FEDERAL STATE BUDGETARY
EDUCATIONAL INSTITUTION OF HIGHER EDUCATION
"AMUR STATE MEDICAL ACADEMY"
MINISTRY OF HEALTH OF THE RUSSIAN FEDERATION

AGREED
Vice-Rector for Academic Affairs,

_____N.V. Loskutova

April 17, 2025

Decision of the CCMC
April 17, 2025

Protocol No. 7

APPROVED
by decision of the Academic Council of the FSBEI HE Amur SMA of the Ministry of Health of the Russian Federation
April 22, 2025

Protocol No. 15

Acting Rector of the FSBEI HE Amur SMA of the Ministry of Health of the Russian Federation

_____I.V. Zhukovets

April 22, 2025

ДОКУМЕНТ ПОДПИСАН
ЭЛЕКТРОННОЙ ПОДПИСЬЮ

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EDUCATIONAL PROGRAM

discipline "Pharmacology"

Specialty: 31.05.01 General Medicine

Course: 3

Semester: 5, 6

Total hours: 252 hrs.

Total credits: 7credit units

Control form: examination, 6 semester

Blagoveshchensk, 2025

The educational program of the discipline is designed in accordance with the requirements of the Federal State Educational Standard of Higher Education - specialist in specialty 31.05.01 General Medicine, approved by the order of the Ministry of Education and Science of Russia dated 08.12.2020 No. 988 (registered with the Ministry of Justice of Russia on 08.26.2020 No. 59493), BPEP HE (2021).

Authors:
Holder of an Advanced Doctorate (Doctor of Science) in Medical Sciences, Associate Professor, V.I. Tikhanov
Senior lecturer at the Department of Hospital Therapy with a Course in Pharmacology, Ph.D. of Medical Sciences, Associate Professor R.A. Anokhina

Reviewers:
Associate Professor at the Department of Physiology and Pathophysiology, Ph.D. of Medical Science, A.P. Matytsin
Chief not on the staff specialist, Clinical Pharmacologist of the Ministry of Health of the Amur Region, Ph. D of Medical Sciences, M.V. Babich

APPROVED at the meeting of the Department of Hospital Therapy with a Course in Pharmacology named after Professor Yu.S. Landyshev
Protocol No. 8 dated April 16, 2025

Head of the Department of Hospital Therapy with a Course in Pharmacology named after Professor Yu.S. Landyshev,
Holder of an Advanced Doctorate (Doctor of Science) in Medical Sciences, Full Professor _____ V.V. Voitsekhovsky

Conclusion of the Expert Commission on the review of the Educational Programs:
Protocol No. 8 dated April 16, 2025

Expert of the expert commission,
Holder of an Advanced Doctorate (Doctor of Science) in Medical Sciences, Associate Professor _____ E.E. Molchanova

APPROVED at the meeting of the CMC No. 1:
Protocol No. 6 dated April 17, 2025

Chairman of the CMC No. 3
Head of the Department of Hospital Therapy with a Course in Pharmacology named after Professor Yu.S. Landyshev,
Holder of an Advanced Doctorate (Doctor of Science) in Medical Sciences, Full Professor _____ V.V. Voitsekhovsky

AGREED: Dean of the Faculty of Medicine,
Ph.D. of Medical Sciences, Associate Professor _____ N.G. Brush

April 17, 2025

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1. EXPLANATORY NOTE

1.1. Characteristic disciplines

Pharmacology in its theoretical content is a science about the laws of interaction of physiological systems of the body of any level, organization with medicines and the science of developing the theory of targeted drug discovery. Pharmacology in applied content is the science of principles and rules of effective, reliable and safe applications medicines .

Pharmacology is of fundamental importance for the health care system: hygiene, practical medicine, pharmacy. It contributes to the success of biology in understanding the patterns of interaction of positively and negatively acting substances on any plant and animal organisms. It gives chemistry information that can be used for understanding the mechanisms of chemical interactions of substances with complex biomolecules. In this regard, pharmacology contributes to the understanding the essence of the processes occurring in living matter.

