«North-Ossetia State Medical Academy» of the Ministry of Healthcare of the Russian Federation



• EDUCATIONAL TRAINING PROGRAM OF DISCIPLINE "Clinical laboratory diagnostics"

the main professional educational program of higher education-specialty program in the specialty 31.05.01 General Medicine, approved on 24.05.2023

Form of education	Full-time	
The period of development	. 6	
Department of	Biological Chemistry	

When developing an educational training program, the discipline is based on:

- 1. Federal State Educational Standard of Higher Education on specialty 31.05.01 General Medicine, approved by the Ministry of Education and Science of the Russian Federation on February 9, 2016 №95
- 2. Academic plan on specialty 31.05.01 General Medicine

ЛД-16-03-18 ИН

ЛД-16-04-19 ИН

ЛД-16-05-20 ИН

3. approved by the Scientific Council of the Federal State Budgetary Educational Institution of Higher Education «North-Ossetia State Medical Academy» of the Ministry of Healthcare of the Russian Federation "24" May 2023, Protocol № 8.

The educational training program of the discipline was approved at a meeting of the department of Biological Chemistry from "18" May 2023, Protocol №. 10

The educational training program of the discipline was approved at a meeting of the central coordinating training and methodological council from "23" May 2023, Protocol №.5

The educational training program of the discipline was approved by the Scientific Council of the State Medical University of the Federal State Budgetary Educational Institution of Higher Education «North-Ossetia State Medical Academy» of the Ministry of Healthcare of the Russian Federation from "24" May 2023, Protocol № 8.

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Content of the work program

- 1.the name of the discipline;
- 2. a list of the planned learning outcomes in the discipline, correlated with the planned results of mastering the educational program;
- 3. an indication of the place of the discipline in the structure of the educational program;
- 4. the amount of discipline in credit units, indicating the number of academic or astronomical hours allocated for contact work of students with a teacher (by type of training) and for independent work of students;
- 5. the content of the discipline, structured by topics (sections) with an indication of the number of academic or astronomical hours allocated for them and types of training;
- 6. a list of educational and methodological support for independent work of students in the discipline;
- 7. assessment materials for intermediate certification of students in the discipline;
- 8. a list of basic and additional educational literature necessary for mastering the discipline;
- 9. a list of resources of the information and telecommunication network "Internet" (hereinafter referred to as the "Internet" network), necessary for mastering the discipline;
- 10. guidelines for students on the development of the discipline;
- 11. a list of information technologies used in the implementation of the educational process in the discipline, including a list of software and information reference systems (if necessary);
- 12. description of the material and technical base necessary for the implementation of the educational process in the discipline.
- 13. conducting educational activities using e-learning and distance learning technologies.

1. The name of the discipline.

2. The list of planned learning outcomes in the discipline and the results of mastering the educational program

	Competence	Content of	Topic of the	De	velopment res	ults
№ п/п	number / index	competence (or part of it)	lesson (section)	know	be able to	own
1	2	3	4	5	6	7
1.	GPC -3	Ability to use the foundation s of economic and legal knowledge in profession al activities.	Organization of laboratory services. Quality control (QC) of laboratory research.	1. Legislative, regulatory, instructive and methodological documents defining the activities of laboratories of medical organization s and quality management of clinical laboratory research 2. Clinical informativen ess of laboratory research from the standpoint of evidence-based medicine in the most common	1. To organize a workplace e for morpholo gical (cytological), biochemical, immunol ogical, express methods and other studies; 2. Organize the work of nursing staff; 3. To organize the work of the laborator y personnel	1. Skills for performing basic laboratory manipulations (microscopy, dosing, centrifugation, weighing, filtration of solutions, preparation of solutions of substances, etc.) 2. Preparation, fixation and staining of preparations for microscopic examination, preparation of samples for biochemical

[&]quot;Clinical laboratory diagnostics"

				diseases of		immunologi
				the		_
					4. Prepare	cal and
				cardiovascul	a	other
	!			ar,	preparatio	studies;
				respiratory.	n for	3. Carrying
				digestive,	microsco	out the
				genitourinar	pic	calibration
				у,	examinati	of
			1	muscu oskel	on,	laboratory
			(etal,	samples	measuring
			1	nervous,	of	instruments;
			i	immune,	biomateri	4. Work on
			(endocrine	al for	the most
				systems and	biochemi	common
			1	blood;	cal,	laboratory
				3. Basic	immunol	measuring
			1	modern	ogical	instruments,
			1	preanalytical	and other	analyzers
				and	laborator	and
			18	analytical	y studies;	equipment
				technologies	5. Prepare	in
			1	of clinical	solutions	accordance
			1	laboratory	of	with the
				research.	reagents,	rules of their
			4	4. principles	dyes for	operation;
				of operation	laborator	5. Execution
				and rules of	y	of
			1	operation of	research;	laboratory
				the main	6. Work	tests by
			t	types of	on the	non-device
				measuring	most	express
			I	nstruments.	common	methods;
				analyzers	laborator	6.
				and other	y	Maintaining
				equipment	measurin	accounting
				used in the	g	and
				performance	instrumen	reporting
		1	1 *	of clinical	ts,	documentati
			1	aboratory	analyzers	on of the
			I	research;	and	laboratory
			į.	5. Factors	equipmen	(registration
			i	nfluencing	t in	of a journal
			- 1	he results of	accordanc	for
				aboratory	e with the	recording
		1	 		1	

	research at the preanalytical , analytical and postanalytic	rules of their operation; 7. Carry out quality	research results, filling out forms for analysis results, etc.).
	al stages; 6. Technology for organizing and conducting internal and	control of the analytical stage of the research performe d;	
	external quality control of clinical laboratory research.	8. To organize the performa nce of laborator y	
		research in accordanc e with the requireme nts for labor protection	
		, sanitary and epidemiol ogical requireme nts; 9. To	
		carry out the most common express methods of laborator y	

