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7. 411.	Department of Chemical Disciplines, Biology and Biochemistry 46-11	7
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# Syllabus Curriculum for the discipline "Biochemistry" Educational program - 6B10115 """ Ition about

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Mikr skug	Curriculum for the discipline "Biochemistry"  Educational program - 6B10115 "Medicine"  General information about the discipline:
4.1	Course Code: Bio 2204  1.6 Academic year: 2025-2026
1.2.1	Name of the discipline: "Biochemistry" 1.7 Course: 2
34 A. 13.	Prerequisites: chemistry, molecular biology 1.8 Semester: 3 and medical genetics
1.4	Postrequisites: "General pathology", 1.9 Number of credits (ECTS): 4
1. Hills	Digestive and endocrine system in
griff & Skillio	pathology", "Genitourinary system in pathology".
1 1.5 8	Cycle: BD 1.10 Component: VK

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Contents of the course:

Developing knowledge about the functional organization of enzymes, the role of membranes in metabolism, mechanisms of substance transport, vitamins and their biological role, anaerobic energy pathways, catabolism, carbohydrate, lipid, and protein metabolism, and the concept of nitrogen balance as an indicator of protein metabolism. Principles of analysis for the diagnosis and treatment

	3.	Summative assessment form:	V	2 40. Ep. 15. Ep. 10. M.
	3.1	Testing   O	3.5	Coursework
>	3.2	Writing	3.6	Essay
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9	3.4	Certification of practical skills	3.8	Other (specify)

# Objectives of the discipline:

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developing in students a holistic understanding of the molecular mechanisms and regulation of basic metabolic processes, the characteristics of their occurrence in human organs and tissues, and the use of knowledge of biochemical indicators for diagnosis and monitoring of treatment effectiveness.

## Ma.edu 5. Final learning outcomes (FLO of the discipline): Demonstrates knowledge of the structure, functions, and properties of representatives of the main classes of bioorganic compounds: carbohydrates, lipids, simple and complex proteins, vitamins, etc. Understands the molecular mechanisms of metabolic processes and their regulation and the possible consequences of their disruption. Knows the basic biochemical constants of biological fluids in the human body under normal and pathological conditions. 77. Conducts biochemical studies to determine intermediates of carbohydrate, lipid, and nitrogen metabolism in human biological fluids; determines the activity of specific enzymes in blood serum. Interprets the results of basic biochemical studies; uses metabolic maps and specialized reference material to predict the characteristics of biochemical process disorders and their regulation due to Mi Skura, edi deficiencies of biologically active substances (vitamins, enzymes, hormones). , ki skna edu skna.edu.kl skug ednik

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ST	US.	literary search and analysis of scientific articles in independent study of the discipline; ability to
1 3	KUS	work in a team. Him and the state of the sta
N.Kr	5.1.	LO Learning outcomes of the EP, which are associated with the discipline's LO
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egic.	KI	LO 1 Apply fundamental knowledge in biomedical, clinical, epidemiological
(S. 691)	· K	LO 2 and social-behavioral sciences in practice.
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the sol	. %	LO 4 LO 11 Analyzes the effectiveness of diagnostics and treatment results using the
SKILL	79.EC	principles of personalized medicine.
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1	6.	Detailed information about the discipline
11.12	6.1	The location of the department is Al-Farabi-1 square, building No. 1, 4th floor, rooms 400,
in White	3	404, 406, 408, 411, 413 biology_biochemistry@mail.ru, ext.: (ATS) 40-82-06. ext. 227

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U	10.60	<b>Practical lesson:</b>	lipid digestion. Absorption of lipid digestion products. Formation and metabolism of transport lipoproteins. Intracellular lipolysis. Oxidation of saturated unsaturated, and odd-chain fatty acids. Ketone body metabolism. Fatty acid biosynthesis. Lipid metabolism pathology.  Classification, chemical structure, and biological functions of lipids. Cholesterol and its derivatives. Stages of lipid metabolism in the body. The mechanism of lipid digestion in the digestive tract. Enzymes involved in this process. Metabolism of chylomicrons, VLDL, LDL.	LOI	SK, 2	Seminar, case studies, testing, laboratory work	Checklist	777.
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### OŃTÚSTIK-QAZAQSTAN MEDISINA AKADEMIASY «Оңтүстік Қазақстан медицина академиясы» АҚ SKMA MEDISINA Ah,

J.K. Sking.

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Stand. Edul.