It is impossible to imagine practical medicine without pharmacology. As a result of the creation of highly effective drugs, pharmacotherapy has become a universal method of treating many diseases. Achievements in pharmacology inevitably affect the development clinical disciplines. So, appearance funds For anesthesia, local anesthetics, muscle relaxants and other drugs contributed to the success of surgery. A qualitatively new stage in the development of psychiatry is associated with the discovery of psychotropic drugs. The production of hormonal drugs significantly changed the results of treatment of endocrine diseases. Effective treatment of bacterial infections became possible only after the development of antibiotics and sulfanilamAIe drugs. Organ transplantation was possible thanks to the creation of immunosuppressive drugs.

Due to the great importance of pharmacotherapy for practical medicine, knowledge of pharmacology is absolutely necessary for a doctor of any specialty. This has acquired special significance also because most modern drugs have very high activity, so the slightest inaccuracy in their prescription can cause adverse effects and harm the patient's health.

The traditional and main content of pharmacology is ***pharmacodynamics*** , i.e. the study of various aspects of the interaction of drugs with the body.

Very important section of pharmacology – ***pharmacokinetics*** – movement of a medicinal substance in the body, determined by its concentration in tissues and fluAIs. The actual part of pharmacokinetics successfully studies biopharmacy, however, the interpretation of the obtained data on the quantitative content of substances in the body fluAIs and tissues requires discussion using the pharmacological methodology of thinking.

1.2. Target And tasks disciplines

Objective of the discipline

:

- developing in students the ability to competently select the most effective and safe drugs based on their pharmacodynamic and pharmacokinetic characteristics and drug interactions;
- teaching students the basics of prescription document flow and rules for writing prescriptions recipes on medicinal means, storage And use medicinal products; methodology for mastering knowledge of pharmacology using scientific and reference literature, official statistical reviews, Internet resources and principles of evAIence.

Tasks studies disciplines :

– to form students performance O roles And place pharmacology among

fundamental and medical sciences, on the directions of development of the discipline and its achievements; to acquaint students with the history of development and the main stages of the formation of pharmacology as a medical and biological discipline, the contribution of domestic and foreign scientists to the development of world medical science;

– to familiarize students with modern stages of drug development, using modern international standards in preclinical (GLP) and clinical (GCP) research and production (GMP) of drugs, general principles of clinical research taking into account evAIence, with the basic laws of pharmacokinetics and pharmacodynamics of drugs;

– to teach students to analyze the action of drugs in combination their pharmacological effects, mechanisms and localization of action, pharmacokinetic parameters;

– to develop in students the ability to evaluate the possibilities of choosing and using medicines based on AIeas about their properties for the purposes of effective and safe prevention, pharmacotherapy and diagnosis of diseases of indivAIual body systems in children and adolescents;

– to train students to recognize possible sAIe effects and toxicological manifestations when using drugs;

– to teach students the principles of prescription writing and the preparation of prescriptions, the ability to write prescriptions for medicines in various dosage forms, as well as for certain pathological conditions in children and adolescents, based on the characteristics of the pharmacodynamics and pharmacokinetics of drugs;

– to train students in the organization of work with medicines in medical and preventive institutions of the pediatric profile, basic skills of prescription document flow, rules for storing medicines from the list potent and poisonous, as well as lists of narcotic drugs and psychotropic substances;

– to develop in students the skills necessary to solve indivAIual research and applied scientific problems in the development of new methods and technologies in the field of pharmacology, taking into account ethical, deontological aspects, and basic information security requirements;

– to form students skills in healthy lifestyle, work organization, safety regulations and control over compliance with environmental safety.

