ойти́зтік-QAZAQSTAN MEDISINA AKADEMIASY «Оңтүстік Қазақстан медицина академиясы» АҚ Оңтүстік Қазақстан медицина академиясы» АҚ	инская академия»
Department of Biology and Biochemistry, Chemical Disciplines, Microbiology, Virology and	50/11
Immunology, Morphophysiology Working curriculum of the discipline "Structural organization of human physiological processes"	48 pg.1p.
Working curriculum of the discipline "Structural organization of human physiological processes"	14 3 MG 3

Syllabus Department of Biology and Biochemistry, Chemical Disciplines, Microbiology, Virology and Immunology, Morphophysiology

Working curriculum of the discipline "Structural organization of human physiological

processes"

Name and code of the educational program "6B10115" Medicine

1. 2	General information about the disc	cipline	The second superior of the second second
1.1	Discipline code:	1.6	Academic year: 2024/2025
Sin	SOFPCH 1203	er 201. 1	1 24° - 20° - 14° - 3° - 40° - 3
1.25	Discipline name:	1.7	Course:1
· VI	"Structural organization of human	0.00	A S KUN 3. OU. KL ST
11. 11	physiological processes"	1 du	the structure with st
1.3	Prerequisites: school course of	1.8	Semester: 1
e0.,,,,	biology, chemistry, physics.	s all al	Wind Stinger er with
1.4	Post-Questions: "Genes and	1.9	Number of credits (ECTS): 6
	Heredity"	1 54 0	10 20 x 1, 1 x 42, 23, 200, 1
1.5	Cycle: BD	1.10	Component: VK
2.	Description of the discipline	V. VI C	K. 3. 00 1 3. 12

Formation of fundamental knowledge aimed at understanding metabolic processes, cell structure, their polymorphism, the relationship between their structure and functions. Biological membranes. Principles of tissue level organization of living matter. Molecular, chemical and biochemical mechanisms of the emergence of biopotentials, regulation of acid-base states, their role in the formation of pathological changes in tissues, organs and microorganisms. Qualitative, quantitative and microbiological indicators of biochemical substances.

3.	Summative Assessment Form	~ ev 20.	1 24 3. 00 1.4
3.1	Testing +	3.5	Coursework
3.2	Writing	3.6	Essay
3.3	Oral Contraction of the oral of the oran o	3.7	Project
3.4	OSPE/OSKE or practical skills assessment	3.8	Other (specify)
4	Objectives of the discipline	2. 10.	NO. VER SE MO

"Structural Organizations of Human Physiological Processes" - master the structural and functional foundations of human physiological systems, integrating knowledge from chemistry, molecular biology, microbiology and histology for a comprehensive understanding of the vital functions of the organism and its interaction with the environment.

5.	Final learning outcomes (LO of the discipline)
RO1.	Demonstrates knowledge and understanding of cell structure and cell components.
PO2.	Demonstrates knowledge and understanding of destructive changes in cellular components that lead to disease
PO3	Demonstrates knowledge of the origins and classifications of mitochondrial, lysosomal, and perixisome diseases

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Departm	Immunol	миясы» АҚ О «Южно-Казахстанская медицинская академия» stry, Chemical Disciplines, Microbiology, Virology and 50/11 ogy, Morphophysiology 48 pg.2p. ructural organization of human physiological processes" 48 pg.2p.
54 0	0. 60	the second the second the second
PO4		edge of chemical processes (basic types of reactions) in the body, subject t patterns of chemistry, as well as general energy and kinetic patterns of
RO5	concentration of equivor	of calculation formulas (mass fraction, molar concentration, molar valent, molal concentration, molar fraction, titer) when preparing solution ns and understands methods for determining the quantitative content of tems under study, including biological fluids.
RO6	- formulates general the subsequent profession	heoretical foundationschemistryfor knowledge, skills and abilities in the al activities.
RO7	Demonstrates knowled (morphological, physic	dge of the classification and biological properties of microorganisms ological, antigenic) and their ecology; methods of isolating pure cultures neiples of determining the sensitivity/resistance of microorganisms to
RO8	Demonstrates knowled influence of environm antisepsis, sterilization	dge of the basics of microbial genetics; the essence of biotechnology; the ental factors on microorganisms, the goals and methods of asepsis, h, disinfection; chemotherapy and antibiotics; the basics of infectious routes of infection, localization of microorganisms in the human body;
RO9	Possesses the skills of methods and interpreti	preparing native smears, staining smears using simple and complex ing microscopic results; culturing viruses; determining the of microorganisms to antimicrobial drugs;
RO10	- knows the structure a	and general patterns of functioning of cells, tissues, regulatory mechanisms standpoint of general physiology and integrative behavioral activity of
RO 11	- distinguishes, describ body and explains the	bes, compares the structural features of various cells, tissues, organs of the ir functions; uct laboratory research of cells and methods of processing the results;
RO12	-Able to present inforr - compares physiologi	nation clearly and logically in the form of a presentation. cal parameters (constants) of a healthy and sick organism; obtained during experimental observations, determines its significance for
5.1	RO discipline	Learning outcomes of the OP, which are associated with the disciplin RO
VI ST SK	PO1, PO4, PO6, PO7, PO10	PO1 Apply fundamental knowledge in biomedical, clinica epidemiological and social-behavioural sciences in practice.
eqn'ry	PO11,PO5,PO8,PO9	PO2 Provides patient-centered care in the biomedical, clinical, an epidemiological sciences aimed at diagnosing, treating, and preventing the most common diseases.
<u>6. 600</u>	PO2,PO3,PO12	RO 13 Assesses population health indicators and its physical, radiological, chemical and biological-ecological determinants
6.0	Detailed information	
6.1		litorium): main building, 4th floor.

«Онтус	Kr S. Mic S.		SOUTH KAZAKHSTA MEDICAL ACADEMY AO «Южно-Каза	201. K		калемия»
Depar	tment of Biology and Biochem Immuno	nistry, Chemical D ology, Morphophys		y, Virology a		.3p. 4
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S. M. S	Immuno	ology, Morphophys	iology	0. 00.	48 pg.	.3p.

6.2	Number of hours	Lectures	Practical. les.	Lab. Zan.	SRO	SROP
Kr 1	Molecular biology	3	12	1 54	25/22	10.
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90°. K	Microbiology	2 9	800		17/14	00
~ <i>9n</i> .	Histology	3	12	1.1.7.1	26/20	13. 00
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	Microbiology				<u> </u>
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	Microbiology	1- 5	1 0	1 2	

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Y	1 7. 5	Zhazikbaeva G.T.	Senior teacher tel	Gul_8109@mail.ru

	МІ АКАД стік Қазақстан медицина академия		станская медицинская академия»
	Immunology	r, Chemical Disciplines, Microbiology, , Morphophysiology ural organization of human physiologic	48 pg.5p.
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W ee k/ da y	Topic Title	Summary	RO discipli ne	Num ber of hour s	Forms/method s/ learning technologies	Forms/ evaluation methods
diedi diedi diedi diedi diedi diedi	Molecular Biology of the Cell #1 Lecture. Topic. Molecular biology of the cell. Structure and functions of the main components. cell products. Transport of substances through biomembranes. Adhesive	Mechanisms of intracellular transport of substances, passive and active transport. Ion channels and ion pumps. Families of	ROI	1 5 40 1 5 40 1 1 4 1 5 40 1 3 40 1 4 1 4 1 4 1 4 1 4 1 4 1 4 1 4	Overview	Feedback

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membrane function. Transmission of an	stages of signal transmission.	U.M.U	SK1	ad edu	Hr 1. 5'
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Molecular biology of	Structure of prokaryotic	RO1		Work in small	Testing: or
the cell Practical lesson.№1	and eukaryotic cells. Structure, functions.	SKI	2.	groups, discussion of	and written survey.
Topic.Molecular	Structure, runctions.	1 G	Sn. A	key issues,	survey.
biology of the cell.	KI SK. Mar ev W	· VI	St.	presentation	VI SK
Structure and functions of the main	VIL SE KING 2.00	9. K	St	Mar eus	1.1.1
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Histology Practical lesson No. 1.	The main stages of production of fixed and	RO 11		Work in small	Practical Lesson
Topic: Basic	paintedhistologicalpreparat	P. 03.	600	groups, familiarization	Assessmen
principles of making	ion. Principles of operation	St. d	0. 6	with work in a	Checklist.
histological	and use of special	SH	da.	histolaboratory	SH' no
chemistry	Chemistry and human	RO6	1	work in small	Control of
Practical lesson #1.	health. Topography of the	Roo	SE	groups	the initial
Topic:Chemistry in	most important elements in	gn K	19	L'AMA B. CO	level of
medicine. Chemical elements in the cells	the human body. Elemental composition of the cell.	edu	KL 1	S' KUIS S.C.	knowledge test control
of living organisms.	Content of chemical	10. ec	Y., Y	1. S. Harris	test control
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Chemistry	Chemical bond. Main types	RO5	1/2	Presentation	Oral survey
SROP/SRO Consultation on the	of chemical bonds. Mechanism of formation of	RO6	p, Ku	3.000	FL St.
implementation of	covalent bond. Properties of		1, 5,	KUN S.C du	LYP S
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y Y		Biochemistry, Chemical Disciplines, Immunology, Morphophysiology	Microbiolo	gy, Virolo		1 og.7p.
SW		pline "Structural organization of hun	nan physiolo	ogical pro	cesses"	56.7 P.
11. 3.00 3.00	<i>Task SRO№1.2</i> Thermodynamics of living systems.	Fundamentals of chemical thermodynamics. Thermodynamics of living systems. Exoergonic ky and endoergonic processes occurring in the human body.	N. R. C.	St. Stor	2. SKM2. SKM2. L.KL SKM2. J.KL SKM2.	a.edu.kr. sedu.kr.
54 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.	Molecular biology of the cell SROP/SRO No. 1 1.1Molecular structure of cells and diseases that arise when their functioning is disrupted. 1.2 Molecular structure and functions of cell membranes organelles	Definition of the concept of organelles and their classification. Diseases of lysosomes, perixisomes, disorders of protein sorting in the ER, mitochondrial diseases no. Definition and mechanism of development. Membrane organelles of the cell. Structure and functions: mitochondria, Golgi complex. Three- dimensional model of the dictyosome of the Golgi	RO1		Work in sma groups, presentation defense, compilation a glossary.	glossary, abstract
2.2. 3.4.1	Histology Lecture No. 1. Topic: Cytology.	complex. EPS. Subject of study of cytology, histology, its sections. Research methods in cytology and histology.	RO 11	1 e00	Overview	Answers to security questions.
1 	Molecular biology of the cell Practical lesson No. 2 Topic. Eukaryotic cell. Surface cell apparatus. Plasma membrane.	Surface apparatus of the cell. Supramembrane apparatus and submembrane layer of supporting-contractile structures. Membrane lipids.	PO2		Work in sma groups, discussion of key issues, presentation	and written

