AL-FARABI KAZAKH NATIONAL UNIVERSITY

Medicine and Health Care Faculty
Higher School of Medicine
Department of Fundamental Medicine

AFFIRM
Dean of the Faculty
_____ (signature)
Kalmatayeva Z.A.
"_____" _____ 2021

EDUCATIONAL AND METHODICAL COMPLEX OF DISCIPLINE
OMiF1214 Morphology and physiology of human body

Specialty "B086"
Educational program "General medicine")

Course – 1
Semester – 2
Number of credits – 8

Almaty 2021

Educational and methodical complex of discipline was compiled by Gulnara Tashenova, doctor of medical sciences, Marina Nyu, master of medical sciences, Zhibek Oralkhan, master of medical sciences, Gulzhan Kassenova, master of medical sciences

Based on the working curriculum in the specialty B086 General medicine

Considered and recommended at a meeting of the department fundamental medicine
from "___" _____ 2021, protocol No. ...

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

Recommended by the faculty methodical bureau
"____" _____ 2021, protocol No.

Chairman of the method bureau of the faculty _____ Dzhumasheva R.T.

Al-Farabi Kazakh National University
Higher School of Medicine
Department of Fundamental Medicine

SYLLABUS

Spring semester, academic year 2020-2021

Academic course information

Discipline's code	**Discipline's title**	**Type**	**No. of hours per week**		**Number of credits**	**ECTS**
			Lect.	Pract.		
OACh1201	The Human Body (Medical terminology include)	BD UC	4	4	8	8
Lecturer, e-mail, contact number	Gulzhan Kassenova, master of medical sciences kassenova.gulzhan@med-kaznu.com 87082800022 Mulkibaeva Sholpan, Candidate of Medical Sciences mulkibayeva.sholpan@med-kaznu.com Нуртаева Галия Кадырхановна, PhD nurtayeva.galyia@med-kaznu.com 87014579108					
Teacher of Histology, e-mail, contact number	Болатбекова Гулден Болатбеккызы bolatbekova.gulden@med-kaznu.com 87079585307 Далибаева Гульшат Койшанкызы dalibayeva.gulshat@med-kaznu.com 87077778911	**Office hours**	According to schedule			

Teacher of Anatomy and Physiology, e-mail, contact number	Marina Nyu, master of Medical Sciences nyu.marina@med-kaznu.com 87074043181 Даулетказина Акмарал Коныскызы 87024077427 dauletkazina.akmaral@med-kaznu.com		
Assistant of Biophysics	Нуртаева Галия Кадырхановна nurtayeva.galyia@med-kaznu.com 87014579108 Серикболова Альбина Аскаровна serikbolova.albina@med-kaznu.com 87477041743	**Office hours**	According to schedule

Academic presentation of the course	**Type of course: basic discipline of the component for the choice of the biomedical module M10** The goal is to form 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. During the study of the discipline students will learn following aspects: -Know structural and organizational structure of internal organs, localize and describe, using appropriate terminology correctly, on models, preparations and medical imaging materials, the typical structure of internal organs and organs is normal, taking into account age, sex and individual characteristics; -Understand the functional organization of human body at the systemic, organ and cellular level, the physiological processes of excitable tissues; -explain the interrelation of structure and function at the level of tissue, organs and organ systems and the main physiological mechanisms for maintaining homeostasis, vital activity of the organism and their characteristics, taking into account age, sexual and individual differences; -recognize microscopic specimens and describe correctly using the appropriate terminology the microscopic structure of human organs, taking into account age, sex and individual characteristics; -describe, using appropriate terminology, the stage of human development and explain the basic processes and mechanisms of normal morphogenesis; -integrate knowledge about the structure of the musculoskeletal system and internal organs at the systemic, organ and tissue levels and their phylogenetic development in order to understand the anatomical and physiological features in different periods of development in normal conditions - demonstrate commitment to the highest standards of professional responsibility and honesty; comply with ethical principles in all professional interactions; -to demonstrate the need for continuous professional training and improvement of their knowledge and skills; -to demonstrate the skills of conducting scientific research, the desire for new knowledge and the transfer of knowledge to others
Prerequisites	The Human Body (medical terminology include)
Post requisites	MiF2203 Morphology and physiology

Information resources	**Basic literature:** 1. Saladin, Kenneth S: Anatomy & Physiology. The Unity of Form and Function (2016, McGraw-Hill Education) на англ. яз. 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. 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 **Additional literature:** 8. Standring, Susan: Gray's Anatomy: The Anatomical Basis of Clinical Practice. - 41 Elsevier Limited, 2016 9. Elaine N. Marieb, Lori A. Smith: Human Anatomy & Physiology Laboratory Manual, Main Version. - 11 edition. - Pearson Education,2015. - ISBN 9780133999143 10. Scanlon V. C, Essentials of Anatomy and Physiology 8th Edition, F.A. Davis Company, 2018 11. Victor P. Eroschenko, Atlas of Histology with Functional Correlations 13th Edition, LWW, 2017 12. William Bialek: Biophysics: Searching for Principles. -Princeton University Press, 2012. - ISBN 0691138915, 9780691138916 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 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. 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 Online resources: 1. https://app.lecturio.com/#/ 2. https://3d4medical.com/