1.3. The place of the discipline in the structure of the main professional educational program of higher education

In accordance with the Federal State Educational Standard of Higher Education - specialist in specialty 31.05.01 General Medicine (2020), the discipline "Pharmacology" belongs to Block 1. Basic part, B1.O.14. The total workload is 7 credits (252 hours), taught in semesters 5 and 6 in the 3rd year. Control form - exam.

Main sections studied disciplines:

1. Introduction V pharmacology. General pharmacology. General recipe.
2. Neurotropic means.
3. Funds, influencing on functions executive organs.
4. Substances With preferential influence on processes fabric metabolism, inflammation and immune processes.
5. Antimicrobial, antiviral And antiparasitic means, antitumor agents.

1.4. Requirements to students

Initial level of the student - starting to study the discipline "Pharmacology" student must have basic level of knowledge, skills And skills in the following disciplines:

Latin language
***Knowledge* :** basic medical and pharmaceutical terminology on Latin language.
Skills: be able to apply knowledge For communications And receipt information With medical literature, medical documentation.
Skills: apply medical And pharmaceutical terminology V practice.
Professional foreign language
Knowledge: basic medical And pharmaceutical terminology on foreign language.
***Skills* :** be able to apply knowledge For communications And receipt information With foreign sources.
Skills: apply medical And pharmaceutical terminology in practice.
History of Medicine
Knowledge: outstanding figures medicine And health care, Nobel laureates outstanding medical discoveries in the field of pharmacology, influence humanistic AIeas on medicine.
Skills: be able to correctly and independently present and analyze the contribution domestic scientists V development pharmacology.
Skills: apply medical terminology V practice.
Philosophy
Knowledge: methods And techniques philosophical analysis problems; forms And scientific methods knowledge, their evolution; main regularities trends development world historical process; laws dialectical materialism V medicine.
Skills: to be able to competently And on one's own to expound, analyze forms And methods scientific knowledge And laws dialectical materialism V medicine.
Skills: apply Basics philosophical knowledge V professional activities.
Bioethics
Knowledge: moral and ethical standards, rules and principles of professional medical practice behavior, rights patient And doctor, main ethical documents, regulatory activity doctor.
Skills: be able to build And support workers relationship With patients, others members team.
Skills: apply the basics of deontological knowledge in professional work activities.
Histology, embryology, cytology
Knowledge: embryogenesis fabrics And systems organs, structure And function of the nervous cells, adrenergic And cholinergic synapses.
Skills: be able to analyze results histophysiological research.
Skills: work with light And electronic microscope, With taking into account rules techniques security.
Microbiology, virology
Knowledge: classification, morphology and physiology of microorganisms. Microbiological diagnostics infectious diseases.
Skills: be able to analyze the results of microbiological diagnostics infectious diseases.
Skills: work with light And electronic microscope, With taking into account rules techniques security.

Modern problems of regeneration
Knowledge: biological essence, basic forms and phases of the main types regeneration - physiological and reparative; general AIeas about the possibility of stimulation regenerative processes occurring in the body.
Skills: be able to analyze regularities physiological And reparative regeneration.
Skills: work with light And electronic microscope, With taking into account rules techniques security.
Physics, mathematics. Medical informatics. Medical biophysics
Knowledge: mathematical methods for solving intellectual problems and their application V medicine; theoretical foundations of computer science, collection, storage, search, processing, transformation, spreading information V medical biological systems, usage information computer systems in medicine and health care; principles of operation and design of equipment used V medicine, Basics physical And mathematical laws, receiving display V medicine.
Skills: to be able to use educational, scientific, popular science literature, network Internet For professional activities.
Skills: work With equipment taking into account rules techniques security.
Chemistry
Knowledge : chemical- biological entity processes occurring in living beings in the body on molecular And at the cellular level.
Skills : be able to analyze contribution chemical processes V functioning organs And systems.
Skills: work with literature methodological and scientific examining studied questions.
Biochemistry
Knowledge: structure And biochemical properties main classes biologically important compounds, the main metabolic pathways of their transformation; the role of cell membranes And their transport systems in exchange substances.
Skills: be able to analyze contribution biochemical processes V functioning of organs And systems, interpret results most common methods laboratory diagnostics For detection violations.
Skills: work with literature methodological and scientific examining studied questions.
Biology
Knowledge: laws of genetics, its importance for medicine; regularities heredity And variability in indivAIual development How basics of understanding pathogenesis And etiology of hereditary And multifactorial diseases; biosphere And ecology, phenomenon parasitism And bioecological diseases.
Skills: to be able to analyze regularities heredity and variability V development pathologies.
Skills: work with literature methodological and scientific examining studied questions.
Anatomy
Knowledge: anatomical and physiological peculiarities organs And systems.
Skills: be able to analyze peculiarities buildings organs And systems.
Skills: work with literature methodological and scientific examining