2. GPC-6	Readiness to maintain medical records.	Organization of laboratory services. Quality control (QC) of laboratory research.	1.Rules of primary health care as a type of health care in the health care system; 2. Methods for laboratory examination in the prevention of diseases, clinical examination of patients with chronic diseases, medical rehabilitatio n,	research; 10. To issue accountin g and reporting document ation for clinical laborator y research, provided for by the current regulator y document s. 1. Perform clinical laborator y studies and use methods - express diagnosti cs aimed at identifyin g the risk of developin g diseases; 2. To carry out measures to prevent the	1. The technology for performing the most common types of general clinical, biochemical coagulologi cal, hematologic al, parasitologi cal, immunologi cal and cytological studies using
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monitoring	spread of	laboratory
the course of	infectious	equipment
pregnancy;	and	and
3.	parasitic	information
Fundamenta	diseases,	systems;
ls of the	to comply	2.
organization	with	Technology
and	sanitary	for
provision of	norms	performing
emergency	and rules	laboratory
and urgent	when	express
care,	working	research;
including	with	3.
the	biological	Technology
organization	material;	for
and	3.	organizing
provision of	Conduct	and
laboratory	sanitary	performing
and	and	quality
diagnostic	education	control of
assistance;	al work	laboratory
4.	on the	research;
Fundamenta	preventio	4. Methods
ls of social	n of	for drawing
hygiene and	infectious	up a plan for
public	and non-	laboratory
health of the	infectious	examination
population	diseases.	of patients
of the		and
country, the		interpreting
tasks of the		the results
country's		of
health care		laboratory
in the fie d		tests at the
of health		stages of
protection of		prevention,
the		diagnosis
population		and
and the		treatment of

				prospects		the most
				for the		common
						diseases of
				development of hea th		the
				care.		cardiovascul
						ar,
						respiratory,
						digestive,
						genitourinar
						у,
						musculoskel
						etal,
						nervous,
						immune,
						endocrine
						systems,
						blood, as
					ı	well as
						emergency
						states;
						5. The
						technology
						of
						interaction
						with the
					,	staff of
						clinical
						departments
						on the
						issues of
						laboratory
						examination
						of patients.
3.	GPC-9	The ability	Homatological	1.	1. To	1.Interpretin
		to assess	Hematological examinations	Diagnostic	carry out	g the results
		morphofun	Express	informativen	clinical	of
		ctional,	methods in hematology.	ess of	laborator	laboratory
		physiologi cal	General	laboratory symptoms	y tests	tests; 2.
		Cai	clinical	Jymptoms		

		conditions and pathologic al processes in the human body for solving profession al problems.	research methods Laboratory diagnostics of parasitic diseases. Clinical biochemistry. Methods of modern express diagnostics. Coaguagulolog y. Immunological studies. ELISA research in the CDL. Methods of modern express diagnostics. Molecular genetic research methods Cytological studies Bacteriological research methods	and syndromes - the concept of specificity, test sensitivity, predictive value; list of laboratory methocs, taking into account the organization al structure of healthcare institutions	and express methods aimed at identifyin g the risk of developin g diseases; 2. Interpret the results of the most common laborator y diagnosti c methods	Algorithm for a detailed clinical diagnosis; 3. Algorithm for making a preliminary diagnosis with subsequent referral to the appropriate specialist doctor.
4.	PC-2	Ability and readiness to conduct preventive medical examinations, clinical examination and dispensary observation.	Hematological research. General clinical research methods. Laboratory diagnosis of parasitic diseases. Clinical biochemistry. Methods of modern express diagnostics. Coaguagulolog y. Immunological studies ELISA studies in	1.Rules of primary health care as a type of health care in the health care system; 2. Methods for laboratory examination in the prevention of diseases, clinical examination of patients with chronic	Perform clinical laborator y studies and use methods - express diagnosti cs aimed at identifyin g the risk of developin g	1. The technology for performing the most common types of general clinical, biochemical coagulologi cal, hematologic al, parasitologi

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systems, blood, as well as emergency states; 5. The technology of interaction with the staff of clinical departments on the			1		
blood, as well as emergency states; 5. The technology of interaction with the staff of clinical departments on the					
well as emergency states; 5. The technology of interaction with the staff of clinical departments on the					
emergency states; 5. The technology of interaction with the staff of clinical departments on the					
states; 5. The technology of interaction with the staff of clinical departments on the					
5. The technology of interaction with the staff of clinical departments on the					
technology of interaction with the staff of clinical departments on the					J .
of interaction with the staff of clinical departments on the					
interaction with the staff of clinical departments on the					
with the staff of clinical departments on the					
staff of clinical departments on the					
clinical departments on the					
departments on the					1
on the					1
issues of					
laboratory					
examination					1
of patients.					of patients.