SOUTH KAZAKHSTAN MEDICAL MEDICAL ACADEMY АО «Южно-Казахстанская медицинская академия»

71)	1	«Онтустік Казакста	MEDISINA AKADEMIASY н медицина академиясы» АК	MEDICAL ACADEMY AO «Южн	V. YI).	анская медицинская	акалемия»	5
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,	Chy.	Practical lesson:	Neuroendocrine regulation of	LOI	34	seminar,	Checklist	~D.
1	9	Hormonal	metabolism. Classification of	LO2	edu.Kl	situational	SHECKIIST SK	
Kr	5	regulation of	hormones by site of synthesis,	1.04	40.	tasks, testing	401.K	15
	KI	metabolism and	chemical structure, and	LOT	2. N	tasks, testing	8.6911.KJ 6.46	9
9/	. 1	body functions.	biological functions. Interaction	r sku	ALUG. OLI	gniky ski	a.edu.k.	
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Ø.	690	1 Skugies Sinis	thyrotropin-releasing hormone,	.4	SKUG EG	8, 11/4, 2,	skugiegniky	K
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ė	KWg.	of thyroid and	hyperthyroidism. Mineralocorticoids.	LO2	Kr o	of a scientific	XX SKI	Ø.
أري	SKS	adrenal hormones.		LO4	(L)	article, problem	J. Cr Sky	-9
1		111 0 11	Glucocorticoids.		911.	solving	77). 4	1/1/1
1	7	Lecture:Biochem	Biochemistry of the liver and	FO1	VI NIX	article, problem solving overview	feedback	o` .
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- 4	1	Practical lesson	Liver biochemistry. Chemical	LO1	3 % X	seminar, situational tasks, testing	Checklist	) (
5	Skug	Biochemistry of	composition, structure, and	LO2 LO4	. 12	situational	S. Million	0
,	SK	the liver and	biological functions of the	LO2 LO4	1.Kr	tasks, testing	Kr Sk X	3.
.1	1	kidneys. Water-	liver. The biological role of the	Win SQ	K	21 Wa. of	3 KJ 3K	2
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tu.	-D.	Mir 1 Killy	compounds in the liver.	K	St	18. Sqn. 17	SK. 29.	80
1	100	salt metabolism. Kr	liver. Metabolism of natural, foreign, and medicinal compounds in the liver.	gedn's dn'y	1 SK	semmar, situational tasks, testing	Anigina edniki	27
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OŃTÚSTIK-QAZAQSTAN SOUTH KAZAKHSTAN MEDICAL MEDICAL ACADEMY АО «Южно-Казахстанская медицинская академия» SKMA MEDISINA AKADEMIASY «Оңтүстік Қазақстан медицина академиясы» АҚ MEDISINA

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	10.8du	Practical lesson:	and enzymes.	D. 17 9	3K), ~	8. W. W	Thu, vien	77/
b	10.	Practical lesson: Blood	Blood biochemistry. Structure and metabolism of erythrocytes. Glucose metabolism in erythrocytes. Disorders of erythrocyte metabolism. The blood coagulation system. The anticoagulation system. The role of platelets in hemostasis. Fibrinolysis. Plasma proteins and enzymes.  Chemical composition of blood plasma, biological functions. Blood plasma enzymes. Diagnostic value of indicator enzymes. Blood plasma proteins. Normo-, hypo-, hyper-, para-, and dysproteinemia. Individual	LO1 3	3 45	Seminar, case	Checklist	30
3	SKMO	Blood 1	plasma, biological functions.	LO2	1 5.	studies, testing.	A St. Wg.	O.
	SKI,	biochemistry.	Blood plasma enzymes.	LO3	EV C	laboratory work	K 34	₹3.
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1	2	practical.	enzymes. Blood plasma	* 20°   3	90.	1 241 - 2.0	NJ. T.	1/10
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1	5	Laboratory practical.	and enzymes.  Chemical composition of blood plasma, biological functions. Blood plasma enzymes.  Diagnostic value of indicator enzymes. Blood plasma proteins. Normo-, hypo-, hyper-, para-, and dysproteinemia. Individual blood plasma proteins, acute phase proteins, the complement	3KU, 18:00	90'K	Seminar, case studies, testing, laboratory work	Checklist  Checklist	LS

OŃTÚSTIK-QAZAQSTAN MEDISINA AKADEMIASY «Оңтүстік Қазақстан медицина академиясы» АҚ MEDISINA