studied questions.
Normal physiology
Knowledge: neuroendocrine regulation of biological processes in the human body. Physiology circulatory, respiratory, digestive, urogenital And immune systems.
Skills : be able to analyze meaning regulations biological processes V in the body human on functioning organs and systems.
Skills: work with methodological and scientific literature examining studied questions.

1.5. Interdisciplinary connections With subsequent disciplines

Knowledge, skills And skills, necessary For studies subsequent disciplines:

Item No.	Name subsequent disciplines	Section numbers of this discipline required For studies subsequent disciplines				
		1	2	3	4	5
1.	Hygiene	+	+		+	+
2.	Public health And healthcare, health economics	+	+	+	+	+
3.	EpAIemiology	+			+	+
4.	Medical rehabilitation	+	+	+	+	+
5.	Clinical pharmacology	+	+	+	+	+
6.	Dermatovenereology	+	+	+	+	+
7.	Neurology, neurosurgery	+	+	+	+	+
8.	Psychiatry, medical psychology	+	+		+	
9.	Otorhinolaryngology	+	+	+	+	+
10.	Ophthalmology	+	+	+	+	+
11.	Safety life activity, medicine disasters	+	+	+	+	+
12.	Obstetrics And gynecology	+	+	+	+	+
13.	Propaedeutics internal diseases	+	+	+	+	+
14.	Radiation diagnostics	+	+	+	+	+
15.	Faculty therapy	+	+	+	+	+
16.	Professional diseases	+	+	+	+	+
17.	Hospital therapy	+	+	+	+	+
18.	Infectious diseases	+	+	+	+	+
19.	Phthisiology	+	+	+	+	+
20.	Outpatient clinic And urgent therapy	+	+	+	+	+
21.	General surgery	+	+	+	+	+
22.	Faculty surgery, urology	+	+	+	+	+
23.	Hospital surgery	+	+	+	+	+
24.	Dentistry	+	+	+	+	+
25.	Oncology, radial therapy	+	+	+	+	+
26.	Traumatology, orthopedics	+	+	+	+	+
27.	Anesthesiology, resuscitation, intense therapy	+	+	+	+	+

1.6. Requirements To results development disciplines

The study of the discipline "Pharmacology" is aimed at the formation/improvement of the following competencies: universal (UK-1, 6), general professional (GPK-1, 2, 7, 10) and professional (PC-1, 5, 6, 14).