	200			1 0 1 0	1 75	1 01 11 0
5.	PC-3	The ability	Hematological	1. Rules of	1. To	1. Skills for
		and	examinations	action upon	organize	performing
		readiness	Express	detection of	a	basic
		to carry	methods in	a patient	workplac	laboratory
		out anti-	hematology. General	with signs of]	manipulatio
		epidemic	clinical	especially	morpholo	ns
		measures,	research	dangerous	gical	(microscopy
		the	methods.	infections;	(cytologic	, dosing,
		organizati	Laboratory diagnostics of	organization	al),	centrifugatio
		on of	parasitic	and volume	biochemi	n, weighing,
		protection	diseases.	of first aid	cal,	filtration of
		of the	Clinical	in military	immunol	solutions,
		population	biochemistry. Methods of	field	ogical,	preparation
		in the	modern	conditions,	express	of solutions
		centers of	express	in case of	methods	of
		especially	diagnostics.	mass	and other	substances,
		dangerous	Immunological studies ELISA	casualt es of	studies;	etc.)
		infections,	studies in the	the	2.	2.
		when the	CDL.	population	Organize	Preparation,
		radiation	Methods of	and	the work	fixation and
		situation	modern express	catastrophes	of .	staining of
		worsens,	diagnostics	;	nursing	preparations
		natural	Coaguagulolog	3.Rules of	staff;	for
		disasters	y. Molecular	first aid for	3. To .	microscopic
		and other	genetic	life-	organize	examination
		emergenci	research	threatening	the work	, preparation
		es.	methods	and	of the	of samples
			Cytological studies	emergency	laborator	for
			Bacteriological	conditions;	у	biochemical
			research		personnel	,
			methods	Fundamenta	A Duanana	immunologi
				ls of radiation	4. Prepare	cal and
					a mananatia	other
				safety; 5.	preparatio	studies;
					n for	3. Carrying
				Fundamenta ls of disease	microsco	out the
					pic	calibration
				prevention and health	examinati	of laborators
					on,	laboratory
				education; 6. Rules of	samples of	measuring
				action when	ŀ	instruments;
					biomateri	4. Work on
				a patient is	al for	the most
				found with	biochemi	common

	1	T	T -	
		signs of	cal,	laboratory
		especially	immunol	measuring
		dangerous	ogical	instruments,
		infections.	and other	analyzers
			laborator	and
			y studies;	1
) -	equipment
			5. Prepare	in
			solutions	accordance
			of	with the
			reagents,	rules of their
			dyes for	operation;
			laborator	5. Execution
			у	of
			research;	laboratory
			6. Work	tests by
			on the	non-device
			most	l i
				express
			common	methods;
			laborator	6.
			У	Maintaining
			measurin	accounting
			g	and
			instrumen	reporting
			ts,	documentati
			analyzers	on of the
			and	laboratory
			equipmen	(registration
			t in	of a journal
			accordanc	for
			e with the	- 1
			rules of	research
			their	results,
			operation;	filling out
			be able to	forms for
			use	analysis
			methods	results, etc.).
			of	
			express	
			diagnosti	
			cs in a	
			laborator	
			y; 7. Carry	
			-	
		 	out	

	quality
	control of
	the
	analytical
	stage of
	the
	research
	performe
	d;
	8. To
	organize
	the
	performa
	nce of
	laborator
	у
	research
	in
	accordanc
	1
	e with the
	requireme
	nts for
	labor
	protection
	, sanitary
	and
	epidemiol
	ogical
	requireme
	nts;
	9.
	Perform
	i
	the most
	common
	laborator
	y tests
	and use
	the
	methods
	of
	modern
	express
	diagnosti
	cs;
	1

					10. To issue accounting and reporting document ation for clinical laboratory research, provided for by the current regulatory documents.	
6.	PC-5	Willingnes s to collect and analyze patient complaints , data from his anamnesis, examinatio n results, laboratory, instrument al, pathologic al and anatomical and other studies in order to recognize a condition or establish the	Hematological examinations Express methods in hematology. General clinical research methods. Laboratory diagnostics of parasitic diseases. Clinical biochemistry. Methods of modern express diagnostics. Immunological studies. ELISA research in the CDL. Methods of modern express diagnostics. Coaguagulolog y. Molecular genetic	1. Diagnostic informativen ess of laboratory symptoms and syndromes - the concept of specificity, test sensitivity, predictive value; list of laboratory methods, taking into account the organization al structure of healthcare institutions	1. To carry out clinical laborator y tests and express methods aimed at identifyin g the risk of developin g diseases; 2. Interpret the results of the most common laborator	1.Interpreting the results of laboratory tests; 2. Algorithm for a detailed clinical diagnosis; 3. Algorithm for making a preliminary diagnosis with subsequent referral to the appropriate specialist doctor.

		presence or absence of a disease.	research methods Cytological studies Bacteriological research methods 1. Diagnostic informativenes s of laboratory symptoms and syndromes - the concept of specificity, test sensitivity, predictive value; list of laboratory methods, taking into account the organizational structure of healthcare institutions		y diagnosti c methods	
7.	PC-17	Ability to apply the basic principles of organizati on and manageme nt in the field of public health protection, in medical organizati ons and their	Organization of laboratory services. Quality control (QC) of laboratory research.	1. Legislative, regulatory, instructive and methodological documents defining the activities of laboratories of medical organizations and quality management of clinical laboratory	1. To organize a workplace e for morpholo gical (cytological), biochemical, immunol ogical, express methods and other studies;	1. Skills for performing basic laboratory manipulations (microscopy, dosing, centrifugation, weighing, filtration of solutions, preparation of solutions of substances, etc.)

structural	research	2.	2.
units.	2. Clinical	Organize	Preparation,
units.	informativen	the work	fixation and
	ess of	of	staining of
	laboratory	nursing	preparations
	research	staff;	for
	from the	3. To	
		organize	microscopic
	standpoint	the work	examination
	of evidence-	of the	, preparation
	based		of samples
	medicine in	laborator	for
	the most	У	biochemical
	common	personnel	,
	diseases of	,	immunologi
	the	4. Prepare	cal and
	cardiovascul	a	other
	ar,	preparatio	studies;
	respiratory,	n for	3. Carrying
	digestive,	microsco	out the
	genitourinar	pic	calibration
	y,	examinati	of
	musculoskel	on,	laboratory
	etal,	samples	measuring
	nervous,	of	instruments;
	immune,	biomateri	4. Work on
	endocrine	al for	the most
	systems and	biochemi	common
	blood;	cal,	laboratory
	3. Basic	immunol	measuring
	modern	ogical	instruments,
	preanaly tical	and other	analyzers
	and	laborator	and
	analytical	y studies;	equipment
	technologies	5. Prepare	in
	of clinical	solutions	accordance
	laborato y	of	with the
	research	reagents,	rules of their
	4. principles	_	operation;
	of operation	1 -	5. Execution
	and rules of		of
	operation of		
	the main	1	laboratory
			tests by
	J 1	most	non-device
	measuring	111031	express