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MEDICAL ACADEMY AO «Южно-Казахстанская медицинская академия»

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.4			total protein in blood serum."	TO1 0	116	at. a.	Day VIV. 6	(1)
1	, 9	SIWP:	The process of hemostasis.	. 101	1/6	presentation,	Checklist	N
	1	Blood	Blood coagulation factors.		8. 80 M	reproduction of	Ser With	5
6		coagulation,	Extrinsic and intrinsic	LO4	S. S.	blood	Checklist	V
7	471.	hemostasis	mechanisms of blood	\ •	Mo.	coagulation and	Mg. All.	1
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Ť	924	Practical lesson:	Chemical composition of	LO1	4.42	seminar.	Checklist	2
	1.0	Biochemistry of	muscle tissue, biological	LO1 LO2	90. 1	situational	SHOOKIISTS	12/10
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	20.	the intercellular matrix.	Sarcoplasmic and myofibrillar proteins. Structure of myosin filaments. Structure of actin filaments. Biochemical mechanism of contraction and relaxation of muscle tissue. Dystrophy and denervation of muscle tissue. Features of the	Br "IKh	5	TU. 60, K	St 70.	29
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# OŃTÚSTIK-QAZAQSTAN MEDISINA AKADEMIASY «Оңтүстік Қазақстан медицина академиясы» АҚ MEDISINA

J.K. Sking.

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MEDISINA AKADEMIASY «Онтустік Қазақстан медицина академиясы» АҚ

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Mr.

SOUTH KAZAKHSTAN MEDICAL ACADEMY

АО «Южно-Казахстанская медицинская академия»

Department of Chemical Disciplines, Biology and Biochemistry

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«Онтустік Қазақстан медицина академиясы» АК



АО «Южно-Казахстанская медицинская академия» 46-11...

Department of Chemical Disciplines, Biology and Biochemistry

32 of 15p.

Curriculum for the discipline "Biochemistry"

Interprets the results of basic biochemical studies: uses metabolic maps and specialized reference material to predict the characteristics of biochemical process disorders and their regulation due to deficiencies 10.6111.12 of biologically active substances (vitamins, enzymes, hormones). skna.edu.kl akug edi skus edu.ki sknaedu.kl

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- 1. Unable to interpret the results of basic biochemical tests.
- 2. Does not understand the metabolic maps of the body's structural and functional components.
- 3. Cannot use reference material when predicting the characteristics of disruption of biochemical processes and their regulation to due deficiency of of biologically active substances (vitamins, enzymes, hormones).

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January January Sking edu. Kl. Sking

- 1. Interprets the results of basic biochemical studies, allows for minor inaccuracies when discussing situational problems, and has difficulty drawing conclusions.
- 2. Difficulty describing metabolic processes presented metabolic maps of the structural and functional components of the body.
- Poor understanding of reference material when predicting the characteristics of disruption of biochemical processes and their regulation. SKMa.edu.K. Skma.edu.K. Skma.edu.K.

- 1.Applies theoretical knowledge to interpret basic biochemical studies. Draws correct conclusions based on the interpretation of data presented situational problems.
- 2. Competently and clearly analyzes sequence the metabolic patterns of the structural functional components of the 🔨 body. presented on the maps
- 3. Effectively uses reference material when predicting characteristics of disruption of biochemical processes and Julie Sking Edulk their regulation.
- **Demonstrates** excellent knowledge of reference biochemical parameters when interpreting proposed biofluid analysis data. Demonstrates 2 original thinking problems, based or when deep 1 understandin theoretical material.
- Demonstrates excellent knowledge of the required educational material in describing the metabolic schemes of the structural and functional components of the body, presented on the maps.
  - 3. Effectively material when

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		14	terminology of the subject, and answers with gross stylistic and logical errors.	KU. 300 %