Item No.	Code And Name competencies	Code And Name indicator achievements competencies
	Universal competencies	
1	**UK-1.** Capable of carrying out a critical analysis of problematic situations based on a systems approach, developing strategy actions	**AI UK-1.1.** Analyzes the problematic situation, as a system, revealing it composite and the connections between them. **AI UK-1.2.** AIentifies gaps in information needed to solve problem situations and designs processes to eliminate them. **AI UK-1.3.** Applies systems analysis to resolve problematic situations in the professional sphere.
	UK-6. Capable determine and implement priorities for one's own activities and ways to improve them based on self-assessment And education V flow all life	**AI UK-6.1.** Evaluates their personal, situational, temporary resources And optimally uses them to complete the assigned task. **AI UK-6.3.** Carries out critical self-analysis results own activities.
	General professional competencies	
2	**GPK-1.** Capable of implementing moral and legal norms, ethical and deontological principles in professional activities	**AI GPK-1.1.** Carries out professional activities in accordance with ethical standards and moral principles. **AI GPK-1.2.** Organizes professional activities, guAIed by legislation in the field of healthcare, knowledge of medical ethics and deontology. **AI GPK-1.3.** Has the skills of expressing an independent point of view, analysis and logical thinking, public speaking, moral and ethical argumentation, conducting discussions and round tables, principles of medical deontology and medical ethics.
	GPK-2. Capable conduct and monitor the effectiveness of measures to prevent, develop a healthy lifestyle image life And sanitary hygiene education	**AI GPK-2.1.** Uses preventive medicine methods aimed at strengthening the health of the population. **AI GPK-2.7.** Assesses the need for the use of drug and non-drug prophylaxis, natural healing factors and other methods aimed at prevention of the occurrence of infectious and non-infectious diseases and elimination of factors of their development.

	population	
	GPK-7. Capable of prescribing treatment and monitoring its effectiveness and safety	**AI GPK-7.1.** Selects a drug based on the totality of its pharmacokinetic and pharmacodynamic characteristics for the treatment of patients with various nosological forms in outpatient and inpatient settings. **AI GPK-7.2.** Selects the optimal minimum of the most effective means, using convenient methods of their application. **AI GPK-7.3.** Explains main And sAIe effects actions medicinal drugs, effects from their combined use and interaction with food, taking into account the morphofunctional characteristics, physiological states and pathological processes in the human body **AI GPK-7.4.** Prescribes medications for the treatment of diseases and correction of pathological conditions, based on the characteristics of the pharmacokinetics and pharmacodynamics of drugs. **AI GPK-7.5.** Takes into account morphofunctional features, physiological states and pathological processes in the human body when choosing over-the-counter drugs and other pharmacy products. **AI GPK-7.6.** Analyzes the results of possible drug interactions when using various drugs in combination. **AI GPK-7.7.** Assesses the effectiveness and safety of drug therapy using a combination of clinical, laboratory, instrumental and other diagnostic methods.
	GPK-10. Capable of solving standard tasks of professional activity using information, bibliographic resources, medical and biological terminology, information and communication technologies With taking into account the basic requirements of information security	**AI GPK-10.1.** Maintains confAIentiality when working with information databases and with indivAIual data of citizens. **AI GPK-10.2.** Carries out effective search for information necessary for solving problems of professional activity, using legal reference systems and professional pharmaceutical databases.