instruments,	common	methods;
analyzers	laborator	6.
and other	"	Maintaining
equipment	measurin	accounting
used in the	g	and
performance	instrumen	reporting
of clinical	ts,	documentati
laboratory	analyzers	on of the
research;	and	laboratory
5. Factors	equipmen	(registration
influencing	t in	of a journal
the results of		for
laboratory	e with the	
research at		recording research
the	their	1
preanalytical		results,
, analytical		filling out
, analytical	out out	forms for
		analysis
postanalytic	quality	results, etc.).
al stages;		
6.	the	
Technology	analytical	
for	stage of	
organizing	the	
and	research	
conducting	performe	
internal and	1 '	
external	8. To	
quality	organize	
control of	the	
clinical	performa	
laboratory	nce of	
research.	laborator	
	y	
	research	
	in	
	accordanc	
	e with the	
	requireme	
	nts for	
	labor	
	protection	
	, sanitary	
	and	
	Land	

					epidemiol ogical requireme nts; 9. To carry out the most common express methods of laborator y research; 10. To issue accountin g and reporting document ation for clinical laborator y research, provided for by the current regulator y document s.	
8.	PC-22	Willingnes s to participate in the implement ation of new methods and techniques	Hematological examinations Express methods in hematology. General clinical research methods. Laboratory diagnostics of parasitic	1.Rules of safety precautions and work in a clinical diagnostic laboratory, with reagents,	1. Work on the most common laborator y measurin g instrumen	1. The technology for performing the most common types of general clinical,

	aimed at		devices.	ts,	biochemical
	protecting	diseases.		analyzers	
	the health	Clinical biochemistry.		and	coagulologi
	of citizens.	Methods of		equipmen	cal,
		modern express		t in	hematologic
		diagnostics.		accordanc	al,
		Immunological			1 '
		studies. ELISA research in the		e with the	parasitologi
		CDL.		rules of	cal,
		Methods of		their	immunologi
		modern express		operation.	cal and
		diagnostics.		as well as	cytological
		Coaguagulolog		be able to	studies
		y. Molecular		use the	using
		genetic	;	methods	laboratory
		research methods		of	equipment
		Cytological		modern	and
		studies Bacteriological		express	information
		research		diagnosti	systems and
		methods.		CS.	methods of
					modern
					express
					diagnostics;
					2.
					Technology
					for
					performing
					laboratory
					express
,					research;
					3.
					Technology
					for
					organizing
					and
					performing
					quality
					control of
					laboratory
					research;
					· · · · · · · · · · · · · · · · · · ·

