. | |
| 12. | Lecture: The Biosynthesis of Membrane Lipids and Steroids | 2 |
| | Practical lesson: The Biosynthesis of Membrane Lipids and Steroids | 4 |
| | Literature for reading (textbook, pages and chapters) David L. Nelson, Michael M. Cox. Lehninger Principles of Biochemistry 7th Edition, W. H. Freeman and Company, 2017. — 3270 p. - ISBN:9781464126116. | |
| 13. | Lecture: Protein Synthesis | 2 |
| | Practical lesson: Protein Synthesis | 2 |

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|-----|---|---|
| | Literature for reading (textbook, pages and chapters) David L. Nelson, Michael M. Cox. Lehninger Principles of Biochemistry 7th Edition, W. H. Freeman and Company, 2017. — 3270 p. - ISBN:9781464126116. | |
| 14. | Lecture: The Integration of Metabolism I | 2 |
| | Practical lesson: The Integration of Metabolism I | 2 |
| | Task (if available) | |
| | Literature for reading (textbook, pages and chapters) David L. Nelson, Michael M. Cox. Lehninger Principles of Biochemistry 7th Edition, W. H. Freeman and Company, 2017. — 3270 p. - ISBN:9781464126116. | |
| 15. | Lecture: The Integration of Metabolism II | 2 |
| | Practical lesson: The Integration of Metabolism II | 2 |
| | Literature for reading (textbook, pages and chapters) David L. Nelson, Michael M. Cox. Lehninger Principles of Biochemistry 7th Edition, W. H. Freeman and Company, 2017. — 3270 p. - ISBN:9781464126116. | |
| 16. | Lecture: Biochemistry of blood cells and liver | 2 |
| | Practical lesson: Biochemistry of blood cells and liver | 2 |
| | Task (if available) | |
| | Literature for reading (textbook, pages and chapters) David L. Nelson, Michael M. Cox. Lehninger Principles of Biochemistry 7th Edition, W. H. Freeman and Company, 2017. — 3270 p. - ISBN:9781464126116. | |
| 17. | Lecture: Biochemistry of kidneys and urine | 2 |
| | Practical lesson: Biochemistry of kidneys and urine. | 2 |
| | ISW Case study that includes the concept of two disciplines - biochemistry and immunology. | 3 |
| 18. | Practical lesson: Colloquium II on FOUNDATION OF BIOCHEMISTRY | 2 |
| | FOUNDATION OF IMMUNOLOGY | |
| | Lecture: Introduction to Immunology. Historical background of Immunology | 2 |
| | Practical lesson: Introduction to Immunology. Historical background of Immunology | 2 |
| | Task (if available) | |
| | Literature for reading Warren Levinson. Review of Medical Microbiology and Immunology (13th Edition) 2014, - McGraw Hill, 2014. - 1950 p. - ISBN 978-0-07-181812-4. | |
| 2. | Lecture: 2. Innate Immunity. | 2 |
| | Practical lesson: 2. Innate Immunity. | 2 |
| | Task (if available) | |
| | Literature for reading Abul K. Abbas; Andrew H. Lichtman; Shiv Pillai Basic Immunology, Edition: 6th, 2019, 336 p, - ISBN: 9780323549431, 0323549438. | |
| 3. | Lecture: Adaptive Immunity. | 2 |
| | Practical lesson: Adaptive Immunity. | 2 |
| | Literature for reading Abul K. Abbas; Andrew H. Lichtman; Shiv Pillai Basic Immunology, Edition: 6th, 2019, 336 p, - ISBN: 9780323549431, 0323549438. | |