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	St. dio. 60 Mil.	4 4 4 4 4 4		J.C.		Kr St C
	Histology Practical lesson No. 2. Topic: Cell and non- cellular	Definition of a cell. Biological membrane. Plasmalemma and itsderivatives.	RO10	1 5K	Work in sma groups, checklist of histo	Lesson Assessmen Checklist.
	structures.Plasmalem ma.	Methodspenetrationssubsta nces into the cell. Types of non-cellular structures.	ma.e	gin.	preparations and microphotog phs	ra
54 12 12 12 12 12 12 12 12 12 12 12 12 12	Chemistry Practical lesson #2. Topic: Fundamentals of chemical thermodynamics. The relationship of system parameters (temperature, internal energy, enthalpy, free energy, entropy) with living metter	Thermodynamics of biology processes. Bioenergetics. System. The concept of enthalpy. pii. The doctrine of thermochemistry. Hess's law. Change in enthalpy during various chemical and physicochemical processes.	ROS	1 a.e	work in small groups	ll Oral survey test control
	living matter. Thermochemistry ical calculations. Histology	The second law ofthermodynamics. Entropy.Gibbs free energy.The structure of the	RO 11	1/6	Work in sma	
,Y ,	SROP/SRO 1 Microscope.Microsco py technique	microscope. Operating principles of the light and electron microscope.	RO 12	1.12	groups, presentation defense, glossary compilation.	SRO assessment
1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	Chemistry Lecture No. 1. Topic. Introduction. Thermodynamics of biological processes. Basic concepts and laws of thermodynamics. Chemical kinetics and enzymatic catalysis.	Subject and objectives of chemistry. Chemical thermodynamics is the theoretical basis for studying the metabolism and energy. Laws of thermodynamics Miki. The human cell as a complex thermodynamics ical system. Thermochemistry. Hess's law. Entropy. Gibbs energy.	RO5 RO6	2 - COL	overview/con puter technology	SKITCHARE SKITCH
5X	Molecular biology ofthe cellPracticallesson#3TopicPlasmamembrane.Transport	Monolayer, bilayer and vesicles (liposomes and vesicles). Membrane proteins: peripheral and integral. Transfer of high-	PO2	A eg	Work in sma groups, discussion of key issues, presentation	f and written survey.

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	of substances through the membrane we: passive and active ny, vesicular.	molecular compounds across membranes endocytosis and exocytosis.	edu.ki	S' SK	Kuna.edu.	AU. KI SK.
	Chemistry Practical lesson #3. Topic: Chemical kinetics and its importance in medicine.	Kinetics of chemical reactions. Factors influencing the reaction rate. Predicting the shift of chemical equilibrium. Concepts of the kinetics of biological processes in living organisms.	Stall	a.edu.	work in small groups, lab work	Oral survey/prob m solving, defense of results of laboratory experiments
510 310 3.9	HistologyPractical lesson #3 Topic: Cytoplasm. Organelles. Inclusions	The concept of a cellular conveyor. Classification of organelles based on their structure. Classification of inclusions.	RO 11	154 	Work in small groups, checklist of histo preparations and microphotogra phs	Practical Lesson Assessment Checklist.
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Chemistry SROP/SRO Consultation on the implementation of SRO 2. Task SRO№2.1 Enzymatic catalysis. Features of enzyme action. <i>Task SRO№2.2</i> Water. Chemical reactions in aqueous solution. Biological role of water in a living organism.	Enzymatic catalysis. Nature and classification of enzymes. Features of enzyme action in living organisms. The importance of enzymes in metabolic processes of life. Water, structure of the molecule. Properties of water. Distilled water, apyrogenic. The importance of water for the vital activity of organisms.	RO5 RO6		Presentation	Oral survey
1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Microbiology Lecture. General microbiology and virology. Morphology of bacteria and viruses.	Microbiology as a fundamental and applied science. Stages of microbiology development. Nomenclature and classification of microorganisms. The concept of virion and virus.	SKM2.0	Part Part	Overview	Feedback

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L.Y	1 sknon a. eardu	Morphological features and structure of bacterial cell and virus.	U.K.	5,54	KM3.00	edu	A St St
	<i>Histology</i> Practical lesson #4. Topic: Cell division. Cell cycle.	Characteristics of the cell life cycle. Mitosis. Endomitosis. Endoreproduction. Polyploidy.	RO 10 RO 11	1 2 10. 10. 10. 10. 10. 10. 10. 10.	Work in groups, checklis histo preparat and microph phs	t of ions	Practical Lesson Assessment Checklist.
41 311 4	Chemistry Practical lesson #4. Topic: Solutions. The importance of solutions in the vital activity of organisms.	Concentration of solutions and methods of expressing them. Preparation of solutions of a given concentration. The importance of solutions in medicine, biology and human practical activity.	PO4 RO5 RO6	242 14.14 10.14 10.14	work in groups, work		Solving problems, defending th results of laboratory experiments
St.	Microbiology Practical lesson. General microbiology and virology. Morphology of bacteria. Microscopic method of research.	Morphological features bacteria. Classification and taxonomy of microorganisms. mov. Microscopic method of research in microbiology. Technique of smear preparation. Simple staining methods.	RO7 RO9		Test inte laborato work		Checklist for assessing a practical lesson.

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		Biochemistry, Chemical Disciplines,	Microbiolo	gy, Virol		
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(	K do by M.L.	4 - 20 - 20 - 00 - 12			12: 0V.	VI ST O
P	Microbiology SROP/SRO. Medical	The role of medical microbiology in the	RO7	1/5	Presentation, essay	Criteria- based
N	microbiology and its	progress of medicine. The		1	cssay	assessment
$\mathcal{Y}_{\mathcal{Y}}$	role in medicine.	goals and objectives of	60.11	MUL.	ckin 2.	CO. HI
2	Organization and rules	microbiology, virology and	· . 60.	N.Y.U.K	2 4411.0	3. 00° V
	of operation of	immunology in their	10° 6	0.	12 cKn	a. 600
2	microbiological and	historical development. The		eory	1. M. 1 6	41 23. 001
$\zeta_{1}$	virological laboratories.	importance of these disciplines in the practical	St. a	9. C	111. 1. 1.	2411 2.
N	laboratories.	activities of a doctor.	SKI	Q. O.	each litter	L Kn 3.
5	Kun S. C. du. K	Equipment and rules for	1 S	P. 20	· 60, 11, K	S. CKIL
1	Si kno 2. Co du.	working in a	1	St.	03. 60° 1	1.t. 1. 3. 2K
Y.	1 Si Kan 2. Co du	microbiological laboratory.	10. 1	St	1, 13. CO	
)	L' S' KAR 3.00	Methods of microbiological diagnostics of bacterial and	N. 11.	VI-	St na.	80 JUL 1
<u>,                                    </u>	He 1 Stall 3.	viral infections. The		· VI	St no	200 JU.M.
0	M. Kr. S. Kale	concept of the		10.	I St a	131 CO 11.1
9.	800	bacterioscopic method of	na.	<u> </u>	VI St	a corri
	A CONTRACT SI	research and its use for	T. Ma	2.00	Nº VI	34 da. 60
6	2. COU. 1. 1.	laboratory diagnostics. The	Styl	0. 20	No. VI	SK. na.
2	Minda Con Hr	importance of the bacteriological method of	ST	nno.	.ev 10. V	1 54 00
	541, 3° 60, 14	research.	XL 9	r.n	a er du.	VI Sti
5	Molecular biology of	Families of membrane	RO1	19	Overview	Feedback
>.	the cell	adhesive proteins.	90. K	1 5	14110 3.00	connectio
2	Lecture No. 2 Topic.Molecular	Adhesive function of membranes. Main stages of	du	Kt 1	Sixmon	ic dui Kr
SC.	biology of the cell.	signal transmission. Types	3.00	b. 70	1 Sh KANG	3.00 00.1
29	Adhesive function of	of signaling pathways and	.0.	200	Kt Sink	$n \sim 3.00 dn$
0	membranes.	signaling systems.	40.3	of the	Kr Sn	14 00 00 00
2	Transmission of	Kina countra	. Hur	10.	an Kr	S' KUL 2.0
5.	external signal to the	stind. compt	1, 2, 24	1.0.	CON KI	1 5 10 2
g	cell. Molecular Biology of	Ion channels and ion	PO3		Work in sma	Il Testing: ora
	the Cell Practical	pumps. Uniport, symport	105	1 ak	groups,	and written
Y.	LessonNo. 4Topic.	and antiport. Na+, K+	, J.J. K.	1 2	discussion of	
$\mathcal{O}^{*}$	Structure and	pump. Apoptosis.	ev-11.	11	key issues,	epv. 1.Kr 1
0	operation of ion	ie min to string	eurs	U.M.	presentation	9. 60
·	channels and pumps. <b>Histology</b> Practical	Morphofunctional and	RO10		Work in sma	ll Practical
2	lesson #5 Topic:	histogenetic features of	RO10 RO11	le ^{Or} x	groups,	Lesson
<u>``</u>	Epithelial tissues.	epithelia. Classification.	SECO		checklist of	Assessment
XS	Glands.	Structure of different types	St	n'a.	histo	Checklist.
ב,	KU. S. gr. K	of epithelium. Glands.	2 54	1.00	preparations	VI att
4		Histophysiology of the	1	ISt'	and	5 1 × 411