# Written response to the questions in this assignment

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1		SKI	the material, and drew on scientific advances from other disciplines in his 27-30	St 2
17.		1	answer. He used scientific terminology.	SKII
71	) . //-	2	The student demonstrated knowledge of the material and made minor 21-26	1
SO		MA	inaccuracies, which were corrected by the student. He used scientific	7.
O	0	), '	terminology of all 1 at a second of the seco	W.K.
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St.	2	(o. )	scientific terminology, experienced great difficulty in systematizing the	900
3		20.	material, and needed the teacher's help.	20
1		4	The student did not answer the teacher's questions, made fundamental mistakes   0-14	5.
. 1		3	and inaccuracies, and did not use scientific terminology in his answers.	C/L
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91	Completed practical and laboratory work on time and without any errors and	N 26.	90	1
9.	submitted reports on them, took an active part in the discussion of the results of	27-30	6	)·.`
	the work, made well-founded conclusions, and demonstrated original thinking.	M. 12 exp	₩.	>
2	Completed practical and laboratory work on time and submitted reports on them	21-26		(0)
3, 10,	without any fundamental comments, took an active part in the discussion of the	3. M. T. 2	KUI	P.
SK	work results	in so, it	5	5
V 3	Completed practical and lab assignments on time and submitted reports. Was	15-20	9	-
1	inactive during work and required assistance from the instructor.	2 Wa. 9/1.	(1)	
34	Failure to submit practical reports on time and making fundamental errors	0-14		/
77).	during their completion. Not completing all the practical work required by the	1 3K 20.	471.1	
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80,	77).Kr	2       70-89% correct answers       8-9         3       50-69% correct answers       6-7         4       Less than 50% correct answers       0-2	5
(0)	0, 1/K	3 50-69% correct answers 6-7 4 Less than 50% correct answers 0-2  olving situational problems	1
Mo	%4. S	2. 10. 17. 17. 18. 19. 19. 19. 19. 19. 19. 19. 19. 19. 19	Kr
SK2	No	Evaluation criteria Points	eg)
	5 1	Demonstrates original thinking when solving a situational problem. Fully utilizes theoretical knowledge necessary for solving the problem. Demonstrates	
KI	SK	utilizes theoretical knowledge necessary for solving the problem. Demonstrates excellent knowledge of reference biochemical parameters when interpreting proposed biofluid analysis data. Demonstrates the ability to draw logical conclusions based on a situational problem, while demonstrating a thorough	Us
	(1) d	excellent knowledge of reference biochemical parameters when interpreting proposed biofluid analysis data. Demonstrates the ability to draw logical conclusions based on a situational problem, while demonstrating a thorough understanding of the required course material.	
917	. 1	proposed biofluid analysis data. Demonstrates the ability to draw logical	3
>.	90,	conclusions based on a situational problem, while demonstrating a thorough	,
~ ? E	30 14	understanding of the required course material.	
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	ST	9. 89, 11 24 20. 911. 17 341, 36, 1114 36, 1114, 36, 36, 36, 36, 36, 36, 36, 36, 36, 36	)
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).	20		Department of Chemical Disciplines, Biology and Biochemistry 46-11
0	2	777.7	Curriculum for the discipline "Biochemistry"  32 of 20p.
Fills		30	1/2 2 1/2 60 1/2 24 1/3. 80 1/3 2/2 1/3 1/3 1/3 1/3 1/3 1/3 1/3 1/3 1/3 1/3
), 	100	2 0	Possesses the necessary knowledge to solve a given situational problem. Allows 19-24
5	(	US.	for minor inaccuracies when discussing a given case. Capable of drawing correct
\ 	3	~	conclusions based on the proposed situational problem.
1		3	Allows minor inaccuracies when discussing a given problem, has difficulty 14-18
17.	.1	à	interpreting the analyses proposed in the situational problem, and draws
	7	4	conclusions with difficulty.
SO		4	Makes fundamental mistakes in discussing situational problems. Passive, unable 0-13
0.	60,	, Y	to draw appropriate conclusions.
20		90	T 34 30. 911. 1 341. 30 11/2 1 2 11/2 60 11/4 2 14/2 60
St.	2		Situational tasks-maximum 28 points (each task maximum 14 points):
3	0	~W.	" " The sec " Th
1.	1	No	Questions C C Level S C C

### Situational tasks-maximum 28 points (each task maximum 14 points):

No	Questions	ed Kr	Le	vel & O	90. 1 ch
150	o eq. IXI si	Great	Fine	Satisfactorily	Unsatisfactory
1	1 situational task on	14 du	1 510	90° 7 %	0,00
	the topic	ch, vs. 411.	A SKILL OF	30 771/6	Thus on the
2	2 situational tasks on	14	10	7.1	2, 14,00 Gg 15
17.	the topic	1. Kills 6	5	Us Egg Kr	St. Wa. Syn
70.	Total:	28	20 20	14,000	£ 50 %. 8