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| 4. | Lecture: Major histocompatibility complex and its general organization. | 2 |
| | Practical lesson: Major histocompatibility complex and its general organization. | 2 |
| | Task Case 1 | |
| 5. | Lecture: Antigenes. | 2 |
| | Practical lesson: Antigenes. | 2 |
| | Literature for reading Abul K. Abbas; Andrew H. Lichtman; Shiv Pillai Basic Immunology, Edition: 6th, 2019, 336 p. - ISBN: 9780323549431, 0323549438. | |
| 6. | Lecture: Humoral factors of Immunity B-cell maturation. | 2 |
| | Practical lesson: Humoral factors of Immunity B-cell maturation. | 2 |
| | Literature for reading Abul K. Abbas; Andrew H. Lichtman; Shiv Pillai Basic Immunology, Edition: 6th, 2019, 336 p. - ISBN: 9780323549431, 0323549438. | |
| 7. | Lecture: B cell development | 2 |
| | Practical lesson :B cell development | 2 |
| | Literature for reading Abul K. Abbas; Andrew H. Lichtman; Shiv Pillai Basic Immunology, Edition: 6th, 2019, 336 p. - ISBN: 9780323549431, 0323549438. | |
| 8. | Lecture: 8. Structure and functions of antibodies. | 2 |
| | Practical lesson: 8. Structure and functions of antibodies. | 2 |
| | Task (if available) | |
| 9. | Lecture: Review | 2 |
| | Practical lesson: Review | 1 |
| | Colloquium 1 on FOUNDATION OF IMMUNOLOGY | 1 |
| 10. | Lecture: The complement system | 2 |
| | Practical lesson: The complement system | 2 |
| | Task (if available) | |
| 11. | Lecture: Cells of innate immunity | 2 |
| | Practical lesson: Cells of innate immunity | 2 |
| | Task (if available) | |
| 12. | Lecture: Cell-mediated immunity. | 2 |
| | Practical lesson: Cell-mediated immunity. | 2 |
| | Task (if available) | |

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| | Literature for reading (textbook, pages and chapters) | |
| 13. | Lecture: Cell-mediated cytotoxic response. | 1 |
| | Practical lesson: Cell-mediated cytotoxic response. | 1 |
| | Literature for reading (textbook, pages and chapters) | |
| 14. | Lecture: Cytokines | 1 |
| | Practical lesson: Cytokines | 1 |
| | Literature for reading Abul K. Abbas; Andrew H. Lichtman; Shiv Pillai Basic Immunology, Edition: 6th, 2019, 336 p, - ISBN: 9780323549431, 0323549438. | |
| 15. | Lecture: Immune response | 1 |
| | Practical lesson: Immune response | 1 |
| | Literature for reading Abul K. Abbas; Andrew H. Lichtman; Shiv Pillai Basic Immunology, Edition: 6th, 2019, 336 p, - ISBN: 9780323549431, 0323549438. | |
| 16. | Lecture: Antiviral immune response. | 1 |
| | Practical lesson: Antiviral immune response. | 1 |
| | Literature for reading Abul K. Abbas; Andrew H. Lichtman; Shiv Pillai Basic Immunology, Edition: 6th, 2019, 336 p, - ISBN: 9780323549431, 0323549438. | |
| 17. | Lecture: Antibacterial immune response | 1 |
| | Practical lesson: Antibacterial immune response | 1 |
| | ISW Case study that includes the concept of two disciplines - biochemistry and immunology. | 3 |
| | Literature for reading (textbook, pages and chapters) | |
| 18 | Lecture:Review | 1 |
| | Colloquium II on FOUNDATION OF IMMUNOLOGY | 1 |
| | Total | 330 |
| Sum | | |
| 9. | Teaching methods of the subject* lecture, interactive lecture, Case based Learning (CBL) - individual, group, streaming, discussion, conference, , solution of typical/situational tasks. | |
| 10. | Methods of formative assessment: test, interactive test, self-assessment test, reflective essay, peer assessment / peer review / commenting/Kahoot. | |
| 11. | Summative assessment methods (from point 5): This course has 2 interim exams that assess mastery of the material. For the semester, admission rating points are set: AR = (IE1 + IE2) / 2, where IE1, IE2 = the sum of marks for lessons + SIW + colloquium period of 9 weeks. ** IE1 - 1-9 weeks, IE2 - 10-18 weeks. The final control (exam) is carried out by written/oral exam. The final grade for the discipline = AR x 0.6 + Exam x 0.4. **AR - admission rating; IE1, IE2 – interim examination; SIW - student independent work. | |
| 10. | Summative assessment | |

| # | Type of educational activity | Date | Points | as a percentage % |
|---|---|---------------------------|--------------------|----------------------|
| 1 | Lecture | According to the schedule | - | Not graded |
| 2 | Practical class (current control) 1. Written control 2. Oral exam 3. Group/team tasks 4. Tests (pre-test and post-test) | According to the schedule | 5 points for class | 5% out of IE (100 %) |