4.Methods drawing up a plan for laboratory examination of patients and interpreting the results of laboratory tests at the stages of prevention, diagnosis and treatment of the most common diseases of the cardiovascul ar, respiratory, digestive, genitourinar y, musculoskel etal, nervous, immune, endocrine systems, blood, as well as in emergency conditions						
a plan for laboratory examination of patients and interpreting the results of laboratory tests at the stages of prevention, diagnosis and treatment of the most common diseases of the cardiovascul ar, respiratory, digestive, genitourinar y, musculoskel etal, nervous, immune, endocrine systems, blood, as well as in emergency					-	4.Methods
laboratory examination of patients and interpreting the results of laboratory tests at the stages of prevention, diagnosis and treatment of the most common diseases of the cardiovascul ar, respiratory, digestive, genitourinar y, musculoskel etal, nervous, immune, endocrine systems, blood, as well as in emergency						drawing up
laboratory examination of patients and interpreting the results of laboratory tests at the stages of prevention, diagnosis and treatment of the most common diseases of the cardiovascul ar, respiratory, digestive, genitourinar y, musculoskel etal, nervous, immune, endocrine systems, blood, as well as in emergency						a plan for
examination of patients and interpreting the results of laboratory tests at the stages of prevention, diagnosis and treatment of the most common diseases of the cardiovascul ar. respiratory, digestive, genitourinar y, musculoskel etal, nervous, immune, endocrine systems, blood, as well as in emergency						
of patients and interpreting the results of laboratory tests at the stages of prevention, diagnosis and treatment of the most common diseases of the cardiovascul ar. respiratory, digestive, genitourinar y, musculoskel etal. nervous, immune, endocrine systems, blood, as well as in emergency			,			
and interpreting the results of laboratory tests at the stages of prevention, diagnosis and treatment of the most common diseases of the cardiovascul ar, respiratory, digestive, genitourinar y, musculoskel etal, nervous, immune, endocrine systems, blood, as well as in emergency						
interpreting the results of laboratory tests at the stages of prevention, diagnosis and treatment of the most common diseases of the cardiovascul ar, respiratory, digestive, genitourinar y, musculoskel etal, nervous, immune, endocrine systems, blood, as well as in emergency						-
the results of laboratory tests at the stages of prevention, diagnosis and treatment of the most common diseases of the cardiovascul ar. respiratory, digestive, genitourinar y, musculoskel etal, nervous, immune, endocrine systems, blood, as well as in emergency						
of laboratory tests at the stages of prevention, diagnosis and treatment of the most common diseases of the cardiovascul ar, respiratory, digestive, genitourinar y, musculoskel etal, nervous, immune, endocrine systems, blood, as well as in emergency						
laboratory tests at the stages of prevention, diagnosis and treatment of the most common diseases of the cardiovascul ar, respiratory, digestive, genitourinar y, musculoskel etal, nervous, immune, endocrine systems, blood, as well as in emergency						
tests at the stages of prevention, diagnosis and treatment of the most common diseases of the cardiovascul ar, respiratory, digestive, genitourinar y, musculoskel etal, nervous, immune, endocrine systems, blood, as well as in emergency						
stages of prevention, diagnosis and treatment of the most common diseases of the cardiovascul ar, respiratory, digestive, genitourinar y, musculoskel etal, nervous, immune, endocrine systems, blood, as well as in emergency			i			
prevention, diagnosis and treatment of the most common diseases of the cardiovascul ar, respiratory, digestive, genitourinar y, musculoskel etal, nervous, immune, endocrine systems, blood, as well as in emergency						
diagnosis and treatment of the most common diseases of the cardiovascul ar, respiratory, digestive, genitourinar y, musculoskel etal, nervous, immune, endocrine systems, blood, as well as in emergency						1
and treatment of the most common diseases of the cardiovascul ar, respiratory, digestive, genitourinar y, musculoskel etal, nervous, immune, endocrine systems, blood, as well as in emergency						
treatment of the most common diseases of the cardiovascul ar, respiratory, digestive, genitourinar y, musculoskel etal, nervous, immune, endocrine systems, blood, as well as in emergency						j
the most common diseases of the cardiovascul ar, respiratory, digestive, genitourinar y, musculoskel etal, nervous, immune, endocrine systems, blood, as well as in emergency						
diseases of the cardiovascul ar, respiratory, digestive, genitourinar y, musculoskel etal, nervous, immune, endocrine systems, blood, as well as in emergency						1
diseases of the cardiovascul ar, respiratory, digestive, genitourinar y, musculoskel etal, nervous, immune, endocrine systems, blood, as well as in emergency						common
cardiovascul ar, respiratory, digestive, genitourinar y, musculoskel etal, nervous, immune, endocrine systems, blood, as well as in emergency						diseases of
ar, respiratory, digestive, genitourinar y, musculoskel etal, nervous, immune, endocrine systems, blood, as well as in emergency						the
respiratory, digestive, genitourinar y, musculoskel etal, nervous, immune, endocrine systems, blood, as well as in emergency						cardiovascul
digestive, genitourinar y, musculoskel etal, nervous, immune, endocrine systems, blood, as well as in emergency						ar,
digestive, genitourinar y, musculoskel etal, nervous, immune, endocrine systems, blood, as well as in emergency						respiratory,
genitourinar y, musculoskel etal, nervous, immune, endocrine systems, blood, as well as in emergency						
musculoskel etal, nervous, immune, endocrine systems, blood, as well as in emergency						genitourinar
etal, nervous, immune, endocrine systems, blood, as well as in emergency						у,
nervous, immune, endocrine systems, blood, as well as in emergency				ì		musculoskel
immune, endocrine systems, blood, as well as in emergency						etal,
endocrine systems, blood, as well as in emergency						nervous,
systems, blood, as well as in emergency						immune,
blood, as well as in emergency						endocrine
well as in emergency						systems,
emergency						blood, as
						well as in
conditions						
						conditions

3. Place of discipline in the structure of the educational program The discipline "Clinical laboratory diagnostics" is a discipline of the part, formed by the participants of educational relations of the Block _1_ of the Federal State Educational Standard of Higher Education in the specialty _31.05.01 "General Medicine".

4. Scope of the discipline

70 /					Semester
№п/п			Total credits	Total	10
	Туре	of work	creans	hours	Number of hours
1		2	3	4	5
1.	Contact work of teacher (total), in	students with the cluding:	72	72	72
2.	Lectures (L)		14	14	14
3.	Clinical Practices	(CL)	58	58	58
4.	Seminars (S)				
5.	Laboratory work (LW)			
6.	Student independ	ent work (SIW)	36	36	36
7.	Intermediate	offset(O)	3		
	type appraisals	exam (E)			
8.	TOTAL:	hours		108	108
	General labor intensity	ЗЕТ		3	3

5. Content of the discipline

№/п	№ semester	The name of the topic (section) of the discipline	Т	Types of educational activities (in hours)			Forms of monitoring of progress	
			_ L	LW	S	SIW	Total	progress
1	2	3	4	5	6	7	8	9

1	12	Organization of laboratory services. Quality control (QC) of laboratory research.	2	7	4	13	Solving situational tasks; test control with elements of visual identification, written survey, interview on situational tasks, module
2	12	Hematological examinations. Express methods in hematology.	2	5	2	9	Solving situational tasks; test control with elements of visual identification, written survey, interview on situational tasks, module
3.	12	General clinical research methods. Laboratory diagnostics of parasitic diseases.	2	20	10	32	Solving situational tasks; test control with elements of visual identification, written survey, interview on situational tasks, module
4.	12	Clinical biochemistry. Methods of modern express diagnostics.	2	10	8	20	Solving situational tasks; test control with elements of visual identification, written survey, interview on situational tasks

5.	12	Coagulology Methods of modern express diagnostics.	2	3	2	7	Solving situational tasks; test control with elements of visual identification, written survey, interview on situational tasks
6.	12	Immunological studies. ELISA research in the CDL. Methods of modern express diagnostics.	2	5	4	11	Solving situational tasks; test control with elements of visual identification, written survey, interview on situational tasks
7.	12	Molecular genetic research methods. Cytological studies. Bacteriological research	2	8	6	16	Solving situational tasks; test control with elements of visual identification, written survey, interview on situational tasks
		TOTAL:	14	58	36	108	

6.The list of educational and methodological support for independent work of students in the discipline

№ /П	No॒	Наименование учебно-методической разработки
	семестра	
1.	12	
		1. Клиническая лабораторная диагностика.
		Национальное руководство. В.В. Долгов, В.В. Меньшиков.
		Том I. Москва. 2013
		2. Гематологические анализаторы. Интерпретация анализа крови.
		Методические рекомендации. С. А. Луговская, М.Е. Почтарь, В.В.