### CHECKLIST for SIWP/SIW

	Ņς	Evaluation criteria (	K. 30. 91	Lev	el N	1.	V
	0.	"Wa. 890, KJ 81 Wa. 911. 17	Great	Fine	Satisfactori	Unsatisf	2
H		2 20. 29. 17 24. 20. M.	1. KI	ec like	ly	actory	l
	1	Independent	workstudents	So, 'K	St Ma	. Ogg, A	1
	1	Making a presentation	40 5	30	155	Vs. 0 9/1.	l
	2)	Completing essays or analyzing scientific	20 9	15 6	10 %	0	ì
	e <sub>C</sub>	articles articles	egn. KI	SK, SS.	80.	Kill, Die	ĺ
Ç	້ 3 ເ	Completing the glossary	0 10	8	7.	0.00	
	4	Solving situational problems/writing	30	20	°17	0	1
	F, (	biochemical reactions or formulas	Killy Sec. 1	Vita S.	THIS BOY	Kr Sk	l
	SK	General:	100	73	46	0	è

1. Presentation of the topic:

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	1	1 I CSCIITA	ition of the topic.	60. Tr	- 9°.
77)		No.	Evaluation criteria	Points	V è
,		1 , 5	The presentation was completed independently, within the assigned timeframe,	31-40	
0	5.	W.K.	and contained at least 25 slides. At least 7 literary sources were used. The slides	Thur year	111.
10.	0	ign Kr	were informative and concise. During the presentation, the author demonstrated	S KILLO OF	0 1/4
. d	Ø.	egn.	a thorough knowledge of the topic and was accurate in answering questions	S. Mo.	epi
St		\$ N	during the discussion.	Kr Sk	10.
	SY	2	The presentation was completed independently, within the assigned timeframe,	4:30 PM	0.
1		cku, o	and contained at least 23 slides. At least six literary sources were used. The slides	egn. 12	SKI
1	1.	KILL	were informative and concise. During the presentation, the author demonstrated	3. 80.	KU
	Fr	5,	a good knowledge of the topic. The author made minor errors in answering	9. 80 M.K.	1.
60.		th a	questions, which he or she corrected.	10000	Fr C
	,60	3	The presentation was completed independently, within the specified deadline,	10-15	Kr
20	,	3917. K	with at least 20 slides. At least 5 literary sources were used. The slides lack	St. Ma.	SON I
7.	0	901.	substance. During the defense, the author made fundamental errors in answering	SK WO	917.
C/4		~ ~ ~	questions.	1 of.	
,	X	Up Sec	" "Tity of "This Egg " The Egg of St. 20" " "	3U. 12 64	J. 9.
1	9	KINO	800 1/41 24 Wg. 890 KJ 24 Wg. 911. TJ 341. 916	N. 1.	Killin
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70. 40.1	Department of Chemical Disciplines, Biology and Biochemistry 46-11	
°Ø. %	Curriculum for the discipline "Biochemistry"  32 of 21p.	.1

du.	KV SK «6	<b>АКАDEMIASY</b> ———————————————————————————————————	кая академия»	Q.
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~Ø.	30.1	Curriculum for the discipline "Biochemistry"	32 of21p.	90
Kille	SO. I'A	2 14 80 14 24 40. 80 17 24 30. 80. 1	L CKI OF	0
),	4 000	The presentation was not submitted by the deadline; it had at least 20 slides.	0-9	
SK	60.	Fewer than 5 references were used. The slides lacked substance. During the	The S.	60
\ \	34.	defense, the author made serious errors in answering questions. He was unsure	in Kr Sk	
1	c/KIII	of his own material.	edu. Kl	34
17.1	2. Analysi	s of scientific articles:	D. 901. 1	