| | | | | |
|---|---|--------------------------------------|---|----------------------|
| 3 | Colloquium 1 written | according to the schedule on week 9 | 52 points | 57% of IE1 (100%) |
| 4 | Practical lessons (current control) 1. Written control 2. Oral exam 3. Group/team tasks 4. Tests (pre-test and post-test) | according to the schedule | 5 points for each lesson | 5% from IE2 (100%) |
| 5 | ISW | according to the schedule on week 18 | 10 points | 10% from IE2 (100%) |
| 6 | Colloquium 2 written | according to the schedule on week 15 | 47 points | 47% from IE2 (100%) |
| 7 | Final exam written | according to the schedule | 100 points: 1st block - 70 points 2nd block - 30 points | 40 % from final mark |

| 10. Assessment | | | |
|---|------------------------------|---|---|
| Rating by letter system | Digital equivalent of points | Percentage Digital equivalent of points Percentage | Description of the assessment (changes should be made only at the level of the decision of the Academic Quality Committee of the faculty) |
| A | 4,0 | 95-100 | Excellent. Exceeds the highest task standards. |
| A- | 3,67 | 90-94 | Excellent. Meets the highest standards of the assignment. |
| B+ | 3,33 | 85-89 | Good. Very good. Meets the high standards of the assignment. |
| 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 1. Warren Levinson. Review of Medical Microbiology and Immunology (13th Edition) 2014, - McGraw Hill, 2014. - 1950 p. - ISBN 978-0-07-181812-4. 2. David L. Nelson, Michael M. Cox. Lehninger Principles of Biochemistry 7th Edition, W. H. Freeman and Company, 2017. — 3270 p. - ISBN: 9781464126116. | |

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|---|---|
| | <ol style="list-style-type: none"> 3. Denis Ferrier. Lippincott's illustrated Reviews 7th edition, Lippincott Williams & Wilkins, 2017.- 552 p. - ISBN-10: 1496344499. 4. Rodwell Victor W. Harper's Illustrated biochemistry - 31st edition. McGraw-Hill, 2018, 693 p. ISBN-10:1260288420. 5. Roitt's Essential Immunology [Electronic resource] : textbook / P. J. Delves, S. J. Martin, D. R. Burton [et al.]. - 13th ed. - Pondicherry : Garamond by SPI Global, 2017. - 576 p. - ISBN 978-1-118-41577-1. 6. Abul K. Abbas; Andrew H. Lichtman; Shiv Pillai Basic Immunology, Edition: 6th, 2019, 336 p. - ISBN: 9780323549431, 0323549438. |
| | <p>Additional</p> <ol style="list-style-type: none"> 1. Moscatello, Kim, Immunology and Microbiology. USMLE Step 1 [Electronic resource] : lecture Notes. / K. Moscatello. - Electronic text data 15.2 Mb. - New York : Kaplan Medical, 2017. - 502 p. - The Main Page Title. - ISBN 978-1-5062-0873-2 2. Zubay's Principles of Biochemistry [Text] : textbook / V. B. Rastogi, K. R. Aneja; Gargi College [et al.]. - 5th ed. - New Delhi : Guwahati ; Thiruvananthapuram: MEDTECH, 2017. - 675 p. : il. - Ind.: p. 669-675. - ISBN 978-93-84007-49-2 3. Rodwell V.W., Bender D.A., Botham K.M., Kennelly P.J., Weil P.A. Harper's Illustrated Biochemistry, 31th Edition. — McGraw-Hill Education, 2018. — 2023 p. ISBN-13: 978-1259837937 |
| <p>Electronic resources (including, but not limited to: electronic library catalog, databases of scientific literature, databases, animation, modeling, professional blogs, websites, other electronic reference materials (for example, video, audio, digests))</p> | <p>www.lecturio.com www.coursera.com</p> |
| <p>Laboratory physical resources</p> | |
| <p>Special software</p> | |
| <p>12.</p> | <p>Teacher's expectations from students</p> |
| <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 - shows respect for teachers, university staff and students - carefully handles university property (models, desks, chairs, etc.) | |