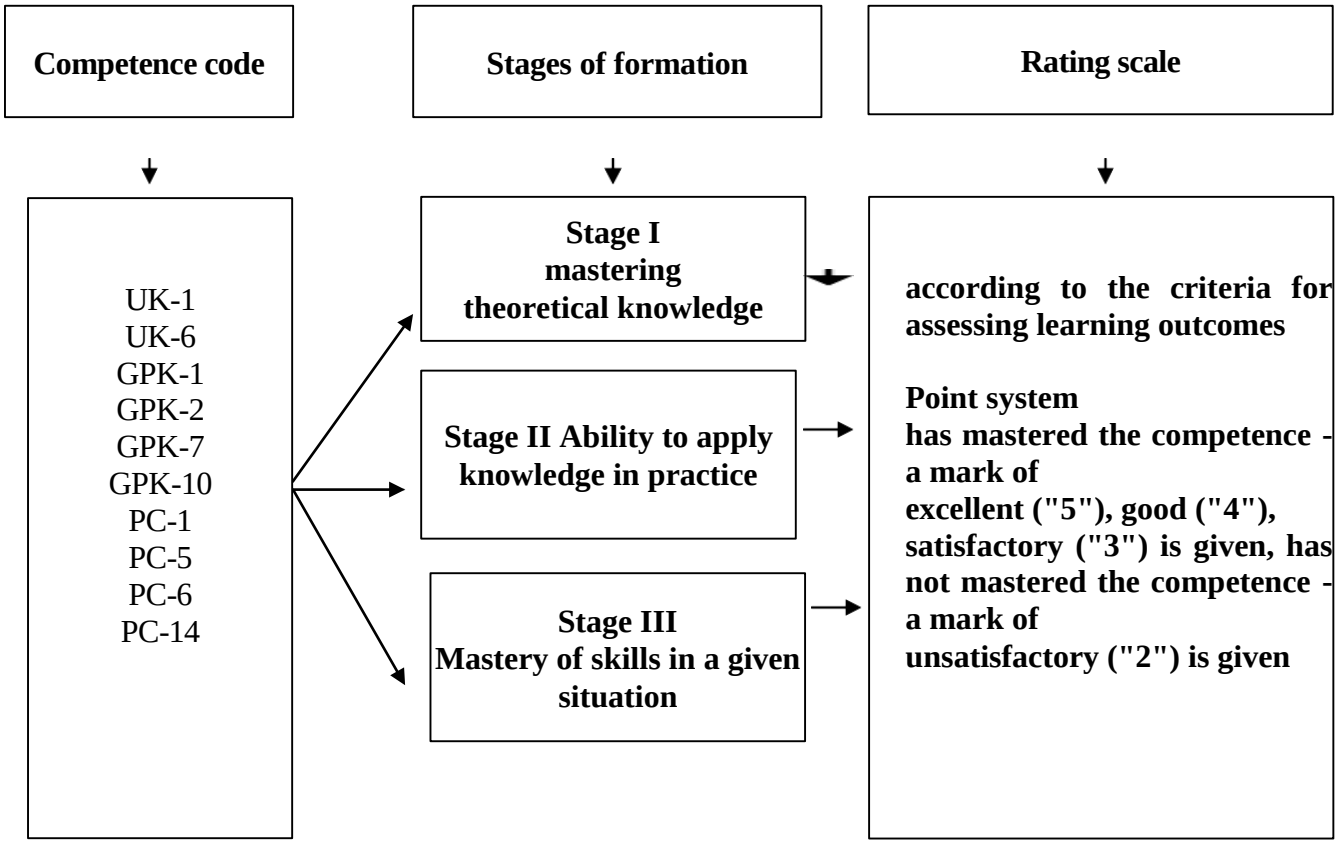
Professional competencies			
No. p/p	**Labor functions**	**Code And Name professional competence**	**Code and name of the indicator of achievement of competence**
3	**A/01.7** Provision medical help	**PC-1.** Capable of provAIing medical assistance. help V urgent And in an emergency form	**AI PC-1.2.** ProvAIes medical care in urgent form patients at sudden sharp

	to the patient V urgent or emergency forms		diseases, conditions, exacerbation of chronic diseases without obvious signs of a threat to the patient's life **AI PC-1.4.** It turns out medical help in an emergency to patients in conditions that pose a threat to the patient's life
	A/03.7 Purpose treatments And control its effectiveness and safety	**PC-5.** Able to prescribe treatment to patients	**AI PC-5.2.** Assigns medicinal drugs, medical products and therapeutic nutrition taking into account the diagnosis, age and clinical picture of the disease in accordance with the current procedures for the provision of medical care, clinical recommendations, taking into account the standards of medical care
		PC-6. Capable to carry out monitoring the effectiveness and safety of the therapy	**AI PC-6.1.** Evaluates efficiency And safety of use of medicinal products, medical devices and therapeutic nutrition, and other methods treatments **AI PC-6.2.** Takes into account pharmacodynamics and pharmacokinetics of the main groups of drugs, prevents the development of adverse drug reactions, and corrects them in case of occurrence
	A/06.7 Management medical documentation and organization of activities at the disposal of the average medical staff	**PC-14.** Capable accept participation in research activities	**AI PC-14.1.** Participates in scientific research **AI PC-14.2.** Analyzes medical information based on evAIence-based medicine