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, ,	1	No.	Evaluation criteria & A A	Points	1
SO.		1	The work was completed neatly and submitted on time. It was independently	U. 500 77	1
O	60	K	written on at least three pages of printed text. The author's thoughts on the problem	16-20	11/4
100	*	690 A	were clearly and convincingly presented. Authors' references were provided	S. Mo	SOL
3	20	911.	throughout the text. During the defense, the author narrated the text rather than	St. Wo.	2
3		₩.	read it. He confidently and accurately answered all questions. Articles used for the	KI SK	20
1		70,	work were no more than five years old.	y. 12 34	7,
. 1	9	2	The work was completed neatly and submitted on time. It was independently	10-15	K
1/1	ľ	5, 14	written on at least three pages of typed text. The author's thoughts on the problem	. OC 11/1-1	9
	X	SK	were clearly expressed, but without arguments. Authors were referenced	ec. Kr	
6		Q.	throughout the text. During the defense, the author narrated the text rather than	War Eggs	KI
Ø.	5	5.	read it. When answering questions, the author made minor errors. Articles used for	(3. SQ)	>.
	).	771.1	the work were no more than five years old.	St. So.	9/2.
Ku		3	The work was completed neatly and submitted on time. It was independently	6-9	
9	20	e C	written on at least two pages of typed text. The author's thoughts on the problem	1.1 ctri	0.9
, c	) .	"Wo.	were presented in a scattered manner, lacking arguments. Authors were not	7.4	TUC
KI.	C.	J. 10.	referenced throughout the text. During the defense, the author read the text.	in the s	
· 4	1	SKI	Hesitantly answers questions and makes fundamental errors. The work was based	ede KI	9
90.	N.	1 2	on articles more than five years old.	9. 9/11. K	
2	1).	4	The work is written in less than two printed pages. The ideas are presented	0-5	1
00	٠.	W. T.	scatteredly, without supporting arguments. The text contains no citations to the	The Second	7.4
100	e	D. Kr	authors. During the defense, the author reads the text. When answering questions,	Kills Sign	
25	Ø.	690	he makes serious errors and is unsure of the material. The work uses articles more	S. Milio	600
St		O. 91	than five years old.	V 55	<b>9.</b>
	3.	Prepara	ation of written creative work (essay)	12 24	-0

3.	. Prepara	ation of written creative work (essay)	KI SK	
	No.	Evaluation criteria A A A	Points	SKI,
1.	1	The content of the paper is fully consistent with the topic; the theme is explored in	N. 1	3
1	9,	depth and with argumentation. The presentation of ideas is well-structured, logical,	16-20	1.
	Kr 5	and consistent. The essay's problem is clearly articulated. There are no factual		K
,62	KI	errors. The conclusion contains inferences that logically follow from the content	Thus Bos	14
	90. 1	of the main body.	2.	900
0	2	The topic is explored fairly fully and convincingly, with only minor deviations.	11-15	
	₩. ×	The thesis is clearly formulated and consistent with the essay's topic. The main	T SKI	20.0
X	W. 80	body of the essay is logical and coherent, but not fully substantiated, and contains	i at	6.
2,	Tellio	a few factual inaccuracies.	W.F 3	120
	3	The answer to the topic is correct, but one-sided or incomplete. There are	5-10	3.
KI	SK.	deviations from the topic or individual errors in the presentation of factual material.	80° 11'KI	
)	(1 è	The material is presented fairly logically, but there are some irregularities in the	Co. Sgr.	K
9	3.	flow of thought. The conclusions do not fully correspond to the content of the main	Mg. og	).
0	W.F	body. The state of	ch, va.	90
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1	L SKI	3. M. J. Kur Sier Mith & Rule Soc lith St. W.	, 690, K	

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~?·	30.1	Curriculum for the discipline "Biochemistry"	32 of22p.
Till,	So I'k	2 "40 80 Kh 24 48. 90 TJ 24. 35. 80. 1	· KI
), 	1° 4 e 0° 1	The topic is not fully explored, indicating a superficial knowledge. It is	0-4
5	10g. og	characterized by a haphazard arrangement of material and a lack of connection	Yr S.
V	St. 20.	between sections. It is distinguished by the presence of serious speech errors.	Kr S

### 4. Solving situational problems

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V	No	Evaluation criteria	Points	
	1	34 Jan apr. 1 skill so mix 1 skill so mix s m	io soo it	7
5	1	Demonstrates original thinking when solving a situational problem. Fully utilizes	100. 39	
	90.	theoretical knowledge necessary for solving the problem. Demonstrates excellent	9:30 PM	20
0	· >	knowledge of reference biochemical parameters when interpreting proposed biofluid	SKI, SO.	
,	0	analysis data. Demonstrates the ability to draw logical conclusions based on a	1 649	2
	U.O.	situational problem, while demonstrating a thorough understanding of the required	1. 3 720	
3	2	course material.	it s.	15
	2	Possesses the necessary knowledge to solve a given situational problem. Allows for	18-20	5
1	/	minor inaccuracies when discussing a given case. Capable of drawing correct	Sylv. K	
	.4.	conclusions based on the proposed situational problem.	10. 9n.	1
λ'	3	Allows minor inaccuracies when discussing a given problem, has difficulty interpreting	10-17	,
5		the analyses proposed in the situational problem, and draws conclusions with difficulty.	Thursday	
	4	Makes fundamental mistakes in discussing situational problems. Passive, unable to	0-9	30
0	y. 0	draw appropriate conclusions.	2, 120.	4