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| | <ul style="list-style-type: none"> - 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 |
| | <p>The discipline policy is determined by the <u>Academic Policy</u> and the <u>Policy of Academic Integrity of Al-Farabi Kazakh National University</u>.</p> <p>If the links will not open, then you can find the relevant documents in the Univer IC.</p> <p>The student is obliged to:</p> <ul style="list-style-type: none"> - attend classes in a white coat - wear gloves when working with models <p>...</p> <p>The student must follow the <u>Code of Professional Conduct of Higher School of Medicine</u></p> <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" (current documents are uploaded to the IS "Univer" and 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 |
| | <p>1. Constantly preparing for classes: For example, supports statements with appropriate links, makes short summaries Demonstrates effective learning skills, helps in teaching others</p> <p>2. Take responsibility for your training: For example, manages your training plan, actively tries to improve, critically evaluates information resources</p> <p>3. Actively participate in the group's training: For example, actively participates in the discussion, willingly takes assignments</p> <p>4. Demonstrate effective group skills For example, he takes the initiative, shows respect and correctness towards others, helps to resolve misunderstandings and conflicts</p> <p>5. Skillful communication skills with peers: For example, he listens actively, is receptive to nonverbal and emotional signals Respectful attitude</p> <p>6. Highly developed professional skills: Strives to complete tasks, looking for opportunities for more training, confident and qualified Compliance with ethics and deontology in relation to patients and medical staff Insubordination.</p> <p>7. High introspection: For example, he recognizes the limitations of his knowledge or abilities, without becoming defensive or reproaching others</p> <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 complies with 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 NOCER</p> |
| 15. | Distance/Online learning |
| | <p>Distance/online learning is implemented at the University in accordance with the Order of the Minister of Education and Science of the Republic of Kazakhstan dated March 20, 2015 No. 137 "On approval of requirements for educational organizations to provide distance learning and rules for organizing the educational process for distance learning and in the form of online learning for educational programs of higher and (or) postgraduate education"; according to the Rules of the organization of training with the use of DOT at the University; Instructions for the final</p> |

control of the autumn/spring semester of the current academic year (the current document is in the IS "Univer");
"Regulations on checking text documents of students for the presence of borrowings"

| | | |
|--|----------------|-----------------------------|
| 16. Approval and review | | |
| Head of the Department | Signature | Sarsenova L.K. |
| Committee on the Quality of Teaching and Learning of the Faculty | Protocol No. 1 | Date of approval 16.10.2023 |
| Chairman of the Academic Committee of M&HC | Signature | Sarsenova L.K. |



Schedule for the ISW implementation in the discipline «Mechanisms of Defense and Health» for 2023-2024 academic year

| № | Assignment for the ISW | ISW implementation form | Deadlines (weeks) | Scores |
|----------|---|----------------------------------|--------------------------|---------------|
| 1 | Create a case study that includes the concept of two disciplines - biochemistry and immunology. | PPTX (5-6 students in each team) | 17 th week | 10 |

For the implementation of the ISW, both the educational literature and sources recommended in the course are used, as well as independently found. ISW is delivered strictly on schedule. In case of good circumstances (if there is documentary evidence), the ISW can be accepted out of schedule.

The case study should consist of:

1. Synopsis/Executive Summary

- Outline the purpose of the case study.
- Describe the field of research.
- Outline the issues and findings of the case study without the specific details.
- Identify the theory that will be used.

2. Findings - identify the problems found in the case by:

- analyzing the problem, supporting your findings with facts given in the case, the relevant theory and course concepts.
- searching for the underlying problems

3. Discussion

- Summarize the major problem/s.
- Identify alternative solutions to this/these major problem/s.
- Briefly outline each alternative solution and evaluate its advantages and disadvantages.

4. Conclusion

- Sum up the main points from the findings and discussion.

5. Recommendations

- Choose which of the alternative solutions should be adopted.
- Briefly justify your choice explaining how it will solve the major problem/s.
- This should be written in a forceful style as this section is intended to be persuasive.
- Here integration of theory and coursework is appropriate.

6. Implementation

- Explain what should be done, by whom and by when.

7. References

- Make sure all references are cited correctly.