		Долгов. Москва. 2008 3. Клиническое руководство Тица по лабораторным тестам. Алан Г.Б.Ву, DABCC, FACB. Москва. 2013
2.	12	
		1. Клиническая лабораторная диагностика. Национальное руководство. В.В. Долгов, В.В. Меньшиков.
		Том I, II. Москва. 2013 2. Гематологические анализаторы. Интерпретация анализа крови. Методические рекомендации. С. А. Луговская, М.Е. Почтарь, В.В. Долгов. Москва. 2008.
		3. Лабораторная гематология. 3. Клиническое руководство Тица по лабораторным тестам. Алан Г.Б.Ву, DABCC, FACB. Москва. 2013
3.	12	
		1. Клиническая лабораторная диагностика.
		Национальное руководство. В.В. Долгов, В.В. Меньшиков.
		Том I, II. Москва. 2013 2. Спинномозговая жидкость, лабораторные методы исследования и их клинико-диагностическое значение. Учебное пособие. С.Г. Марданлы, Ю.В. Первушин, В.Н. Иванова. г. Электрогорск, 2012. 3. Клиническое руководство Тица по лабораторным тестам. Алан Г.Б.Ву, DABCC, FACB. Москва. 2013.
4.	12	
	12	1.Пособие по биохимическим исследованиям в клинико- диагностических лабораториях Ю.В. Первушин, С.Ш. Рогова. Ставрополь, 2008.
		2. Клиническая лабораторная диагностика.
		Национальное руководство. В.В. Долгов, В.В. Меньшиков.
		Том І. Москва. 2013 3. Клиническое руководство Тица по лабораторным тестам. Алан Г.Б.Ву, DABCC, FACB. Москва. 2013
5.	12	1.Лабораторная диагностика нарушений системы гемостаза. Учебное пособие. И.А. Волкова. Москва. 2013

		 Лабораторная диагностика неотложных состояний. А.А. Кишкун. Москва. 2012. Клиническая лабораторная диагностика. Национальное руководство. В.В. Долгов, В.В. Меньшиков. Том І. Москва. 2013. Клиническое руководство Тица по лабораторным тестам. Алан Г.Б.Ву, DABCC, FACB. Москва. 2013.
6.	12	1. Клиническая лабораторная диагностика. Национальное руководство. В.В. Долгов, В.В. Меньшиков. Том І, ІІ. Москва. 2013. 2.Клиническое руководство Тица по лабораторным тестам. Алан Г.Б.Ву, DABCC, FACB. Москва. 2013. 3. Иммунологические исследования и методы диагностики инфекционных заболеваний в клинической практике. А.А. Кишкун. Москва, 2009.
7.	12	1. Клиническая лабораторная диагностика. Национальное руководство. В.В. Долгов, В.В. Меньшиков. Том I, II. Москва. 2013. 2. Клиническое руководство Тица по лабораторным тестам. Алан Г.Б.Ву, DABCC, FACB. Москва. 2013. 3. ПЦР в реальном времени. Д.В. Ребрикова. Москва, 2015.

7. Assessment materials for intermediate certification of students in the discipline

№/ П	List of competenci es	№ semest er	Indicator (s) evaluating	Evaluation criterion (s)	Grading scale	Name FES
1	2	3	4	5	6	7
1.	GPC-3 GPC-6 GPC-9 PC-2 PC-3 PC-5 PC-17 PC-22	12	see the standard for assessing the quality of education, approved. By order of the Federal State Budgetary	see the standard for assessing the quality of education, approved. By order of the Federal State Budgetary Educational Institution of	see the standard for assessing the quality of education, approved. By order of the	Test control. Situational task interview. Tickets for offset

Institution High Education States of Mining Heal Russ 10.00	er ation of SOGMA the	Higher Education of the SOGMA of the Ministry of Health of Russia from 10.07.2018 № 264 / o	Federal State Budgetary Education al Institution of Higher Education of the SOGMA of the Ministry
	-		
		264 / o	
Russ	ia dated		of the
10.0	7.2018,		SOGMA
No. 2	264 / o		of the
			Ministry
			of Health
			of Russia
			from
			10.07.201
			8 No.
			264 / o

8. Перечень основной и дополнительной учебной литературы, необходимой для освоения дисциплины

п/	Наиманован	аименован Автор ие (ы)	Год,	Кол-во эк	вемпляров
№			место издания	в биб-лиотеке	на кафедре
1	2	3	4	5	6
			Основная л	итература	
6.	Руководство по по пабораторным методам диагностики	ред. А.А. Кишкун	М.: ГЭОТАР- Медиа, 2007	12	
7.	Клиническая	ред. В. А.	M. :	106	
	биохимия: учеб. пособие	Ткачук	ГЭОТАР- Медиа, 2006	«Консультант студен http://www.stud ISBN 9785970	medlib.ru/book/
8.	Клиническая лабораторная	Кишкун А. А.	М. : ГЭОТАР-	10 2	

	диагностика : учеб. пособие	Под	Медиа, 2013 2015	«Консультант студента» http://www.studmedlib.ru/book/ ISBN9785970435182.html	
1.	Клиническая лабораторная диагностика: справочник для врачей	Медведев В. В. Волчек Ю. 3.	СПб. : Гиппократ , 1997	ая литература	
1.	Справочник по клинико- биохимическо й лабораторной диагностике в 2 т.	Камышн иков В. С.	Минск: Беларусь, 2000	T.1-2 T.2-2	
2.	Терапевтичес кий справочник Вашингтонск ого университета	ред. Ч. Кэри	М.: Практика, 2000	2	
3.	Клинико- лабораторная диагностика инфекционны х болезней: Рук-во для врачей	ред. Ю. В. Лобзин	СПб. : Фолиант, 2001	21	
4.	Биохимическ ие методы исследования в клинико- диагностичес ких лабораториях: учеб. пособие	О.А. Тимин и др.	Томск: STT, 2002	1	
6.	Лабораторно- клиническая диагностика	Бондарь Т. П. Козинец	М.: МИА, 2003	3	