### 5. Preparing a glossary

No Evaluation criteria Points  1 Awarded if the student has compiled a glossary independently; it contains at least 20 terms. The terms are relevant to the topic being defended; the wording is correct, consistent with the biological meaning, and complete. The terms are arranged alphabetically, and a full definition is provided.	1
least 20 terms. The terms are relevant to the topic being defended; the wording is correct, consistent with the biological meaning, and complete. The terms are arranged alphabetically, and a full definition is provided.	oints
is correct, consistent with the biological meaning, and complete. The terms are arranged alphabetically, and a full definition is provided.	3 77.
arranged alphabetically, and a full definition is provided.	2. N
	ilo So.
A wounded (Michael Manethan again ited (Manethan again) in the and and by ite anto it at 1710	"U.O.
2 Awarded if the student has compiled a glossary independently; it contains at   7-8	SK MO
least 20 terms. The terms are relevant to the topic being defended; the term is	SKI
correctly formulated and corresponds to its biological meaning. There is no	12 SY
alphabetical order. There are some inaccuracies.	
This is given if the student has compiled the glossary independently; its size is 5-6	77).Fr
at least 20 terms. The wording of the term corresponds to the biological	80, 1/K
meaning, but is not complete. There is no alphabetical order;	6,00
4 This is given if the student has compiled a glossary independently; its size is 0-4	No. 39
at least 10 terms. The terms are not relevant to the topic; serious biological	30.0
errors are allowed. There is no alphabetical order;	cku.

### CHECKLIST for interim certification

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5		N Evaluation criteria Level	1
	5	o Great Fine Satisfactor Unsatisf	
1		St of Silv of actory	0
• •	1	Midterm exam (1) ST (1) ST (1) A	
20		1 Written response to questions 30 20 15 0	J
3	20	2 Completing test assignments 30 20 15 0	
	SO	3 Solving situational problems 40 30 20 0	
1,0	-	General: 50 100 100 50 100	S
	10	. " " A 34 " " " " " " " A 44 " " " " A 44 " " " "	
3		was app. A sky as with a sky a so with a surious source.	4
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70.	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	46-11.0
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Tille 60	1.14 2.16 60 14 24 70. 90 17 34 35 89. 11	CKII O.
D'O.	1. Written response to questions	1. 411000

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Approximately 3 questions of maximum 10 points:

No.	Questions	411. 3.8 111.1	1. Le Le	evel	is ear Kr e
S	20. 70. 1	Great	Fine	Satisfactorily	Unsatisfactory
1	1 question on the	40 00	14 65 Wo	5 1	y, 70.0 gn.
	topic	V SI MO	or to ex	wa. odn. Kr	SK, 35. 111.
2	2 questions on the	10	61 8	5 5	
CO.	topic	20 A SK	3. 40. 1	K1. 3. 47.	1 Stills 6
30	3 questions on the	10 K	8,0,7	1475	11/4 0, W.
00.	topic X	2. VII. 1	The second	S. Mio. 6	or the st
	Total:	30	20	15	of Or of
cku.	0. 77.4.	Kur So IK	2, 10,00	The street	13. 39n. KT

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No	Evaluation criteria	Points	1.	ì.
1	The student demonstrated original thinking, demonstrated a deep knowledge of	Kull Sep 11)	F	
7	the material, and drew on scientific advances from other disciplines in his	27-30	Kr	ì
917.	answer. He used scientific terminology.	The Report of	90	V
2	The student demonstrated knowledge of the material and made minor		(6)	>.
₩.	inaccuracies, which were corrected by the student. He used scientific	90. T 2k.	√Q.	ì
300	terminology.	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		.0
3	The student made inaccuracies and minor mistakes during his answer, used	15-20	KU	ì
5	scientific terminology, experienced great difficulty in systematizing the	10 Sec. 111/Fr	5,	4
/	material, and needed the teacher's help.	Mic Con Kr	9	
4	The student did not answer the teacher's questions, made fundamental mistakes	0-14	P	ì
9.	and inaccuracies, and did not use scientific terminology in his answers.	ex, 20. 91		
W	in the soulth sittle sp. 16 sp. 16. sp. 10. sp. 10.	1 3K, 3.	901.	
60.	2. Completing test tasks	· 1 450	© X	S
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$\sim$	4.	ompicing test tasks		70.
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F	1	90-100% correct answers	9:30 PM	100.
	2	70-89% correct answers	16-20	the wo
	3	50-69% correct answers	11-15	SKI,
	4	Less than 50% correct answers	0-10	1 2
-	I.V			