8. Appendices (if any)

- Attach any original data that relates to the study but which would have interrupted the flow of the main body

Case study evaluation rubric

| Critical elements | Exemplary | Proficient | Needs improvement | Not evident |
|------------------------------------|---|--|--|---|
| Main elements | Includes all of the main elements and requirements and cites multiple examples to illustrate each element | Includes most of the main elements and requirements and cites many examples to illustrate each element | Includes some of the main elements and requirements | Does not include any of the main elements and requirements |
| Inquiry and analysis | Provides in depth analysis that demonstrates complete understanding of multiple concepts | Provides in depth analysis that demonstrates complete understanding of some concepts | Provides in depth analysis that demonstrates complete understanding of minimal concepts | Does not provide any in depth analysis |
| Integration and application | All of the course concepts are correctly applied | Most of the course concepts are correctly applied | Some of the course concepts are correctly applied | Does not correctly apply any of the course concepts |
| Critical thinking | Draws insightful conclusions that are thoroughly defended with evidence and examples | Draws informed conclusions that are justified with evidence | Draws logical conclusions, but does not defend with evidence | Does not draw logical conclusions |
| Problem solving | Actively seeks and suggests solutions to problems | Improves on solutions suggested by other group members | Does not offer solutions, but is willing to try solutions suggested by other group members | Does not try to solve problems or help others solve problems |
| Research | Incorporates many scholarly resources effectively that reflect depth and breadth of research | Incorporates some scholarly resources effectively that reflect depth and breadth of research | Incorporates very few scholarly resources that reflect depth and breadth of research | Does not incorporate scholarly resources that reflect depth and breadth of research |

SOME TIPS ON TEAMWORK AND LEARNING¹

The medical profession involves working in multidisciplinary teams, so these skills are identified as key in the competence of the doctor and other health professionals in all countries.

Therefore, group work is included as an essential component in the practical exercises of our course. In addition, it aims to provide a safe environment in which you can try out new ideas and practices and acquire relevant group skills. These can be tasks for performance in pairs, triples or small groups of 4-6 people (work with cases, tasks of the ISW, etc.).

When you are working on a project or task in a team, you have the opportunity to use the various strengths of the group members to create a wider and better project or task than if you were working independently.

Group training means you need to share your knowledge and ideas with other students. There are two benefits to this: you need to think carefully about your own ideas in order to explain them to others, and you expand your own understanding, taking into account the knowledge and ideas of others.

Interpersonal Communication and Discussion

Take some time to chat and get to know each of your group mates. The better you know each other and the more convenient you communicate, the more effective you can work together.

Create a culture of mutual respect in your group. You probably had little choice or no choice at all when forming training groups and small teams in the classroom. Therefore, you will have to learn to overcome the differences between people. In addition, you will not have the opportunity to choose employees in the workplace, and at work, you will experience much greater pressure to be a productive member of the team.

For effective communication and discussion in a team: you should not be shy to express your opinion and it is important to feel that these opinions will be heard; it is necessary to feel that all members of the group make a feasible contribution to solving problems, observing agreed rules and plans, performing work efficiently and on time; it is important to know that everyone's feelings are taken into account by team members, but the goals and objectives of the group are not compromised, in favor of the whims or desires of individual members;

Try to express your opinion and listen to others. There is nothing wrong with disagreeing with your classmates, no matter how confident they are. When you disagree, be constructive and focus on the problem, not the person. Similarly, when someone disagrees with you, respect what he says and the risk that he takes upon himself to express his opinion. Try to find a way that everyone can agree with, and this is not necessarily the opinion of the loudest or smartest member of the team.

Below we provide some examples of constructive and destructive group behavior²

Constructive group behavior - a person who:

Unites - interest in the views and opinions of others and willingness to adapt to interest

Clarifies - clearly defines the problems for the group by listening, summarizing, focusing the discussion

Inspires - encourages the group, stimulates participation and progress

Harmonizes - stimulates group unity and teamwork. For example, uses humor as a relaxation after difficult situations.

Take the risk - willingness to take risks at the expense of oneself for the success of the group or project

Manages the process - organizes a group on the issues of the process: for example, plan, schedule, timeline, topic, solution methods, and use of information

Destructive group behavior:

Domination - takes a lot of time expressing your opinion and views. Trying to take control by capturing energy, time, etc.

Fussiness - hastens the group to move quickly before the task is completed. Impatient in listening to other opinions and working together.

Suspension - removes itself from a discussion or decision. Opt out

Ignoring - does not respect or belittle the ideas and suggestions of the team or individuals. An extreme manifestation of ignoring is an insult in the form of ridicule.