	3. https://www.youtube.com/channel/UCc_I2c2bUtO0p4DVeo6-Kxg 4. https://sites.google.com/a/umich.edu/bluelink/curricula/anatomy-403?authuser=0 5. https://histologyknmu.wixsite.com/info/gistologicheskie-sajty 6. http://www.histology-world.com/contents/contents.htm 7. http://www.histologyguide.com/slidebox/02-epithelium.html 8. https://histology.medicine.umich.edu/resources 9. https://web.duke.edu/histology/ 10. http://virtualslides.med.umich.edu/Histology/view.apml?listview=1&
Academic policy of the course in the context of university moral and ethical values	**Academic behavior rules.** *Attendance policy* Attendance for lectures and workshops is mandatory. Attendance for an additional extracurricular research activity is highly recommended for increasing the course assessment. No less than 50% attendance is required for the lectures and workshops. Additional research activities are not required, but highly beneficial for the course better comprehension. *Class participation* All students are expected to participate in class activities and discussions. *Classroom decorum* All unrelated activities are prohibited during a lecture and workshop time. Cell phones, computer games and unrelated Internet and computer activities are strictly prohibited. *Missed exams* Students can retake midterm exams with an official document for the days of absence. Other excuses are not accepted and the exam will be annulated. Missing of the final exam is registered according the rules of Academic Policy of the University. *Late assignments* Late assignments, projects, reports and etc. are not accepted with no excuses. *Appeals policy* Students may appeal instructor decisions by speaking directly with him. If a solution is not found students can consult with Head of the Department. *Electronic resources* You are expected to regularly check your emails for updates and announcements about the course. *Plagiarism and Cheating* As a student, you are expected to adhere to the norms of academic integrity. Academic dishonesty includes plagiarism, cheating, fabrication, unauthorized collaboration, use of notes during exams and quizzes, and other forms. These students will be given 0 with no further retake activities. **Academic values.** *Academic honesty* There will be no tolerance for lapses of academic integrity. A student found to be guilty of falsifying, plagiarism and cheating or any other form of academic dishonesty will be given a failing grade. *Tolerance and non-discrimination*

	There is zero tolerance for unsafe activity in laboratory during workshops and additional research activities. There will be no discrimination per nationality, gender and anything else.
Evaluation and attestation policy	**Criteria assessment**: assessment of learning outcomes in relation to descriptors, verification of the formation of competencies (learning outcomes specified in the goal) is carried out by the following methods: 1) testing using video, drawings, photographs, diagrams, microphotographs or OSPE using dummies and micropreparations - as part of the current / midterm / final control: final results No. 1, 3; 2) solution of situational problems, analysis of cases - within the framework of the current / midterm / final control - final results No. 2, 4, 5, 6, 9; 3) interview / oral interview - within the framework of the current / milestone / final control - final results No. 2, 4, 5, 6; 4) assessment by direct observation in the framework of current control and CDS - final results No. 7, 8, 9; Summary assessment: In the course, 5 midterm controls are planned, within the framework of which the development of the material of one section is evaluated. For the semester, admission rating points are set: RD = (RK1 + MT (Mid-Term) + RK2) / 3, where RK1 / RK2 / MT = the sum of all points for classes + points for overseas control and CPC of the corresponding period. RK1 - 1-5 weeks, MT - 6-10 weeks, RK2 - 11-15 weeks. The final control (exam) is carried out in 2 stages. The first stage is testing or SSPE (50%), the second stage is an oral survey of tickets (50%). The final grade for the discipline = RD * 0.6 + Exam * 0.4

Calendar (schedule) of the implementation of the course content -

Coursework calendar

Week	Lesson	Topic title (lectures, practical classes, Independent work of students)	Number of hours	Maximum score
1	1	**Lecture 1** **The muscular system 1** The Functions of Muscles, Muscle Attachments. Functional Groups of Muscles, Innervation and Blood Supply,Muscle Names and Learning Strategy. Behavior of whole Muscle	2	
1	2	**Practical lesson 1** **The muscular system 1** The Functions of Muscles, Muscle Attachments. Functional Groups of Muscles, Innervation and Blood Supply,Muscle Names and Learning Strategy	2	4
1	3	**Practical lesson 2** **The muscular system 2** Behavior of whole Muscle	2	4
1	4	**Lecture 2** **Human tissue 1-2** Microscopic Anatomy of Skeletal Muscle. Nerve tissue.	2	
		IWST: Consultation on the implementation of IWS 1	2	
2	5	**Lecture 3** **Biophysics 1-2**	2	