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SW		Biochemistry, Chemical Disciplines, mmunology, Morphophysiology pline "Structural organization of hum		<u> </u>	48 pg.	12p.
.KL	A SKIND SKIND. BUD	secretory process. Types of secretion.	edu.kl	SK SK	microphotogra phs	21. 12 - 3. 3KO 21. 12 - 3KO 201. 12 - 3KO 201. 12 - 3KO
ia.es skmi 1.kn 1.kn 1.kn	Chemistry Practical lesson #5. Topic: Colligative properties of solutions. The role of osmosis in biological processes.	Osmosis. Osmosis in blood cells. Van't Hoff's law. Plasmolysis, hemolysis, turgor and isotonicity. Classification preparation of injection solutions (hypotonic, hypertensive (physiological and isotonic solutions). Preparation of physiological solutions.	PO4 RO5 RO6	100 100 100 100 100 100 100 100	work in small groups, lab work	Oral survey, test control, protection o the results o laboratory experiments
na. skn skn skn skn	Chemistry SROP/SRO Consultation on the implementation of SRO 3. Task SRO№3.1 The importance of solutions in the vital activity of organisms. Electrolytes in a living organism.	Typesofsolutions.Solubility.Solubilitydependenceontemperature.Electrolytes.Strongandweakelectrolytes.Degreesofdissociationandconcentration of ions insolutionsofweakelectrolytes.Biologicalfluidsof the body in theformofsolutionsofelectrolytesandnon-electrolytes.	PO4 RO5		Presentation	Oral survey
KI.	<i>Task SRO№3.2</i> Acid-base balance disorders. Homeostasis.	Types of acid-base balance disorders. Types of acidosis and alkalosis. Homeostasis. Blood acid balance disorders.	1. SK 1. KI. edu. KI.	A SKING	SKIN3.edu.ku	AL.KL SKIN
26 KINO	<i>Histology</i> Lecture No. 2. Topic: Fundamentals of the study of tissues.	Regularitiesoccurrenceand tissue evolution. Classification of tissues. Mechanisms for ensuring tissue homeostasis.Limitstissue	R011	100. 0.000 100.00 100.00	Overview	Answers to security questions.

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Department of Biology and I	Biochemistry, Chemical Disciplines,			ogy and 50/11	A da e
	Immunology, Morphophysiology pline "Structural organization of hum	nan physiol	ogical pro	48 pg	.13p.
Shi War Carmin	1. 26, 2. 00, 1)	H1 9		3. 30. X	1 55 0
Sty no. ev yu	variability. Epithelial tissue. Connective tissue.	N.K.	2.4	1. 2. OU.	KL ST
Molecular biology of the cell Practical lesson. No. 5 Topic.Structure and functions of cellular non-membranes organelles and the cell cytoskeleton.	Molecular structure and functions of cellular non- membrane organelles. Cell center, ribosome, cilia and flagella. Cytoskeleton and motor organelles of the cell.	PO3	A. A. A. A. A. A. A. A. A. A. A. A. A. A	Work in small groups, discussion of key issues, presentation	Testing nie, oral and written survey.
HistologyPractical lesson No. 6 Topic: Blood and lymph.	Morphofunctional characteristics of blood as a tissue. Morphology and function of formed elements of blood. Composition of lymph.	RO10 RO11	1 400 5400 74 54 74 74	Work in small groups, checklist of histo preparations and microphotogra phs	Practical Lesson Assessmen Checklist.
Chemistry Practical lesson #6. Topic: Acid-base balance in life processes. Ionic product of water. Hydrogen index pH.	Acid-base theories according to Arrhenius and Bronsted-Lowry. Degree and constant of dissociation. Ostwald's dilution law. Ionic product of water. Hydrogen index.	PO4 RO5 RO6	1.00 KINB P	work in small groups lat work.	
Molecular biology of the cell SROP No.21.1Molecular structure and functions of cellular non-membrane organelles 1.2 Molecular mechanisms of cell cycle regulation	Non-membrane cell organelles. Structure and functions: ribosomes, cytoskeleton. The concept of regulatory molecules of the cell cycle. Cyclin- dependent protein kinases and their function. Cyclins and their function.	PO3	1/6	Work in small groups, presentation defense, glossary compilation.	Presentation glossary, abstract
Chemistry Lecture No. 2. Topic: The doctrine of solutions. Osmosis in biological systems. Buffer systems	Solution as a basis for the vital activity of body cells. Changes in boiling and freezing temperatures of solutions. Ebuliometry. Cryometry. Osmosis. Osmosis in blood cells. Van't Hoff's law. Plasmolysis, hemolysis, turgor and isotonicity.	RO5 RO6	Na.edu.	overview/com puter technology	Feedback

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w		Immunology, Morphophysiology pline "Structural organization of hum	an physiol	ogical pr	48 pg.	14p.
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1	ski na com	Hypertonic and hypotonic	Y 1	SIL	and a construction	KL SK
X V	2 5ki na. cou	solutions. Buffer systems.		15	Kin 2. er di	St VI St
20.	12 stinde e	Biological functions of buffer systems in living		FL.	Si VIII S.Co	an KI
	V. VI Strad.	organisms.		Ker	1 Staten 2	a gri KI
2.62	Molecular biology of	Membrane organelles of the	PO3	$\mathcal{P}1$	Work in small	Testing: oral
	the cell	cell. Structure and functions		600	groups,	and written
	Practical lesson No.	of the mitochondria, Golgi		0.0	discussion of	survey.
	<b>6 Topic.</b> Molecular structure	complex. Three- dimensional model of the		20.	key issues, presentation	The se
	and functions of	Golgi complex, ER.		A.	presentation	S'AMIL
	cellular membrane	Nuclear apparatus of the		SK1	13. CO	1. S. KU
	organelles and	cell, structural organization	11. 1.1	i d	A all con	K. 1. 7. 1
	nucleus.	of chromatin, karyoplasm.	DO10	1	Work 11	Decation
	<b>Histology</b> Practical lesson #7 Topic:	Principles of classification of connective tissues.	RO10 RO11		Work in small groups,	Practical Lesson
	Loose, unformed	Cellular elements of	NOI1	71.	checklist of	Assessment
Q.	fibrous connective	connective tissues and their		20° XV	histological	Checklist.
	tissue. Dense	function. Types of		0.00	preparations	, Ug. 60.
	connective tissue.	connective tissue fibers.		0. 20	and	St. na.
	A. 3. 60. 14	Chemical composition, function and origin of the		in.	microphotogra	SK. na.
	sti no. com, 1.	main amorphous substance.		1 rel	phs	A St a
	Chemistry	Buffer systems. Buffer	RO5	19	work in small	Oral
1.	Practical lesson #7.	action zone, its calculation.	RO6	1.1.5	groups	questioning/
	<i>Topic:</i> Buffer systems. The	Determination of pH of acidic and basic buffer		K.	1 2. Kur 9.0	roblem solving
C.	importance of buffer	systems. The importance of	(a. eq)	1. 1. K	1. 2. Aller	Sorving
2.	systems in the human	buffer systems in the	. na.	50~"	1. 1. 3. KUI	13. du
	body	human body	4. 3	eO	W.K. 1. 3. 4	<u>1, 9, 9</u>
	Molecular biology of	Control over the acquisition	PO2	1/5	80 JU.M. 1 3	Testing
	the cell SROP/SRO	of theoretical knowledge and practical skills on the		( de	60 JU.K. 1	, solvin situational
	No.3Consultation on	topics covered in lectures		64	10. 60. M.K.	problems,
	the implementation of	and practical classes	J. XI	St	Mar COLAN	organization
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8	Microbiology	Metabolism of bacteria and	RO7	1	Overview	Feedback
	Lecture. Physiology	viruses. Respiration and		12.0	gn. Kr 3	Mar 2.0
	and biochemistry of bacteria and viruses.	nutrition of bacteria. Cultivation of bacteria.		N 2	P du Kt	Stype
		Isolation and indication of		Kur	S. qu. K	STUM
	SK MO BUNN	viruses.	Kr.1	2. X	S. 3. du.	NºL ST

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SW		Immunology, Morphophysiology pline "Structural organization of hun	nan physiol	ogical pro	48 pg	15p.
1	Histology	Reticular connective tissue.	RO10	GYN'	Work in small	Practical
Yer	Practical lesson No. 8 Topic: Connective	Pigment, white and brown adipose tissue, mucous	RO11	1.54	groups, checklist of	Lesson Assessment
3.e	tissues with special properties.	tissue. Location, functional significance.	Ma.edu	du.Kl	histo preparations and microphotogra	Checklist.
	Chemistry	Hydrolysis of salts. Types	RO5		phs work in small	Oral
, KI , KI , du	Practical lesson #8. Topic:Hydrolysis. Hydrolysis of salts. The biological role of hydrolysis in the processes of vital activity of the organism	hydrolysis of saits. Types of hydrolysis. Degree of hydrolysis. Factors affecting the degree of hydrolysis. Biological role of hydrolysis in the processes of vital activity of the organism		SKINS SKINS SKINS	groups	survey/test control
8. 2.	Microbiology Practical lesson. Structure of a bacterial cell.	Morphology and structure of bacteria. Complex staining methods. Gram staining. Immersion microscopy method.	RO7 RO9	8. EN	Test interview, laboratory work	Practical Lesson Assessment Checklist
1 	Histology SROP/SRO2 Border control - 1	To summarize the mastery of theoretical and practical material.	RO10 RO11		<ol> <li>Ability to determinehisto logicaldrugs.</li> <li>Skill fill inchecklisthist opreparations and microphotogra phs</li> </ol>	microphotog aphs and microprepar tions (checklist for
	<b>Chemistry</b> SROP/SRO 4 <b>Consultation on the</b> <b>implementation of</b>	Control of assimilation of theory knowledge and practical skills on the topics covered	RO5	1/2	Oral and written questioning on tickets or	Oral and written survey
,U,Y	<b>RK 1.</b> Border control #1	in lectures, practical classes and assignments (topics 1-7).	edu.r		computer testing	SULL R
98 mo	Molecular biology of the cell Lecture No. 3 Topic.The molecular structure of cells and diseases that arise when their	Definition of the concept of organelles and their classification. Diseases of lysosomes, perixisomes, disorders of protein sorting in the ER, mitochondrial diseases. Definition and	RO1	edu. edu. ma.ed	Overview	Answers to security questions.