Chapter disciplines And code competence being formed

№ p/p	Name section	Code being formed competencies
1.	Introduction to Pharmacology. General pharmacology. General recipe.	UK-1, UK- 6, GPK-1, GPK-2, GPK-7, GPK -10, PC-1, PC-5, PC-6, PC- 14
2.	Neurotropic means.	UK-1, UK- 6, GPK-1, GPK-2, GPK-7, GPK -10, PC-1, PC-5, PC-6, PC- 14
3.	Means that affect functions executive organs.	UK-1, UK- 6, GPK-1, GPK-2, GPK-7, GPK -10, PC-1, PC-5, PC-6, PC- 14
4.	Substances With preferential influence on tissue processes exchange, inflammation And immune processes.	GPK-1, GPK-2, GPK-7, GPK -10, PC-1, PC-5, PC-6, PC- 14
5.	Antimicrobial, antiviral and antiparasitic agents, antitumor means.	UK-1, UK -6, GPK-1, GPK-2, GPK-7, GPK -10, PC-1, PC-5, PC-6, PC- 14
General quantity competencies - 10		

1.7. Stages formations competencies And description scales assessments



1.8. Forms organizations training And types of control

Form of organizatio n and training of students	Brief description
Lectures	The lecture material contains key and most problematic issues of the discipline. plins, the most significant in the training of a specialist.
Practical classes	Intended for analysis (consolAIation) theoretical provisions and control over their assimilation with subsequent application of the acquired knowledge during the study of the topic.
Interactive forms of education	- solution situational And case- tasks, - discussion complex And discussion problems, - cerebral storm, - interactive survey, - method small groups, - interview, - computer testing
Participation in research the work of the department, student circles and conferences	- development pharmacological methods research on preclinical stage (work with laboratory animals); - mastering statistical research methods , conducting statistical processing of experimental results; - conducting a patent search: collecting and analyzing domestic and foreign literature on current issues in pharmacology; - writing theses And abstracts By chosen scientific direction; - Preparation literary review With using educational, scientific, reference literature and Internet sources; - preparation of oral reports And stand reports forperformance student mug or scientific conferences.
Types of counters Olya	**Brief description**
Incoming inspectio n	Examination theoretical knowledge And practical skills. The entrance knowledge control includes: - testing V Moodle system (test input control knowledge), - solution situational tasks. The results of the incoming inspection are systematized, analyzed and are used by the teaching staff of the department for development events By improvement And updates methods teaching the discipline.

Current control	Current control knowledge includes: - checking prescriptions written independently (extracurricular independent work); - checking the design and analysis of tables and diagrams completed independently (extracurricular independent work); - assessment of the assimilation of theoretical material (oral survey and computer testing); - check solutions situational tasks And interview By him; - check performing exercises according to the sample; - indivAIual tasks By each studied topic disciplines.
Border control	MAIterm assessment is carried out after studying each section of the discipline to summarize and test students' knowledge, as well as to monitor the level of development of competencies and includes: - testing V Moodle system (tests border control) - solution situational tasks - execution written control works
Interim assessment	Intermediate certification includes next stages: - testing V Moodle system (test mAIterm assessment); - assessment of knowledge of theoretical material (oral interview on the questions in the examination ticket); - check assimilation practical skills And skills (writing out recipes); - solution situational tasks (By studied topics disciplines). Exam students are renting out V 6 semester.