		The Nerve-Muscle Relationship Behavior of Skeletal Muscle Fibers		
2	6	**Practical lesson 3** **Biophysics 1-2** The Nerve-Muscle Relationship Behavior of Skeletal Muscle Fibers	2	4
2	7	**Lecture 4** **The muscular system 3** Muscle Metabolism	2	
2	8	**Practical lesson 4** **The muscular system 3** Muscle Metabolism	2	4
		IWST: Consultation on the implementation of IWS 1	2	
3	9	**Lecture 5** **The muscular system 4-5** Muscles of the Anterior Abdominal Wall; Muscles of the Pelvic Floor; Muscles of the Back. Muscles of Respiration	2	
3	10	**Practical lesson 5** **The muscular system 4-5** Muscles of the Anterior Abdominal Wall; Muscles of the Pelvic Floor; Muscles of the Back. Muscles of Respiration	2	4
3	11	**Lecture 6** **The muscular system 6** Muscles of the head and neck	2	
3	12	**Practical lesson 6** **Human tissue 1-2** Microscopic Anatomy of Skeletal Muscle. Connective tissue of Skeletal muscle. Nerve tissue	2	4
3		**IWST: Consultation on the implementation of IWS 1**	2	

4	13	**Practical lesson 7** **The muscular system 6** Muscles of the head and neck	2	4
4	14	**Lecture 7** **The muscular system 7** Muscles Acting on the Shoulder and Arm; Muscles Acting on the Forearm, the Wrist and Hand	2	
4	15	**Practical lesson 8** **The muscular system 7** Muscles Acting on the Shoulder and Arm; Muscles Acting on the Forearm, the Wrist and Hand	2	4
4	16	**Lecture 8** **The muscular system 8** Muscles Acting on the Hip and Femur,Muscles Acting on the Knee and Leg. Muscles Acting on the Foot, Intrinsic Muscles of the Foot	2	
		IWST: Consultation on the implementation of IWS 1	2	
5	17	**Practical lesson 9** **The muscular system 8** Muscles Acting on the Hip and Femur,Muscles Acting on the Knee and Leg. Muscles Acting on the Foot, Intrinsic Muscles of the Foot	2	4
5	18	**Practical lesson 10 Current Control 1**	2	54
5		**IWST: Passing the IWS 1 –«The role of facial muscles in various facial expressions» - work in groups**	6	10
5	19	**Lecture 9** **Blood 1** Introduction, Blood Types. Erythrocytes.	2	
5	20	**Lecture 10** **Human tissue 3-4**	2	

		Blood. Hemopoiesis Erythrocytes, leukocytes, platelets. Hemopoiesis		
		Mid-term 1(MT1)		100
6	21	**Lecture 11** **Blood 2** Leukocytes.	2	
6	22	**Lecture 12** **Blood 3** Platelets and Hemostasis, The Control of Bleeding	2	
6	23	**Practical lesson 11** **Blood**	2	4
6		**IWST: Consultation on the implementation of IWS 2**	2	
6	24	**Practical lesson 12** **Human tissue 3-4** **Blood. Hemopoiesis** Erythrocytes, leukocytes, platelets. Hemopoiesis	2	4
7	25	**Lecture 13** **Heart 1-2** Cardiac and Smooth Muscle. Overview of the Cardiovascular System. Gross Anatomy of the heart	2	
7	26	**Practical lesson 13** **Heart 1-2** Cardiac and Smooth Muscle. Overview of the Cardiovascular System. Gross Anatomy of the heart	2	4
7	27	**Lecture 14** **Heart 3** Cardiac Muscle and the Cardiac Conduction System.	2	
7	28	**Lecture 15** **Human tissue 5** Cardiovascular system. Heart. Layers of the Heart Wall. General description of vessels. Arteries	2	