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1	functioning is	mechanism of	Yt 1	5 1		A St.
5	disrupted.	development.	h. Kr	5		Vi VI S
1.1.	Chemistry	Classification of chemical	RO5	1	Work in small	
<u>у</u> ~ Х	Practical lesson #9.	elements. Location	RO6	I.VI	groups	test control
ec	<i>Topic:</i> Biogenic s-, p-, d-	s-, p-, d-elements in the periodic table. Content of	2	$\gamma_{\mathcal{N}}$	AL SK. no	e duit
) .	elements and their	chemical elements in the	no ze	10	· VI SK	a co al
2	importance for living	body. Biological role of			10° 12 St	i dia. Co.
7	organisms.	chemical elements in the		0	10. 12	dt da (
X	1 3. 00	vital activity of a living		Ma.	er 11. 1	St. na.
5	HI. S. S. K.	organism.	St S	r di	er with	2 de la
1	Molecular biology of	Intercellular contacts:	PO3	3	Work in small	
Yr.	the cell Practical lesson No.	simple junction,	90. K	5	groups, discussion of	and written
	7 Topic. Intercellular	interdigitation, adhesive belt. Tight junction:	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	KI.	key issues,	survey.
<u>,</u>	interactions. Contacts.	nexuses or gap junctions.		1 1	presentation	CO JU. F.
0	Histology	Determine the types of	RO11	$\dot{\mathbf{v}}$	Work in small	Practical
9.	Practical lesson #9.	cartilaginous tissues based	RO10		groups,	Lesson
	Topic: Cartilaginous	on the structural features of		ev	checklist of	Assessment
\mathcal{L}	tissues	the intercellular substance		0.6	histological	Checklist.
	U. S. OU. KI	and know the		d'a'	preparations	SP' 20
5	KUNS. du K	histofunctional features.		h.d	and	VI SKI
. 1	S. KU. S. du.	Her strand so all	N' KI	St.	microphotogra	4
1.44	Histology	A set of signs of cell vital	RO11	1/6	Work in small	Checklist fo
	SROP/SRO3	activity. Cell response to	2 JU.	VI.	groups,	SRO
200	Cell response to	damage. Morphological	2.00	D' V	presentation	assessment
0	damaging effects. Cell	signs of apoptosis and		100	defense,	(S. 60, 1),
.0.	aging and death.	necrosis.		er v	glossary	103. CO.
10	Characterized A	Courfo on on a start of the	PO4	60	compilation.	Too all1-
10	Chemistry <i>Lecture No. 3</i> .	Surface energy and surface tension. Adsorption.	PO4 RO6	Ū.	overview/com	Feedback
).)	<i>Lecture No. 3.</i> <i>Topic:</i> The importance	Surfactants and PIV. The	I NOO		puter technology	1 241 22
1.5	of surface phenomena	role of adsorption in		54	leennoidgy	12 2411
J ,	in medicine.	biology and medicine.	1.1	St	100° 60° 1	NT. 1. 2X
Y.	Adsorption.	N. A. St. Co. Co	10.	1	1. No. 60	J.K. 1. 3.
	Chemistry	Structure of complex	PO4	11	work in small	Oral survey
0	Practical lesson #10.	compounds. Nomenclature	RO5	1.1	groups,	test control,
, ·	Topic:	and types of complex	RO6	1,77,	laboratory	protection of the results of
2	Complex compounds and their properties.	compounds. Chemical bonding in complex		10 ⁰ x	work	the results of laboratory
11	Medical and	compounds. Equilibrium in		e e		experiment
NS	biological role of	solutions and dissociation		<u>6</u> 3.	20-111.K. 1.	CAPOTINICIA
5	complex compounds.	of complex compounds.		SA 1	60× 11.Kr	1 think
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	Department of Biology and I	Biochemistry, Chemical Disciplines, Immunology, Morphophysiology pline "Structural organization of hum	Microbiolo	gy, Virol	48 pg.	King e
11. 311. 3.ec	Histology Practical lesson #10. Topic: Muscle tissue.	Morphofunctional characteristics of muscle tissues. Smooth and striated muscle tissues. Structural differences in the organization of slow and fast muscle fibers.	RO11 RO10		Work in small groups, checklist of histo preparations and microphotogra phs	Practical Lesson Assessment Checklist.
1, 2, 1, 0, 0, 1, 2, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,	Microbiology Practical lesson. Physiology and biochemistry of bacteria. Microbiological research method.	Nutrition, respiration, growth and reproduction of bacteria. Methods for isolating pure cultures of aerobic and anaerobic bacteria and methods for identifying pure cultures of bacteria used in bacteriological diagnostics of infectious diseases. diseases. Suitable preparation of nutrient media for cultivation, seeding of microorganisms.	RO7	SKULSK SK SKULSK SKULSK SKULSK SKULSK SKULSK SKULSK SKULSK SKULSK SKULSK	Work in small groups, completing laboratory work.	Checklist fo assessing a practical lesson.
, K. , K.	Microbiology SROP/SRO. Concept of biotechnology. Microorganisms participating in biotechnological processes. Biological preparations obtained by genetic engineering.	Biotechnology. Brief history of biotechnology development. Processes used in biotechnology. Genetic engineering and design. Genetics of bacteria and viruses. Microorganisms, cells and processes used in genetic engineering.	RO9	1/5 NA	Abstract, presentation, essay on the topic	Criteria- based assessment
	Histology Lecture No. 3 Topic: Muscle tissue. Nervous tissue.	Structure of muscle tissue. Nerve cells and neuroglia. Nerve fibers, nerve endings, synapses.	RO10	Kno	Overview	Answers to security questions.
s. edina ski	Molecular biology of the cell Practical lesson No. 8 Topic. Adhesive function of membranes. Transmission of external signal to the cell.	General idea of the mechanism of intercellular interaction. Families of adhesive membrane proteins. Adhesive function of membranes. Types of signaling pathways The main stages of signal transmission. Signal transmission in the cell.	PO3	1 KL edu.k na.edu.k	Work in small groups, discussion of key issues, presentation	Testing: ora and written survey.

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1 Stating 3.et du	Characteristics of signaling molecules. Secondary	N.K.	SK	ina.		Hr VI Sig
	messengers	DO5			<u> </u>	Out 1
Chemistry Practical lesson #11.	Redox reactions. Electrode potentials. Galvanic cells.	RO5 RO6		Work in groups	small	Oral survey/test
Topic:	Electromotive force (EMF)	NOU O		Groups		control
Oxidation-reduction	of a galvanic cell. Nernst	S. 3.		KL 9		3. 3
processes and their	equation. Direction of	den a	0.0	Shi Kr		100 3.Co
biological role.	redox processes. Membrane potential. The	3 cki	20.	ogn 'A		1 Land
Electrode potentials.	importance of redox	12 2		of odvi	YH.	S' Lan
ST VILL DE AU.	reactions in human life.	11	GHI.	12. ed	~.''Y	1 3 15
Microbiology	Methods of culturing	RO 7	1	Let's exp	and	Practical
Practical lesson.	viruses. Indication and identification of viruses.		NI	the	tion e ^O	Lesson
Physiology of viruses. Virological research	Phages and phage typing.	, ev. 1	11	conversa	uon	Assessmen Checklist.
methods.	Stages of preparation of a	0 2.00	70.	1 54		Checkhise.
ear the 1 side	single-layer cell culture.	no. a	9 . N	VI VI		Na. Cory
D. CONTRACT 2.	Technique of infecting with	- Ma	2.00	W. VI		na ec
No. 600 11. 1. 1.	viruses and dissection of a chicken embryo, methods	STIC	1	90.1		St. no.
A. C. CO. M. K.	of isolating phages from	1 5	1000	1.00 dr.		SK no
SK, Wg. 60, M.K	environmental objects and	Y' 1	T. K		$\gamma_{O, i}$	FL Sty
St All St	their identification.		5		<u> </u>	VI ST
Chemistry SROP/SRO	Biogenic elements are non- metals that are part of the	PO4 RO5	1/6	Presentat	10n	Oral surve
Consultation on the	human body.	KO5	J.M.	1 stu	2.0	egn. Kr
implementation of	Biogenic elements are	s, ec	1,1,4	11 2		edv.
SRO 5.Task	metals that are part of the	Ma.	20-21	J. 11		No. edu
SRO№5.1 Biogenic	human body.	H' no	1 eu	11.1.12		1. 13. 6
elements in the human body.	Elemental composition of the human body.	Stin	ia.	er 10.		SKI' na.
A B B B B A	The content and biological	1 54		60 10	512	ski ni
Kn as advin	role of chemical elements in	X2	54.1	no evi	11.5	1 SK1
ski na. edu	the human body.	2. KJ	1 SK	Kmang.e		NA S
Kt 1 St Know 3.0	Biological role of complex	engu	Y.Y.	sknin	9. 6	an JU.K.
Task SRO№5.2	compounds in the human	2.	N. N	- St.		ier yur
Biological role of	body. Concepts and	1.2.0	gn.	XI S		2.00 21
complex compounds.	biocomplexes. Structure of	Kan		N. KL		Mr z.ev.
Biocomplexes. Concept of the	hemoglobin, chlorophyll, vitamin B12	s. Hui	2.	9n. K		June 2.
structure of	(cyanocobalamin) and their	1, 2, 2	52.1	du.		STUMO
metalloenzymes	biological role.	1.7	Kur	3. 01		1 55 16
(hemoglobin,	1 6/4° 00°	J.Kr. 1	2.1	S 20	90.	Kr Sr.