## 3. Solving situational problems

,	3,	Solvi	ng situational problems	
6	2.	Kr	Situational tasks-maximum 40 points	
9.	9	No	Questions D. A. Level C. Level	KI
.6	Ø.	:01	Great Fine Satisfactorily Unsatisfactory	
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	34	~	Total: 30 40 5 30 4 515 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	>.
1		No	Evaluation criteria Points	~?
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	-	1 5	Demonstrates original thinking when solving a situational problem. Fully utilizes 30-40	
2		KI	theoretical knowledge necessary for solving the problem. Demonstrates excellent	9
	90	. 7	knowledge of reference biochemical parameters when interpreting proposed	
0	,	411.	biofluid analysis data. Demonstrates the ability to draw logical conclusions based	1
		S	on a situational problem, while demonstrating a thorough understanding of the	17.
V	00	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	required course material of the state of the	<i>,</i> ,
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7. 917.	Department of Chemical Disciplines, Biology and Biochemistry 46-11	1
%. %	Curriculum for the discipline "Biochemistry"  32 of 24p.	Þ

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). \(\(\(\)\)	100	2 0	Possesses the necessary knowledge to solve a given situational problem. Allows for 21-29	(
5		0.	minor inaccuracies when discussing a given case. Capable of drawing correct	0
V	94	. ~?	conclusions based on the proposed situational problem.	L
1		3	Allows minor inaccuracies when discussing a given problem, has difficulty 10-20	3
17.	. 4	2	interpreting the analyses proposed in the situational problem, and draws	
	7.4-	1	conclusions with difficulty.	۸,
SO.		4	Makes fundamental mistakes in discussing situational problems. Passive, unable to 0-9	-
0	SO	K	draw appropriate conclusions.	Į,
-7	y	70.	1 1 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	9,

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- 15. If a student receives an unsatisfactory grade (0-49 points) during the midterm assessment, he/she will not be allowed to take the final assessment.
- 16. If a student receives an unsatisfactory grade in the practical skills assessment, he/she will not be allowed to take the final assessment.
- 17. If a student is absent from a lecture, practical lesson, or SIW (independent work of the student) lesson according to the schedule without a valid reason, an absence mark ("0") is entered in the AIS Platonus electronic educational journal.

### Academic policy based on the moral and ethical values of the academy

Understanding the importance of the principles and culture of academic integrity, which express students' honesty in practical and laboratory work, as well as in SIW classes, exams, and expressing their position in interactions with faculty and administration.

Course grading policy: The student's final grade upon completion of the course is made up of the sum of the admission rating assessment (ARA) and the final control assessment (FCA) and is assigned according to a point-rating letter system.

### ME = ARA + FCA

Admission Rating Assessment (ARA) equals 60 points or 60% and includes: assessment of current control (ACC) and assessment of midterm exam (ME).

Evaluation of current control(ECC) consists of the average grade for practical classes + the average grade for independent work

Assessment of midterm exam (AME) includes the average rating of 2 Midterm exam.

Admission Rating Score (60 points) calculated using the formula:

### MEavg x 0.2 + AMEavg x 0.4

**Final control (FC)** It is conducted in the form of testing and the student can receive 40 points or 40% of the

During testing, the trainer is offered 50 questions.

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The final assessment is calculated as follows: if the student answered 45 questions out of 50 correctly, this

### $90 \times 0.4 = 36$ points.

Final assessment is calculated if the student has positive grades both for the admission rating (AR) = 30 points or 30% or more, and for the final control (FC) = 20% or more.

Final score (100 points) = MEavg x  $0.2 + ACCavg \times 0.4 + FC \times 0.4$  a student who received an unsatisfactory znina. zn grade for one of the types of control (ME1, ME2, CCavg) is not allowed to take the exam. znind. zn 2. E. L. L. L. Skind. Edu. K. Skind. KING-EUU.PL BRING-EUU.PL BRING-

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