	сахарного диабета и его осложнений	Г. И.			
7.	Погорелов, В. М. Лабораторно-клиническая диагностика анемий	Погорело в В. М. Козинец Г. И. Ковалева Л. Г.	М.: МИА. 2004	1	
8.	Таранов, А. Г. Лабораторная диагностика в акушерстве и гинекологии: Справочник	Таранов А. Г.	М.: ЭликсКом , 2004	1	
9.	Российский терапевтическ ий справочник (с приложениям и на компакт-диске)	ред. А. Г. Чучалин	М.: ГЭОТАР- Медиа, 2005	5	
10.	Внутренние болезни. Лабораторная и инструментальная диагностика: учеб. пособие	Ройтберг Г. Е. Струтын ский А. В.	М.: МЕДпрес с-информ, 2011	2	
11.	Клиническая микробиологи я: руководство для специалистов клинической лабораторной	Донецкая Э. ГА.	М.: ГЭОТАР- Медиа. 2011	1	

	диагностики				
12.	Клиническая лабораторная диагностика: национальное руководство: в 2 т. Т.1	ред. В. В. Долгов	М.: ГЭОТАР- Медиа, 2012	1	
13.	Медицинская лабораторная диагностика: программы и алгоритмы: руководство для врачей	ред. А. И. Карпище нко	М.: ГЭОТАР- Медиа, 2014	1	
14.	Методы клинических лабораторных исследований	ред. В. С. Камышн иков	М.: МЕДпрес с-информ, 2015 2016	1 2	
15.	Биохимическ ий диагноз (физиологиче ская роль и диагностичес кое значение биохимическ их компонентов	Бородин Е. А. Бородина Г. П.	Благовеще нск, 2010	1	
	крови и мочи)				

16	Клинический анализ лабораторных исследований в практике военного врача	Капитане нко А. М. Дочкин И. И.	М.: Воениздат , 1985	
17.	Лабораторные методы исследования в клинике : справочник	ред. В. В. Меньшик ов	М.: Медицина , 1987	10
18.	Руководство к практическим занятиям по клинической лабораторной диагностике	ред. М.А. Базарнов а	Киев: Выща шк., 1988	18
19.	Руководство к практическим занятиям по методам клинических лабораторных исследований : Учеб. Пособие	Ронин В. С. Старобин ец Г. М.	М.: Медицина , 1989	3
20.	Гематологиче ский атлас	Абрамов М. Г.	М.: Медицина , 1979, 1985	15
21.	Пособие по клинической биохимии для системы	Никулин Б. А.	М.: ГЭОТАР- Медиа, 2007	7 «Консультант студента» http://www.studmedlib.ru/book/

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льного	7/07/0403307.iitiiii
образования:	
учеб. пособие	СОГЛИСОВАНО
	Завобитиотекой

9. The list of resources of the information and telecommunications network "Internet" necessary for mastering the discipline

Hematology

http://dic.academic.ru/

Biochemistry

http://biokhimija.ru/klinicheskajabiohimija.html

http://bono-esse.ru/blizzard/Lab/KAK/analizator_metod_recomend_2.html

http://www.proflit.ru/journals/172/

Immunology

http://6years.net/index.php?do=static&page=immunologija_allergologija

http://medstudents.ru/category/immunology/immtextbooks/

http://an.yandex.ru/count/

www.ncbi.nlm.nih.gov.

www.qiagtn.com.

http://www.bestpravo.ru/sssr/eh-postanovlenija/z1r.htm

http://medlib.tomsk.ru/node/

Quality control in KDL

www.fsvok.ru

10. Methodical instructions for students on mastering the discipline

Training in the discipline "Clinical laboratory diagnostics" consists of contact work (72 hours), including a lecture course (14 hours) and practical classes (58 hours) and independent work (36 hours). The main study time is devoted to the practical part of the study of this discipline.

The practical activity of a doctor of any specialty is associated with the need for information about the state of the vital processes of individual organs and tissues, as well as the patient's body as a whole. The subject of laboratory medicine is the receipt and provision for clinical use of information about the composition (chemical and cellular) of biomaterials and changes that are evidence-based causal relationships with certain pathological processes and conditions in the human body.

To study the discipline "Clinical laboratory diagnostics" you need knowledge, skills and abilities formed by previous disciplines, such as biology, chemistry, biological chemistry, normal physiology, histology, microbiology, virology, immunology.

Practical classes are conducted on the basis of the clinical diagnostic laboratory of the SOGMA Clinical Hospital, which contributes to a better understanding of all stages of the laboratory's work: preanalytical - including the collection of biological material; for the analytical one - a demonstration of the actually working automated analyzers, which makes it possible to visually evaluate the obtained laboratory tests and understand the quality control issues carried out by the laboratory; postanalytic - the interpretation of research results and the formation, ultimately, of clinical laboratory thinking.

The ability to conduct practical classes in an existing laboratory, the use of visual aids, solving situational problems, independent work with laboratory research ultimately strengthens the theoretical course in mastering the discipline. In accordance with the requirements of the Federal State Educational Standard of Higher Education, active and interactive forms of conducting classes are widely used in the educational process (situational tasks, independent extracurricular work, developing learning in the form of role-playing games, informatization training, individual work with laboratory research and the interpretation of research results). The proportion of classes conducted in interactive forms is at least 5% of classroom lessons.