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	Department of Biology and I	Biochemistry, Chemical Disciplines			17	50/11	Findo 6
ŚW		Immunology, Morphophysiology pline "Structural organization of hu	man physio	logical pr	ocesses"	48 pg.1	19p.
,FL	chlorophyll) their biological role.	A. Shing. Cords	AV. KI	SKAL	Nana.ed	eqn. K	A St Ski
12	Chemistry Lecture No. 4. Topic: Colloidal-dispersed system. Properties of dispersed systems. Stability and coagulation of colloidal solutions. Molecular biology of the cell Practical lesson.№9 Topic. Cell cycle. Mitosis. Meiosis.	Concepts: dispersed system, dispersed phase, dispersion medium. Classification of dispersed systems. Micelle structure. Methods of obtaining and purifying colloidal solutions. Optical and electrokinetic properties of colloidal solutions. Tyndall effect. Coagulation, its medical and biological significance. Schulze- Hardy rule. Dialysis, electroosmosis and electrophoresis in medical practice. Cell cycle. Cell cycle periods. Direct and indirect cell division. Mitosis. Typical and atypical mitosis. Phases of mitosis. Similarities and differences between mitosis and meiosis. Stages of prophase I of meiotic	RO5 RO6		overview puter technolo Work in groups, discussi key issu presenta	bgy r small on of es,	Feedback Testing: or and written survey.
I edi	Chemistry Practical lesson #12. Topic: Surface phenomena at the phase boundary. Biological significance of adsorption processes. Adsorption therapy.	division. Surface energy and surface tension. The concept of sorption, adsorption, absorption. Adsorption at the phase boundary, factors influencing adsorption. Surface-active and surface- inactive substances. Duclos-Traube rule. Types of adsorbents. Selective adsorption. Paneth-Fajans rule. Adsorption therapy. The role of surface-active substances in medicine.	RO6	A sking	Work in groups		Oral survey/test control

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2		Biochemistry, Chemical Disciplines,	Microbiolo	gy, Virol		St. no. e
Wo		mmunology, Morphophysiology pline "Structural organization of hum	nan physiol	ogical pro	48 pg	.20 p .
Ċ	K	1. 24 . 2. 00	41.2		a. du v	I St. a
1	Microbiology	Genotypic and phenotypic	RO8	51	Extended	Checklist
Ì.V	Practical lesson. Genetics of bacteria	variability. Plasmids. Practical significance of	Sc. Kr	1.5	conversation	assessment the practical
\mathcal{N}	and viruses.	variability. Essence, goals	e0	Fr.1	2 thing.	lesson.
6	Genotypic and	and objectives of	3. 600	N. K.	1. 2. 24	. an Ki
).	phenotypic variability	biotechnology.	10° e	\mathcal{P}	M. J. S. KN.	3. QU.
2	of microorganisms.	Microorganisms and	1. 20.	eou,	1. 1. 3. X	<u>.</u>
n	2.00 dv. K1 5	processes used in biotechnology. Genetic	Ster of	ð. C) Kr	241, 20.
N	10-3.60 dr. KJ	engineering and its	SKI	<u>.</u>	ear in the 1	KUI 3.
5	Kur Sier Gri K	application in	12 3	Sn. 1	equility	1. 3. Hur
	5. KUN 3.60 40.	biotechnology. Genetic	· 12	Ster.	03. 60VII	× 1. 3. Ku
Y	1 Stating 3. Codi	recombination in bacteria in	11.11	j st	10° 600	M. K. J. S. d
)	L' 1 S' Alle 3.	experiments of transformation,	N. 11.	A	sting e	
0	Mr. 1. S. Hur 3.	transduction and		· VI	St. na.	POLAU. M
e	M. H. J. S. Hur	conjugation. Genotyping.		Nr.	I st a	a corrunt
9.	Molecular biology of	Definition of the concept	RO1	1/6	Work in small	
, d	the cell SROP. Nº4	of cytoskeleton and motor	1 Mar	N	groups,	glossary,
F.	8.1 Cell cycle. Mitosis.	organelles of the cell. Transport of substances	Sil	2.	completing laboratory	abstract
3	Atypical mitosis and	through membranes:	I Si	L'AND	work.	St. no
	its causes	transmembrane transfer of	Kr 9	1 jul	WOLK,	VI Stin
VI	we.	low-molecular	K.	5	and s. out	Yet St
7.	8.2 Transport of substances through	cular substances. Cell cycle. Mitosis.	50. ' <i>'</i> '	1.1.5	Kung.	So. Kr
20	membranes:	Atypical mitosis and its	eou	N.C.	S. Kurs.	du. Kr
0	transmembrane	causes.	10. CO	1.1.H	1. 3. 24	3. 90. 1
3.	transfer of low-	10, 00, W. V. V. SK	dg.	200 11	Hr 1 3 ch	3. 000
1	molecular	VILL SC WINK	H. no	60,	JU. 12 0	K
N.C	cular substances. 8.3 Cell cytoskeleton	Sty Me 2. Cr. W. VI	St.	0.0	20-20.1.1.	attin a.
).)	and cell motor	ST Ma Die Hui A	1 54	l da.	60 JU.M.	1 241,00
17	organelles.	1 5 Mr 2. 6 M.	KL	6× . d	C. C. W.	12 str
	Molecular biology of	General idea of the	PO2	155	Work in small	
J.M	the cell Practical lesson	mechanism of apoptosis and necrosis. Definition of	gn. 1	Fr 9	groups, discussion of	and written survey.
- 21	#10Topic.	the concept of	· du	KL	key issues,	Survey.
60	Molecular	carcinogenesis.	13.	h. K	presentation	er du.
13	Mechanisms	N3. 60, 11, 1, 1, 2, 24	1. 2.	dr.	Yt ST W	a se do
Nº	we apoptosis and	1. 13. 60° M. 4. 1 3.	atter a	00 1	KL ST	Mar all
1	oncogene for. Carcinogenesis.	SH, 03. 600 11. H. 1	3 ckur	2.	du Kr	5 un se
55	Histology	Identify different types of	RO10	10	Work in small	Practical
, (Practical lesson #11.	neurocytes. Explain the	RO11	ext.	groups,	Lesson
j.	Topic: Nervous tissue	cytological features of	1.4.1	1 X	checklist of	Kr Si

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2	No. W. K.	Biochemistry, Chemical Disciplines, Immunology, Morphophysiology pline "Structural organization of hum	Microbiolo	ogy, Virol	48 pg.2	F. No. 6
, KI	1. Nerve cells and neuroglia.	nerve cells, neuroglia at the microscopic and ultramicroscopic levels.	edu. Ki	A A	histo preparations and microphotogra phs	Assessment Checklist.
3.01 (1.12) (1.1	Chemistry Practical lesson #13. Topic: Colloidal-dispersed system. Nature, classification of colloidal systems. Properties of dispersed systems.	Concepts: dispersed system, dispersed phase, dispersion environment. Classification of dispersed systems. Structure of the micelle. Methods of obtaining and purifying colloidal solutions. Dialysis in medicine. practice. Optical and electrokinetic properties of colloidal solutions. Tyndall effect. Electro osmosis and electrophoresis, their application in medicine.	RO5 RO6	ALLAND	Work in small groups	Oral survey/test control
1. 	Microbiology Practical lesson. Drug resistance of bacteria. Determination of sensitivity of bacteria to antibiotics.	Primary and acquired resistance of microorganisms to chemotherapeutic drugs. Ways to overcome drug resistance of bacteria. Quantitative and qualitative determination of bacterial sensitivity to antibiotics.	RO8	String String	Test interview, laboratory work. Testing	Checklist assessment of the practical lesson.
14 1. 1.	Microbiology SROP/SRO. Boundary control No. 2	Control over the acquisition of theoretical knowledge and practical skills on the topics covered in lectures and practical classes	RO7 RO8 RO9	1/6	Colloquium	Oral survey (tickets)
14) ma 54	Chemistry Practical lesson #14. Topic: Stability and coagulation of colloidal systems. Coagulation and peptization of sols.	Coagulation of colloidal systems, its medical and biological aspects ical significance. Schulze- Hardy rule. Aerosols, suspensions, powders, emulsions and their properties.	PO4	UL RUNA	Work in small groups	Oral survey/test control

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Department of Biology and I	Biochemistry, Chemical Disciplines, Immunology, Morphophysiology pline "Structural organization of hun	Microbiolo	ogy, Virol	ogy and 50/11 48 pg	H. No. (
Sedimentation analysis.	1. <u>541, 38, 600, 10</u>	N.K. K.	SKAL	R. C. C. C. C.	V P St St
Molecular biology of the cell Practical lesson No. 11 Topic.Cell cycle and molecular mechanisms of its regulation. https://www.youtube. com/watch?v=U053V jkuFaY&feature=yout u.beCell. Cycle.	Cell cycle. Cyclins and cyclinza dependent kinases (CZK), mitosis-stimulating factor (MSF). Control points of the cell cycle. Regulatory role of p-53 proteins.	PO3	1 K du. edu. skne	Work in small groups, discussion of key issues, presentation	Testing: or and writter survey.
Histology Practical lesson #12. Topic: Nervous tissue2. Nerve fibers. Synapses.	Explain the differences in the microscopic structure of myelinated and unmyelinated nerve fibers. Interneuronal synapses.	RO10 RO11	a.edu a.edu a.edu	Work in small groups, checklist of histo preparations and microphotogra phs	Practical Lesson Assessmen Checklist.
Microbiology Practical lesson. Ecology of microorganisms. Microflora of various organs and systems of the human body.	Spread of microbes in the environment. The concept of normal human microflora. Microflora of various organs and systems of the human body. Causes of dysbiosis. Bacteriological diagnostics, treatment and prevention of dysbiosis.	RO7 RO 8	Str. Str. Str. Str. Str. Str. Str. Str.	Discussion, essay	Practical Lesson Assessmen Checklist
Chemistry SROP/SRO 6 <i>Task SRO№6.1</i> Potentiometry in medical practice.	Potentiometry. Use of potentiometry methods in clinical analysis and in the practice of sanitary and hygienic research. Determination of the concentration of physiologically active ions in biological fluids and tissues using potentiometric methods.	RO6		Presentation	edu.kl. ski edu.kl. na.edu.kl skina.edu.kl skina.edu.kl skina.edu