Distraction - excessive talkativeness, tells stories and leads groups away from the goal

Blocking - prevents group progress by denying all ideas and suggestions. "It will not work because ..."

Effective group work does not arise by itself. A conscious and planned effort is needed, and since many people participate in it, one cannot rely on memory; need to make notes. **The following steps** will help you and your team work together effectively.

1. Define clear objectives. At each stage, you should try to coordinate the tasks. They include a timeline for the project, as well as more specific tasks (such as "agree on an approach to the task before Friday"). Each meeting or discussion should also begin with a specific goal (for example, make a list of tasks that need to be completed). Tasks should be

¹ adapted from UNSW Guide to Group Work <https://student.unsw.edu.au/groupwork>

² adapted from Brunt (1993): <https://tle.wisc.edu/solutions/engagement/constructive-and-destructive-groupbehaviors>

broken down into smaller parts and planned. Sometimes one part cannot be started until the other part is finished, so you may need to draw a simple temporary map.

- discuss the resources that you have and those that you will need to find.
- formulate the desired result.
- consider how you know when you did it well enough?
- split tasks between the team and
- set deadlines for subtasks and time for future meetings.

2. Set the basic rules. Discussions can become erratic and can prevent more modest group members from participating if you do not have rules to stimulate discussion, resolve disagreements, and make decisions without repetition. Set the rules from the start and change them as needed. For example: an interesting rule that was developed by one group - anyone who missed a meeting would buy the rest of the group coffee in a coffee shop. No one ever missed a meeting after that.

3. Communicate effectively. Make sure you regularly communicate with group members. Try to be clear and positive in what you say without repeating.

4. Find consensus. People work together most effectively when they work towards a goal with which they have agreed. Make sure everyone has their own opinion, even if you need time to get more participants to say something. Make sure you listen to everyone's ideas and then try to come to an agreement that everyone shares and everyone has contributed.

5. Define the roles. Divide the work that needs to be done into separate tasks, for which you can use the strengths of individual team members. Define roles for both fulfilling your tasks and for meetings / discussions (for example, Arani is responsible for summarizing the discussions, Joseph is for everyone to express their opinions and make decisions, etc.).

Examples of roles and functions:

Facilitator or leader (depending on context) - to clarify the goals of the meeting and to summarize the discussions and decisions; ensures that the meeting takes place, continues and the basic rules are respected.

Secretary - keep a record of the ideas discussed and decisions made and who does what.

Time Manager - to make sure that you discuss everything that you need in the time allotted for the meeting.

Controller - to ensure that work is completed by an agreed time, and to solve problems if they are not being performed.

A process observer is someone who monitors the process, not the content, and can bring problems to the attention of the team. In this role, it is important to be positive, not condemning.

Editor - bring all materials together, identify gaps or matches and ensure consistency in the final presentation.

6. Make it clear. When a decision is made, it should be explained in such a way that it is absolutely clear to everyone that it was decided, including the time frame.

7. Keep good notes. Always summarize the discussions and document the decisions and publish them (for example in WhatsApp chat) so you can always get back to them. This includes lists of those who agreed what to do.

8. Stick to the plan. If you agreed to do something as part of the plan, do it. Your group relies on you to do what you agreed to do, and exactly in this way, not in the way you would like. If you think the plan should be reviewed, discuss it.

9. Keep track of progress and keep up to date. Discuss progress together regarding your schedule and deadlines. Make sure you meet deadlines personally so you do not let your group down.

Co-writing a document / report

Joint writing is one of the most difficult parts of group work. There are many ways to do this, and your group must decide how to separate the work of writing, comparing, editing, and finalizing your work. Writing in a group (six people crowd around the keyboard) is a recipe for conflict and lack of progress. The other extreme - when one person assumes all responsibility and ultimately does most of the work - is also unproductive and contributes to conflict.

Three approaches are possible when working on a common document:

1 - One person writes the most part - this means that a narrow circle of ideas is used, and the rest of the team does not learn (and will not learn) to write reports and documents.

2 - Each person writes one section - then it is difficult to make a single consistent report, and you will not know about the rest, except for your own section.

3- Co-writing. This is the most productive way to solve group problems and provides the greatest benefit from collaboration. For example: in each section, there is a writer and at least one reviewer, and each team member is the author of a section and a reviewer of another one.