11. The list of information technologies used in the implementation of the educational process in the discipline

study of this technologies discipline 5% Educational used in the least volume of classroom lessons. interactive lessons the on interactive forms and methods of conducting classes: Examples of

- imitation technologies: role-playing games ("Methods of express diagnostics in a clinical laboratory. The work of a KDL doctor when performing express studies"), training ("Interpretation of the results of a biochemical analysis study in case of lipid metabolism disorders");
- non-imitation technologies: lecture (problematic "Differential diagnosis of iron deficiency anemia and anemia of chronic diseases"), discussion ("The role and functions of cells of the phagocytic system").

The use of a clinical diagnostic laboratory, laboratory and instrumental equipment, classrooms for the work of students.

The list of material and technical means of the classroom for lecturing on biochemistry. Requirements for the equipment of workplaces

No	Наименование	Количество
1.	Мультимедийная установка	1
2.	Экран	1
3	Указка лазерная	1
4.	Звукоусиливающая аппаратура (колонки)	1

The list of material and technical means of the classroom (per academic group) for practical training.

No	Наименование	Количество
	Технические средства обучения	
1.	Тематические комплект иллюстраций по разделам учебной дисциплины	1
2.	Комплекты слайдов, таблиц.	1
	Лабораторное оборудование	
1.	Холодильник	1

2.	Центрифуга	5
3.	Водяная баня	5
4.	Фотоэлектроколориметр	2
5.	Шкаф сушильный	1
		120
6.	Штативы для пробирок	.20
7.	Спектрофотометр PV 1251C	1
8.	Весы торсионные	1
9.	Микроскоп биологический	1
	Лабораторная посуда	
1.	Пробирки	3:00
2.	Пробирки центрифужные с делением	100
3.	Колбы 250 мл	15
4.	Колбы 500 мл	15
5.	Пипетки	100
6.	Ступки	20
7.	Спиртовки	20
8.	Чашки Петри	320
9.	Склянки с притертыми пробками (125-1000 мл)	8()
10	Склянки 30 мл	1()0

12. Description of the material and technical base necessary for the implementation of the educational process in the discipline

№ п/п	Equipment identification	Quantity	Technical condition
1	2	3	4
	Special equipme	ent	
1.	Automatic biochemical analyzer CA-400 Furuno	1	Meet the

			requirements of regulatory and technical documentation.
2.	Semi-automatic biochemistry analyzer «Clima» MC-15	1	Meet the requirements of regulatory and technical documentation.
1.	Automatic system «Alisei»	1	Meet the requirements of regulatory and technical documentation.
2.	Hematology analyzer «Medonic»	2	Meet the requirements of regulatory and technical documentation.
3.	Binocular microscope "Mictron"		Meet the requirements of regulatory and technical documentation.
4.	Medical four-channel blood clotting analyzer "KoaTest-4"	1	Meet the requirements of regulatory and technical documentation.
5.	DIRUI H-100 urine analyzer	11.	Meet the requirements of regulatory and technical documentation.
6.	Urine test strip analyzer «UroMeter»	1.	Meet the requirements of regulatory and technical documentation.
7.	Analyzer of gases and electrolytes GEM Premier 3000	1	Meet the requirements of regulatory and technical documentation.
8.	Biochemistry test strip analyzer Nano Checker	1	Meet the requirements of

			rogulators and
			regulatory and technical
			documentation.
0	Ctonsort	1	Meet the
9.	Stopwatch	1	requirements of
			regulatory and
			technical
			documentation.
			documentation.
10.	Dispenser automatic portable medical "Lenpipet",	5	Meet the
			requirements of
			regulatory and
			technical
			documentation.
	Auxiliary equipme	ent	
11.	Sterilizer	<u>1</u>	Meet the
		-	requirements of
			regulatory and
			technical
			documentation.
12.	Drying cabinet	1	Meet the
			requirements of
			regulatory and
			technical
			documentation.
13.	Centrifuge "Liston"	2	Meet the
			requirements of
			regulatory and
			technical
14.	Combination		documentation.
14.	Conductometric shape counter	1.	Meet the
			requirements of
			regulatory and technical
			documentation.
15.	Goryaeva camera	4.	Meet the
10.	Goryaeva camera	4-	requirements of
			regulatory and
			technical
			documentation.
1.0			
16.	Fuchs-Rosenthal camera	1	Meet the
			requirements of
			regulatory and
			technical
17.	Minshaker	4	documentation.
1/.	winishaker	1	Meet the
			requirements of
			regulatory and technical
			Lechnical
			documentation

18.	Distiller	1	Meet the requirements of regulatory and technical documentation.		
19.	Refrigerators	4	Meet the requirements of regulatory and technical documentation.		
20.	Thermostat	1	Meet the requirements of regulatory and technical documentation.		
	Office equipment				
21.	Computer	4	Meet the requirements of regulatory and technical documentation.		

13. Conducting educational activities using e-learning and distance learning technologies

Conducting educational activities using e-learning and distance learning technologies In the context of the introduction of restrictive measures (quarantine) associated with an unfavorable epidemiological situation, the threat of the spread of a new coronavirus infection and other force majeure events that do not allow full-time training, it is possible to study this discipline or part of it using e-learning and distance educational technologies. Teaching the discipline in the above situations will be carried out through the development of an electronic course with access to video lectures and interactive course materials: presentations, articles, additional materials, tests and various tasks. When conducting training sessions, monitoring progress, as well as intermediate certification of students, platforms of the electronic information and educational environment of the academy and / or other e-learning systems recommended for use in the academy, such as Moodle, Zoom, Webinar, etc.. can be used. Lectures can be presented in the form of audio, video files, "live lectures", etc. Conducting seminars and practical classes is possible in on-line mode both in synchronous and asynchronous modes. Seminars can be held in the form of web conferences.