		and veins. Microcirculation stream. Arterioles. Capillaries. Venules.		
7		**IWST: Consultation on the implementation of IWS 2**	2	
8	29	**Lecture 16** **Heart 4** Electrical and Contractile Activity of the Heart. Cardiac Output	2	
8	30	**Practical lesson 14** **Heart 5** Cardiac Muscle and the Cardiac Conduction System. Electrical and Contractile Activity of the Heart. Cardiac Output	2	4
8	31	**Practical lesson 15 Current Control 2**	2	52
8	32	**Practical lesson 16** **Human tissue 5-6. Current control of Histology #1** Cardiovascular system. Heart. Layers of the Heart Wall. General description of vessels. Arteries and veins. Microcirculation stream. Arterioles. Capillaries. Venules.	2	15
8		**IWST: Consultation on the implementation of IWS 2**	2	
9	33	**Lecture 17** **Blood vessels and circulation 1** General Anatomy of the Blood Vessels Capillary Exchange.	2	
9	34	**Lecture 18** **Blood vessels and circulation 2-3** Venous Return and Circulatory Shock. Special Circulatory Routes	2	
9	35	**Practical lesson 17** **Blood vessels and circulation 1-3** General Anatomy of the Blood Vessels Capillary Exchange. Venous Return and Circulatory Shock. Special Circulatory Routes	2	4
9	36	**Lecture 19** **Blood vessels and circulation 4**	2	

		Anatomy of the Pulmonary Circuit, Systemic Vessels of the Axial Region		
9		**IWST: Consultation on the implementation of IWS 2**	2	
10	37	**Practical lesson 18** **Blood vessels and circulation 4** Anatomy of the Pulmonary Circuit, Systemic Vessels of the Axial Region	2	4
10	38	**Lecture 20** **Blood vessels and circulation 5** Anatomy of the Systemic Vessels of the Appendicular Region	2	
10	39	**Lecture 21** **Biophysics 3-4** Blood Flow, Heart Sounds,and the Cardiac Cycle. Blood Pressure, Resistance, and Flow	2	
10	40	**Practical lesson 19** **Biophysics 3-4** Blood Flow, Heart Sounds,and the Cardiac Cycle. Blood Pressure, Resistance, and Flow	2	4
10		**IWST: Passing the IWS 2 «Anatomical Patterns of Superficial Cubital Veins» - work in groups**	4	5
		Mid-Term 2 (MT2)		100
11	41	**Practical lesson 20** **Blood vessels and circulation 5** Anatomy of the Systemic Vessels of the Appendicular Region	2	4
11	42	**Lecture 22** **The Respiratory System 1-2** Anatomy of the Respiratory System. Pulmonary Ventilation	2	
11	43	**Practical lesson 21 Current control 3**	2	22
11	44	**Lecture 23** **Human tissue 7-8** Respiratory system: nasal cavity, trachea, bronchi,bronchioles, alveolar ducts. Histology of	2	

		urinary system		
11		**IWST Consultation and feedback on difficult topics**	3	
12	45	**Practical lesson 22** **The Respiratory System 1-2** Anatomy of the Respiratory System. Pulmonary Ventilation	2	4
12	46	**Lecture 24** **The Respiratory System 3** Gas Exchange and Transport.	2	
12		**IWST Consultation and feedback on difficult topics**	3	
12	47	**Lecture 25** **The Respiratory System 4** Respiratory Disorders	2	
12	48	**Practical lesson 23** **The Respiratory System 3-4** Gas Exchange and Transport. Respiratory Disorders	2	4
13	49	**Lecture 26** **The urinary System 1** Functions of the Urinary System. Anatomy of the Kidney.	2	
13	50	**Lecture 27** **The urinary System 2** Urine Formation I: Glomerular Filtration	2	
13	51	**Practical lesson 24 Current control 4**	2	15
13	52	**Practical lesson 25** **Human tissue 7-8** Respiratory system**:**nasal cavity, trachea, bronchi,bronchioles, alveolar ducts. Histology of urinary system	2	4
13		**IWST Consultation and feedback on difficult topics**	3	

14	53	**Practical lesson 26** **The urinary System 1-2** Functions of the Urinary System. Anatomy of the Kidney. Urine Formation I: Glomerular Filtration	2	4
14	54	**Lecture 28** **The urinary System 3** Urine Formation II:Tubular Reabsorption and Secretion.	2	
14	55	**Lecture 29** **The urinary System 4** Urine Formation III: Water Conservation	2	
14	56	**Practical lesson 27** **Human Tissue 9. Current control of histology #2** Histology of urinary system	2	15
14		**IWST Consultation and feedback on difficult topics**	3	
15	57	**Practical lesson 28** **The urinary System 3-4** Urine Formation II:Tubular Reabsorption and Secretion. Urine Formation III: Water Conservation	2	4
15	58	**Lecture 30** **The urinary System 5** Urine and Renal Function Tests	2	
15		**IWST Consultation and feedback on difficult topics**	3	
15	59	**Practical lesson 29** **The urinary System 5** Urine and Renal Function Tests	2	4
15	60	**Practical lesson 30 Current control 5. Recap: case study (capstone case)**	2	20
		Mid-Term 3 (MT)		100

Head of Department
Candidate of medical Sciences Sarsenova L.K.

The Chairman of the methodical Bureau of the faculty
Candidate of medical Sciences Dzhumasheva R. T.