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Sw	No do VI	Biochemistry, Chemical Disciplines, Immunology, Morphophysiology pline "Structural organization of hum	Microbiolo	ogy, Virol	ogy and 50/11 48 pg.	H. No. C
3.00 2.00 2.00	<i>Task SRO№6.2</i> Consultation on the implementation of RK 2. Border control- 2	Monitoring the acquisition of theoretical knowledge and practical skills on the topics covered in lectures, practical classes and assignments (topics 9-14).	edu.kl edu.kl na.edu skma.e	Start	Oral and written. questionnaire on tickets or computer testing	Oral and written survey
15 .K 2011	Chemistry Practical lesson #15. Topic: HMC. Viscosity of HMC solutions. Swelling.	Features of high-molecular solutions. Properties of high-molecular compounds. Swelling. Factors influencing swelling, biological significance of swelling. Salting out, gelation. Syneresis.	PO4		Work in small groups	Oral survey/test control
1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	Molecular biology of the cell Practical lesson #12 Topic. Cell cycle and molecular mechanisms of its regulation. https://www.youtube .com/watch?v=U053V jkuFaY&feature=yout u.be Cell. Cycle.	Cell cycle. Cyclins and cyclin-dependent kinases (CDK), mitosis-stimulating factor (MSF). Cell cycle checkpoints. Regulatory role of p-53 proteins.	PO3	2. 1 e Kmar SKM SKM SKM SKM SKM SKM SKM SKM SKM SKM	Work in small groups, discussion of key issues, presentation	Testing: oral and written survey.
Sturies Sturie	Microbiology Practical lesson. Infection, infectious process. Biological research method.	Infection, infectious process, infectious disease. Forms of infection and their characteristics. Periods of infectious disease. Nature of the relationship between micro- and macroorganisms. Forms and stages of the infectious process. Characteristic features of infectious diseases. Pathogenicity, virulence, toxicity of	1. SKINA	A skins.	Discussion	Checklist assessment of practical lesson

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Var 2.0 gr. Kr	l Biochemistry, Chemical Disciplines, Immunology, Morphophysiology		~~~	4	0/11 -8 pg.24	4p.
Working curriculum of the dis	cipline "Structural organization of hur	nan physiol	ogical pro	ocesses"	HP-	2. HU.
KL SKINA. COUNTRACT	bacteria. Experimental methods infection and immunization of animals. Biological methods for studying pathogenicity and virulence factors, as well as methods for determining the virulence of bacteria and the activity of bacterial toxins.	N. K. C.	St Ski St. Ski Su. Kl Su. Kl Su. Kl Su. Kl Su. Kl	AL SKING	JU. JU. GU	KINZ SKI
Histology SROP/SRO 4 Consultation on the implementation of the RK. Boundary control - 2	To summarize the mastery of theoretical and practical material.	RO 10 RO 11		 Skill determine histoprepa ns. Skill f inchecklist opreparationand microphotophys 	ïll thist ons	Diagnostics of microphotog aphs and microprepar tions (checklist fo RK assessment).
Molecular biology of the cell SROP/SRO№5 Consultation on the implementation of the RK. Boundary control №2.	of theoretical knowledge and practical skills on the topics covered in lectures and practical classes	PO2		Oral and written sur testing	rvey,	Testing , solving situational problems, organization survey. Evaluation of test results, situation ational tasks

9. 9.1	Methods of learning and Lectures	I teaching - Overview.
. 9.1	Lectures	In distance learning, online lectures are held in the form
	1 24 . 23. 60	
60.211.	1,1, 2,4, ,3, 00	of presentations on the Zoom and Webex platforms. For
3 · · · · · · · · · · · · · · · · · · ·	1. The second	feedback, students are given the opportunity to ask questions on the topic.
10.00	Kr S. Kan	- Survey/computer technology
0.2	Dractical aladaga	
9.2	Practical classes	- Work in small groups, discussion of the main
Stin	er wind st	questions, presentation;
SK	Co. Co white I	- work in small groups, completing laboratory
1 4	I. S. O. K.	assignments
Kr 2.	KUI 3.0 all KL	Structure with the structure comments of

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De	partment of Biology and I	Biochemistry, Chemic Immunology, Morpho		logy, Virology and	50/11 48 pg.25p.			
Worki	ng curriculum of the disci	pline "Structural organ	nization of human physic	ological processes"				
1, 0	<u>11 3. 00. 1</u>	KI SE KAR	works.	String. 6	N. VI SK			
	SKIL NO. COU	11). Kr 1 5 64	- testing, work in small groups, checklist of histological					
9.3	SRO/SROP	Or W. Kr St	 preparations and microphotographs Presentation, glossary, abstract; Discussion and evaluation of SRO; 					
du.	12 SK. KMO	3.00 du. 142						
· ec	N. H. I. S. HI	3. edu.	- abstract, presentat - work in small grou					
<u>(</u> <u></u>	en with a sid	KU. B. Egn.	- compiling a gloss	ary;	St. Ma C			
9.4	Border control	Border control		ituational problen esults, situational	ns, oral questioning.			
	Maie dui K	st'uno.			tickets or computer			
	at a court	Ker 2 St King	testing	ranhatagranhaan	d micropreparations			
	SKI na. ea	11. 11 S. CK	(checklist for assess		d interopreparations			
10.	Evaluation crite		string a. ear	J.K. 1 3. 2KU	3. du 14			
10.1	Criteria for asse	ssing the learning	g outcomes of the di	iscipline	HI ROLL			
No.	Name of	Unsatisfactory	y Satisfactorily	Fine	Great			
RO		King. 800	JULY X SKIN	Ng. e. equily.	X2 St skind a			
RO 1	Demonstrates knowledge and	1) Does not describe the	1) Describes the structure of	1)Applies knowledge of	1) Assesses the possibility of using			

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W	Depa Vorking	50/11 48 pg.26p.				
1,0,00	PO 2	Demonstrates knowledge and understanding of destructive changes in cellular components that lead to disease	1) Cannot reveal the etiology, pathogenesis and morphogenesis of various cellular diseases	1) Does not fully explain the etiology, pathogenesis, morphogenesis of various cellular diseases	1) Explains the etiology, pathogenesis, morphogenesis of various cellular diseases	1)Applies knowledge of the etiology, pathogenesis, and morphogenesis of various cellular diseases to diagnose hereditar diseases
1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	RO 3 V A A A A A A A A A A A A A A A A A A	Demonstrates knowledge of the origins and classifications of mitochondrial, lysosomal, and perixisome diseases	1) Cannot define mitochondrial, lysosomal, perixisome diseases 2) Does not differentiate between changes in the hereditary apparatus in various mitochondrial, lysosomal, perixisome diseases	1) Allows inaccuracies in the description of mitochondrial, lysosomal, perixisome diseases. 2) Poorly distinguishes between classifications of mitochondrial, lysosomal, perixisome diseases.	1) Describes the classification of mitochondrial, lysosomal, perixisome diseases 2) Distinguishes well between various mitochondrial, lysosomal, perixisome diseases	 Independently describes the classifications of mitochondrial, lysosomal, perixisome diseases Conducts differential diagnostics for mitochondrial, lysosomal, perixisome diseases
		- demonstrates knowledge of chemical processes (basic types of reactions) in the body, subject to the general laws and patterns of chemistry, as well as general energy and kinetic patterns of chemical processes;	- is not familiar with the theories, concepts and directions on the topic, does not demonstrate his knowledge, does not answer questions.	- is not clearly oriented in theories, concepts and directions on the topic, poorly demonstrates his knowledge, answers questions with fundamental errors.	- competently, navigates theories, concepts and directions on the topic, demonstrates his knowledge, answers questions with minor errors.	- logically, clearly competently, navigates the theories, concepts and directions on the topic, demonstrates his knowledge, answers all questions. Also logically and competently answers additional questions.

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		artment of Biology and B		Disciplines, Microbiol		50/11
T	Vorking	48 pg.27p.				
	VOIKIIIE	g curriculum of the discip			noglear processes	Nº 12 St.
2. 2. 12 N 3. 10 C F	RO 5 	- applies knowledge of calculation formulas (mass fraction, molar concentration, molar concentration of equivalent, molal concentration, molar fraction, titer) when preparing solutions of given concentrations and understands methods for determining the	does not know the calculation formulas for expressing the concentration of solutions. Does not know how to choose formulas when preparing solutions. Does not know how to draw conclusions about the quantitative content of substances in the liquids being studied.	does not clearly know the calculation formulas for expressing the concentration of solutions. Reasons poorly in choosing formulas when preparing solutions. And does not know how to draw conclusions about the quantitative	does not clearly know the calculation formulas for expressing the concentration of solutions. Reasons poorly in choosing formulas when preparing solutions. And does not know how to draw conclusions about the quantitative	clearly knows the calculation formulas for expressing the concentration of solutions. Logically, he reasons correctly i choosing formulas when preparing solutions. And he can draw conclusions about the quantitative content of substances in the liquids being studied.
2 0	RO 6	quantitativecontentofsubstancesin thesystemsunderstudy,includingbiological fluidsformulatesgeneraltheoreticalfoundationschemistryforknowledge,skillsandabilitiesin	does not understand the general theoretical foundations of chemistry on the topic, does not	content of substances in the liquids being studied. not competently, navigating the general theoretical foundations of chemistry on	content of substances in the liquids being studied. unclearly, but competently, being guided by the general theoretical foundations of chemistry on	logically, clearly, competently, and being familiar wit the general theoretical foundations of chemistry on the
2. 2. 2. 1 1	SKM2 SKM2 SKM2 SKM2 SKM2 SKM2 SKM2 SKM2	their subsequent professional activities.	answer the teacher's questions Cannot draw conclusions and cannot connect the topic with the future profession.	the topic, answers the teacher's questions. Gives an unclear conclusion and cannot connect the topic with the future profession.	the topic, answers the teacher's questions. Gives a vague conclusion and is able to connect the topic with a future profession.	topic, answers additional questions from the teacher. Provides a clear, independent conclusion and is able to connect the topic with a future profession.
3	RO 7	Demonstrates knowledge of the classification and biological	1) does not describe the morphological, physiological and	1) describes the morphological, physiological	1) uses knowledge about the morphological,	1) can classify microorganisms according to their morphological,