All team members before finalization by the editor must review the final product. Alternatively, you can have one author with others, editors, add and review, and someone tidies the finished report.

Try to divide the writing of source documents into tasks and solve them individually or in pairs. After the first draft of the sections are written, send out all the components and read them. You will probably need to come together to discuss how to combine them so that they fit together. Any participants who were not involved in preparing the drafts can do part of this work. Then edit, improve and polish the draft. It's convenient to collaborate on documents in Google documents.

When preparing a report / final document, regularly check the following:

- Is the purpose of the project clear from the report?
- Are the conclusions or recommendations clear?
- Do conclusions follow from the main part of the report?
- Do sections fit well?
- Does the report achieve goals (and evaluation criteria)?
- Are the necessary components sufficiently covered?

Whatever method you use, all group members must agree on the process and how they are going to maximize the collaborative approach to writing the final document.

Monitoring team performance and coping

Below is a checklist that includes a list of common problems that arise in a group work. Use it regularly to identify problems before they get out of hand. If serious problems and tensions arise, use it to determine where something might go wrong. First answer each question about yourself, and then give answer to this question about the group as a whole. Then gather a group and discuss where, in your opinion, problems may arise, and think about how you can overcome these problems.

Each participant must complete this checklist. You should do this exercise regularly to track and improve your team's performance.

1. Answer each question regarding your team work.
2. Answer each question regarding the rest of the team.
3. Get together with your entire team and discuss where, in your opinion, any problems arise.
4. Discuss what you are going to do to overcome these problems.

Checklist for self-assessment of team effectiveness.

| You | I personally | Group as a whole | Comments |
|--|--------------|------------------|----------|
| Effectively clarify your tasks and tasks at each stage? | | | |
| Evaluate the progress of work? | | | |
| We clarify and document everything that the group decided? | | | |
| We clarify who will do what and how? | | | |
| We clarify by what date each task should be done? | | | |
| Setting meeting management rules? | | | |
| Adhere to agreed rules? | | | |
| Listening to each other? | | | |
| Allow some team members to dominate? | | | |
| Allow some team members to refuse / withdraw? | | | |
| We sacrifice personal desires for the success of the team? | | | |
| Recognize the feelings of other team members? | | | |
| Making equal contributions to team progress? | | | |

| | | | |
|--|--|--|--|
| Adhere to agreed rules for writing and naming files? | | | |
|--|--|--|--|

Points and Grade

Group tasks and assignments mean that grades are given to the whole group based on the results of the work of the whole group. Everyone should be interested in ensuring the effective contribution of all members of the group and ensuring the high quality of the assignment. Sometimes, to assess the relative contribution of each to the group process, a form of peer-to-peer or peer review and a team assessment form will be used. This can be used to moderate assignment grades, or simply as a way to give feedback on your work in a group. The following are examples of student assessment criteria for team training.

| № | Student assessment criteria in practical classes |
|---|---|
| 1 | <p><i>Preparation for classes:</i> He studies information focused on the case and problematic issues, uses various sources, and supports the statements with relevant links.</p> |
| 2 | <p><i>Group skills and professional attitude:</i> Demonstrates excellent attendance, reliability, responsibility Takes the initiative, takes an active part in the discussion, helps the teammates, willingly takes on tasks</p> |
| 3 | <p><i>Communication skills:</i> Actively listens, shows emotions according to the situation, is susceptible to non-verbal and emotional signals, shows respect and correctness in relation to others, helps to resolve misunderstandings and conflicts</p> |
| 4 | <p><i>Feedback Skills:</i> Demonstrates a high level of introspection, critically evaluates oneself and colleagues, provides constructive and objective feedback in a friendly manner, accepts feedback without opposition</p> |
| 5 | <p><i>Skills of critical thinking and effective learning:</i> Effectively participates in generating hypotheses and formulating problematic questions, gives relevant examples from life, skillfully applies knowledge to the problem / case under consideration, critically evaluates information, draws conclusions, explains and substantiates statements, draws diagrams and drawings, demonstrates a constant interest in the material being studied</p> |
| 6 | <p><i>Theoretical knowledge and skills on the topic of the lesson:</i> All key aspects are presented logically; accuracy, relevance of answers to the questions posed without redundancy; integration of theoretical issues; Use of relevant examples proper use of professional terminology</p> |