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10	«Оңтү Depa	инская академия»				
	Dept	48 pg.28p.				
W	orking	curriculum of the disci	pline "Structural organiza	ation of human physic	logical processes"	Krs S. M.
1	55		And a second	Canal Andrewski		abadala siaal asi
L		properties of microorganisms	antigenic properties of	and antigenic properties of	physiological and antigenic	physiological and antigenic
		(morphological,	microorganisms;	microorganism	properties of	properties;
		physiological,	2) does not	s:	microorganism	2) interprets the
	\mathcal{N}	antigenic) and	understand the	2) understands	s;	results of studies
		their ecology;	results of studies	the results of	2) explains the	conducted to
-7		methods of	conducted to	studies	results of	determine the
		isolating pure	determine the	conducted to	studies	morphological,
N		cultures and identification;	morphological, physiological and	determine the morphological,	conducted to determine the	physiological and antigenic
9		principles of	antigenic	physiological	morphological,	properties of
		determining the	properties of	and antigenic	physiological	microorganisms;
Ļ		sensitivity/resista	microorganisms;	properties of	and antigenic	3) uses quantitativ
		nce of	3) does not have	microorganism	properties of	and qualitative
JV		microorganisms to antimicrobial	knowledge of methods for	s;	microorganism	methods to determine the
		drugs;	determining the	3) has knowledge of	s; 3) describes	sensitivity of
3.0		urugs,	sensitivity of	methods for	methods for	microorganisms to
	3.	gr. Kr Sr.	microorganisms	determining	determining	antimicrobial
5		o dr. Kr	to antimicrobial	the sensitivity	the sensitivity	drugs.
		S. du Kr	drugs.	of	of	1. 1 att
7		S. gr. K	ST MAR 2	s to	s to	10. 11 St
		40, 3. 00	Yer Shy Kur	antimicrobial	antimicrobial	20 xV. 12 0
Y		× × 1, ~ 3. ~ 0	A KI ST KI	drugs.	drugs.	ev 10. 12
	RO	Demonstrates	1) cannot talk	1) can talk	1) is proficient	1) shows effective
9	8	knowledge of the	about methods of	about methods	in the methods	methods of asepsi
		basics of microbial	asepsis, antisepsis,	of asepsis, antisepsis,	of asepsis, antisepsis,	antisepsis, sterilization and
0		genetics; the	sterilization and	sterilization	sterilization	disinfection;
	9.	essence of	disinfection;	and	and	Section
4		biotechnology;	×411, 3. od	disinfection;	disinfection;	2) substantiates th
C		the influence of	2) does not know	an Kr 2	All a dial	effectiveness of
		environmental factors on	about CTP and antibiotics used in	2) knows about CTP and	2) can tell about	chemotherapy and antibiotics used in
V		microorganisms,	the treatment of	antibiotics	CTP and	the treatment of
2.		the goals and	infectious	used in the	antibiotics	infectious diseases
X	7.	methods of	diseases.	treatment of	used in the	1. 3. 6. 90. 1
S		asepsis,	· 60-11.4.1	infectious	treatment of	KU. 3.6 - 90.
0	er i	antisepsis,	Va. Corritier	diseases.	infectious	" KAN B. C.
10	2.0	sterilization, disinfection;	100° 60° 111	12 dans	diseases.	1 5. 1911 - 3.0
K		chemotherapy	St. 20, 602	1. 1. 2 Kr	2. du	1 Si Kno
5		and antibiotics;	stringer ec	M. M. J. S. d	L1. 3. 90	it's struck
		the basics of	2 SK' no.	e0	attin a.	M. Kr St
	5	infectious disease	1 1 at a	· eor itr	3 49. 3.	av the s

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		artment of Biology and B	iochemistry, Chemical D	Disciplines, Microbiol		50/11
V	Vorking	curriculum of the discip	nmunology, Morphophy line "Structural organiza		logical processes"	48 pg.29p.
	St.	epidemiology,	1 24 20	Car the 3	All a c	N. KI ST
-1 -2 -2 -2 -2 -2 -2 -2 -2 -2 -2 -2 -2 -2	RO	routes of infection, localization of microorganisms in the human body; Possesses the	1) does not	1) describes	1) has	1) applies in
in the of the second		skills of preparing native smears, staining smears using simple and complex methods and interpreting microscopic results; culturing viruses; determining the sensitivity/resista nce of microorganisms to antimicrobial drugs;	describe the technique of preparing a native preparation, staining using simple and complex staining methods, microscopy, or the method of culturing microbes.	the technique of preparing a native preparation, staining using simple and complex staining methods, microscopy, and the method of culturing microbes.	knowledge of the preparation of native preparations, staining with simple and complex staining methods, microscopy, and microbial cultivation techniques	practice the technique of preparing a native preparation, staining with simple and complex staining methods, microscopy, and the method of culturing microbes
1 2 2 0 V V V V V V V V V	RO 10 2011 2011 2011 2011 2011 2011 2011	- demonstrates knowledge of the subject and	objectives of histology and physiology; - does not know the structure and general patterns		objectives of histology and physiology, their importance for medicine;	brilliant knowledg of the subject an tasks of histolog and physiology their significance for medicine; - has exceller knowledge of th structure an general patterns of functioning of cells, tissues, an regulatory

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Dep	artment of Biology and B	iochemistry, Chemical I mmunology, Morphophy	Disciplines, Microbiol siology	ogy, Virology and	50/11 48 pg.30p.
Workin	g curriculum of the discip	line "Structural organiza	tion of human physio	logical processes"	U. T. SKI
RO 11	- distinguishes, describes, compares the structural features of various cells, tissues, organs of the body and explains their functions; -has the skills to conduct laboratory research of cells and methods of processing the results;	 does not distinguish, does not describe, does not compare the structural features of various cells, tissues, organs of the body and does not explain their functions; Nothas the skills to conduct laboratory research of cells and methods of processing the results 	 partially describes, compares the structural features of various cells, tissues, organs of the body and explains their functions, makes gross errors; partiallyhas the skills to conduct laboratory research of cells; 	- distinguishes well, describes, compares the structural features of various cells, tissues, organs of the body and explains their functions, makes minor mistakes; -Finehas the skills to conduct laboratory research of cells and methods of processing the results;	- perfectly distinguishes, describes, compares the structural feature of various cells tissues, organs of the body and explains their functions; - Greathas the skill to conduct laboratory research of cells and methods of processing the results;
RO 12	-Able to present information clearly and logically in the form of a presentation. - compares physiological parameters (constants) of a healthy and sick organism; - analyzes information obtained during experimental observations, determines its significance for characterizing the state of the organism.	presenting information clearly and logically in the form of a presentation. - does not compare	presentation. - partially	Able to present clearly and logically put info mation in the form of a presentation. - compares physiological parameters (constants) of a healthy and sick organ Nism, tolerance what an unprincipled pialnye erro ki; - analyzes the information obtained during the experiment	Able to present information clearly and logically in the form of presentation. - ideally compare physiological parameters (constants) of healthy and sich organism; - freely analyze information obtained during experimental observations, determines itt significance for characterizing the state of the organism.

		МЕДІЗІНА АКАДЕМІАЗҮ ина академиясы» АҚ	ОUTH KAZAKHSTAN MEDICAL ICADEMY О «Южно-Казахстанская медици	інская академия»
Departm	ent of Biology and	Biochemistry, Chemical Discipline Immunology, Morphophysiology	es, Microbiology, Virology and	50/11 48 pg.31p.
Working cur	rriculum of the disc	ipline "Structural organization of h	uman physiological processes"	1.0 PB.0 PP.
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10.2 Criter	ria for assessing	g teaching methods and tech	nnologies	A Sh die
Checklist	for practical les	son	He st all all	W. KI St.

Form control	Grade	Evaluation criteria
Work in small groups (practica	95-100% (4.0; A)	The student has completed all practical and laboratory work and gives a ful answer to all theoretical questions and test assignments. Actively participates becomes an absolute leader in the group, knows how to conduct a dialogu- between subgroups, uses self-assessment and mutual assessment.
l, laborator y classes)	90-94% (3.67; A-)	The student has completed all practical and laboratory work and gives a ful answer to all test questions. Actively participates, leads in the subgroup, know how to conduct a dialogue between subgroups, uses self-assessment and mutua assessment.
KI St du.KI St	80-89% (3.0; B; 3.33; B+)	The student knows the theoretical issues, submitted laboratory work and report on them on time and made minor mistakes when answering practical lessons positive assessment on tests. Actively participates in the subgroup, knows how to conduct a dialogue between subgroups, uses self-assessment.
a.eu.edu	70-79% (2.33; C+; 2.67; B-)	The student knows the theoretical questions, submitted laboratory work and reports on them on time and made fundamental mistakes when answering practical classes; positive assessment on tests. Does not participate very actively in the subgroup, knows how to conduct a dialogue between subgroups, uses self assessment.
KZ SKN	60-69% (1.67; C-; 2.0; C)	The student experiences some difficulties when answering questions in practica classes, made logical and stylistic errors when answering. Did not complete the laboratory work on time, submitted all reports on them; showed little activity in class and needed the teacher's help, partially completed the test assignments.
ig.equ.kl	50-59% (1.0; D+)	The student made serious mistakes when answering theoretical questions and does not understand the questions of the topic. Did not fully complete the laboratory work and reports on it, did not complete the test assignments. Did not show activity in the subgroup.
KMC AR	0-49% (0.24; F; 0.5; FX)	The student is not prepared, does not know the topic and purpose of the lesson, and also did not complete the laboratory work, did not submit reports and did not participate during the lesson, did not complete the test assignments. Did not show activity in the subgroup.

АҚ O «Южно-Казахстанская медицинская ака, emical Disciplines, Microbiology, Virology and 50/11	демия»
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Evaluation criteria	JU. KI
4	The student answers all questions logically, clearly, c

Form of control	Grade	Evaluation criteria
Oral survey	Great Corresponds to ratings: A (4.0; 95-100%); A- (3.67; 90-94%)	The student answers all questions logically, clearly, competently, an is guided by the theories, concepts, and directions on the topic. He als answers additional questions from the teacher logically an competently.
skina. skina skina skina	Fine Corresponds to ratings: B+ (3.33; 85-89%); B (3.0; 80-84%); B- (2.67; 75-79%) C+ (2.33; 70-74%)	The student made minor inaccuracies in his answers, non-fundamental mistakes, which he corrects himself. He answers the teacher additional questions. The student made minor inaccuracies in his answers, minor errors which he corrects himself. He answers the teacher's additional questions with minor errors.
na.edu.ki	Satisfactorily Corresponds to ratings: C (2.0; 65-69%); C- (1.67; 60-64%); D+ (1.33; 55-59%) D (1.0; 50-54%)	The student made fundamental mistakes in his answers, which h corrects with the help of the teacher. He answers additional question with fundamental mistakes. The student made fundamental mistakes in his answers, which h corrects with difficulty with the help of the teacher. He makes gross mistakes in additional questions.
SKIII SKII	Unsatisfactory Meets the rating FX (25 - 49%) F (0-24)	The student made gross mistakes in his answers, which he could no correct, even when asked leading questions by the teacher. He coul not answer additional questions by the teacher.
Form of control	Grade	Evaluation criteria
Problem solving	95-100% (4.0; A)	- the correct algorithm for solving the problem has been drawn up there are no errors in logical reasoning and in the choice of formula and solution, the correct answer has been obtained, the problem ha been solved in a rational way; provides a complete and clear explanation of the solution to the problem, the ability to draw conclusions based on the data obtained.
204.14	90-94% (3.67; A-)	- the correct algorithm for solving the problem has been drawn up there are grammatical errors in the logical reasoning and in the choic of formulas and solution, the correct answer has been obtained, the problem has been solved in a rational way; the ability to draw conclusions based on the data obtained.
ia.eou	80-89% (3.0; B; 3.33; B+)	- the correct algorithm for solving the problem has been drawn up there are no significant errors in the logical reasoning and solution; the formulas for the solution have been chosen correctly; there is a explanation of the solution, but the problem has been solved in a irrational way or no more than two insignificant errors have been made, the correct answer has been obtained.

«Оңтүсті	ік Казакстан ме;		EDISINA (SKMA) MEDICA		нская академия»
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2. 5K-14 2. 5K-1 2. 12. K2 . edu. K2 . edu. K2	ia. 60 m	33; C+; 2.67; 3-)	 the correct algorithm for solving the problem has been comp there are no significant errors in the solution; the formulas for solution have been chosen correctly; but there is no complete and c explanation of the solution, and the problem has been solved in irrational way or more than two insignificant errors have been m the correct answer has been obtained. the problem has been solved, but significant errors have been n in the choice of formulas or in mathematical calculations, the problem has not been fully solved 		
ma.ed	60-69% (1 (.67; C-; 2.0; C)			
	No. CO N	(1.0; D+)	- the problem was so logical reasoning and	lved incorrectly, there in the solution.	are significant errors
A St	0-49% (0.24	4; F; 0.5; FX)		blved, there is no answe	r to the task.
	n of control				tion criteria
Testing	J. Y. St. SKI	Corr A (4.0; 95-1 A- (3.67; 90		90-100% correct a	nswers
SKM2.	na.edu.k.	1, 3, Kuis	Fine esponds to ratings: 5-89%); 34%);	70-89% correct answers 50-69% correct answers	
a.edu.kr	AU. KA SKING		59%);)-64%);		
1 skno.	a.eou edu.	1 St I	U nsatisfactory Aeets the rating	less than 50% corre	ect answers

	Checklist for SR Presentati	
Form control	Grade	Evaluation criteria
Presentation of the topic	Great 95-100 points 90-94 points	The presentation was completed independently, at the appointed time term, with a volume of at least 20 slides. Not used less than 7 literary sources. Slides are informative and concise. Durin defense, the author demonstrates deep knowledge of the topic. Does make mistakes when answering questions in

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edu. K. S.		The r		s completed independently, a	t the appointed time.			
edu.k.k.k.	85-89 points	term,	, with a volume	of at least 17 slides. Not used				
a.edu.ku.ku	80-84 points		han 6 literary so		No. 60 W. V			
Na.eu edu.r.	75-79 points			tise. When defending the auth mowledge of the topic. Mak				
No. Co. M.	70-74 points		demonstrates good knowledge of the topic. Makes minor mistakes whe answering questions that					
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, Auros	65-69 points 60-64 points	less t	han 5 literary so	ources. Slides are not information	ative.			
1 3. 240,00	50-54 points	/	During the defense, the author makes fundamental mistakes					
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60	national or religious characteristics. The student leads a healthy lifestyle and completely refuses harmful substances habits.
5	The student respects the traditions of the university, takes care of its property, and keeps it clean. and order in the student dormitory.
J.Y.	The learner recognizes the necessary and useful activities aimed at development of creative activity (scientific, educational, sports, artistic, etc.), to improve the corr culture and image of the university.
	Outside the walls, the student always remembers that he is a representative of the highest schools and makes every effort not to damage his honor and dignity. The student considers it his duty to fight against all forms of academic
	dishonesty, including: cheating and turning to other people for assistance in passing knowledge control procedures; submission of any volume of ready-
	educational materials (abstracts, term papers, tests, theses and other works), including Internet reso as the results of one's own work; use of family or official connections to obtain a higher grade; tru being late and missing classes without a valid reason.
Į.Y	The student considers all the listed types of academic unfair as incompatible with obtaining quality and
	 competitive education worthy of the future economic, political and managerial elite of Kazakhstar <i>Course grading policy</i>
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2	1. Evaluation of students' academic achievements involves evaluation of current control,
	midterm control and final certification of students.2. Current monitoring of students' knowledge is carried out within the framework of practical
24	(seminar, laboratory) classes with daily completion of the educational journal
	students' progress and the electronic journal until the end of the week. The teacher,
1	missed a class, lecture and SRO (if not exempted from classes according to
	(according to the order of the dean of the faculty) the mark "ж" is put (language of completion - Kazakh); "n" (language of filling - Russian); "a" (language of filling - English).
ZV.	3. Missed classes for an unjustified reason will not be made up.
	Students who miss classes for an unjustified reason or who fail to complete their work in the elect
0. 0	 journal are given a grade of "0" next to the "n" mark in the last week of the academic period. 4. Missed classes for a valid reason are made up when providing a supporting document (due to illness, family circumstances or other objective reasons)
A Cr	student is obliged to provide a certificate no later than 5 working days from the date of its receipt. absence of supporting documents or if they are submitted to the dean's office later than 5 working
5	after returning to study, the reason is considered invalid. The student submits an application to the and receives a work sheet indicating the deadline, which is valid for 30 days from the date of its re in the dean's office. Students who missed classes for a valid reason are given a grade in the elect

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	journal next to the mark "n" received as a result of working the class. In this case, the mark "n"
SAN.Y	 automatically canceled. 5. Students who missed classes due to the dean's order to be released, the mark "n" is not given, the grade received as a result of working through the lesson is given. The form of control is determined by the department (department policy).
10.00	6. By the 1st of each month, departments submit information on academic performance to the dean office.student attendance.
SK.	7. Midterm assessment of students' knowledge is carried out at least twice during one academic period of 7-8/14-15 weeks of theoretical training with
	 by entering the results of midterm assessments into the academic progress log and electronic journal taking into account penalty points for missing lectures (lecture absences in the form of penalty points are subtracted from the midterm assessment grades). The penalty point for missing lecture is 1.0 point. A student who fails to appear for a midterm assessment without a valid reason is not allowed to take the exam in the discipline. A student who fails to appear for a midterm assessment for valid reason, immediately after starting classes, submits an application to the dean, provides supportind documents (due to illness, family circumstances or other objective reasons), and receives a work-or sheet, which is valid for the period specified in paragraph 12.4. The results of the midterm assessment are submitted to the dean's office in the form of a report before the end of the assessment week. 8. The SRO assessment is given during the SRO classes according to the schedule in the academic yeap progress log and electronic log taking into account penalty points is deducted from the SRO grades The penalty point for missing 1 SRO class is 2.0 points. 9. A student who did not achieve a passing score (50%) for one of the types of tests (current control, midterm control No. 1 and/or No. 2) are not allowed to take the exam discipline. 10. Adjustment of assessments of current and midterm controls is carried out when technical errors in filling out the electronic journal based on an explanatory note from the teacher (signe by the head of the department) indicating the reason; submission of supporting documents (academic progress journal, etc.); permission from the vice-rector for academic and methodological work. 11. Assessment of students' knowledge is carried out using a letter-based score-rating system. system, according to which 60% is current control, 40% is final control.
	 12. The final grade is calculated automatically based on the average grade. current control, average grade of midterm controls and final control grade: Final grade (100%) = Admission rating (60%) + Final control (40%) Admission rating (60%) = Average grade of final controls (20%) + Average grade of current control (40%)
o.edi	Average grade of midterm controls = Midterm control1 + Midterm control2/2 Average assessment of current control = arithmetic mean of current assessments taking into account th average assessment according to SRO Final score (100%) = RKsr x 0.2 + TKsr x 0.4 + IR x 0.4
SKA	PKcp – average grade of midterm controls TCSR – average current control rating IC – final control assessment
	13. The level of mastery of the academic discipline by the student is reflected in examination report on a 100-point scale, corresponding to the one adopted in

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Department of Biology and Biochemistry, Chemical Dise Immunology, Morphophysic		50/11 18 pg.48p.
Working curriculum of the discipline "Structural organization	20 1 Kr 2 Kl 3 C 20	VI Sting
international practice of a letter system with from "A" to "D", and "unsatisfactory" - "FX 14. The final control is carried out in two sta	", "F") and grades according to the t	
The program for the discipline provides for the	he acceptance of practical skills. Dur urried out by the OSPE/OSKE method	

stage of the exam - testing.

15. Based on the results of the midterm assessment, students studying in the state The educational grant is awarded a scholarship subject to passing all exams

grades from "A" to "C+".

16. A student who entered the Academy after graduating from a university (bachelor's degree), for receiving a second higher education, has the right to be exempt from attending courses in which he has a positive final result.

17. Results of final assessments in the form of credit for previous education are taken into account when assigning a scholarship.

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