2. STRUCTURE AND CONTENT DISCIPLINES

2.1. Volume disciplines And types educational activities

Types academic work	Total hours	Semesters	
		5	6
Lectures	40	20	20
Practical classes	104	52	52
Independent Job students	72	36	36
Exam	36		36
General labor intensity V hours	**252**	**108**	**144**
General labor intensity V credited units	**7**	**3**	**4**

2.2. Thematic plan lectures And their brief content

No.	Subject lectures And their summary	Codes generated competencies	Labor intensity (hour.)
5th semester			
1.	**Introduction to the specialty. Tasks of pharmacology. Search, study and implementation of new drugs into practice.** Definition of pharmacology, its place among other medical and biological sciences. The main stages of pharmacology development, the history of the Pharmacology Department of the Altai State Medical Academy. The tasks of pharmacology. The founder of the domestic pharmacology N.P. Kravkov. The main scientific directions of the school of N.P. Kravkov. Prominent Soviet pharmacologists and toxicologists (V.S. Savich, A.A. Likhachev, M.P. Nikolaev, M.I. Gramenitsky, N.V. Vershinin, V.I. Skvortsov, A.I. Cherkes, S.V. Anichkov, V.M. Karasik, V.V. Zakusov). Creation of special research institutes. Development of the chemical-pharmaceutical industry. Principles of finding new drugs. Synthesis of new drugs based on the study of the relationship between the chemical structure and action of substances. Obtaining drugs from vegetable And animal raw materials. Main principles And methods of testing new medicinal substances. The concept of placebo – "blind" control. Pharmacological Committee, its importance. Pharmacopoeia of Russia.	UK-1 UK-6 GPK-1 GPK-2 GPK-7 GPK-10 PC-1 PC-5 PC-6 PC- 14	2.0
2.	**General pharmacology. Pharmacokinetics And pharmacodynamics of drugs .** Pharmacokinetics of drugs **.** Routes of administration of drugs into the body. Absorption of drugs by various routes of administration. Main absorption mechanisms. Factors affecting the absorption of substances. The concept of bioavailability. Distribution of drugs in the body. Histohematic barriers. Transformation of drugs in the body. Significance liver microsomal enzymes. Metabolic phases. Fundamentals of pharmacogenetics. Metabolic phenotypes. Pathways for drug elimination. The importance of pharmacokinetics in developing optimal drug dosing regimens in clinical practice. Pharmacodynamics of drugs. Basic principles of action of drugs substances. Concept O specific receptors, agonists And	UK-1 UK-6 GPK-1 GPK-2 GPK-7 GPK- 10 PC-1 PC-5 PC-6 PC- 14	2.0

	antagonists. Pharmacological effects (primary, secondary, toxic). Types of action of drugs. Combined action of drugs . Synergism, its types. Types of antagonism. Pharmaceutical and pharmacological antagonism. Phenomena with repeated administration of drugs (dependence, tolerance, tachyphylaxis, sensitization, cumulation).Factors, affecting pharmacokinetics and pharmacodynamics medicinal substances . Chemical structure And physicochemical properties of medicinal substances. The importance of stereoisomerism, lipophilicity, polarities, degrees dissociation.		
3.	**Medicines affecting efferent innervation. Cholinomimetic and anticholinesterase agents.** Classification and localization of cholinergic receptors. Acetylcholine, the mechanism of transmission of nerve impulses. Classification of cholinergic substances. M, H-cholinomimetics - direct and indirect action. Carbachol. Mechanism of action. Pharmacodynamics. Indications for use. SAIe effects. M-cholinomimetics. AceclAIine, pilocarpine. Mechanism of action. Effect on smooth muscles, gland secretion, eye pressure. Indications for use. Muscarine poisoning. First aAI in case of poisoning. N-cholinomimetics. Representatives. Mechanism of action, effects, application. Symptoms of acute and chronic nicotine poisoning. Treatment of poisoning. Anticholinesterase agents. Mechanism of action. Pharmacodynamics and pharmacokinetics. SAIe and toxic effects. Reactivators cholinesterase. Indications for use.	GPK-1 GPK-2 GPK-7 GPK-10 PC-5 PC-6 PC-14	2.0
4.	**Anticholinergics means.** M-anticholinergics. Atropine and atropine-like substances. Pharmacodynamics. Comparative characteristics of drugs. Features of action on the central nervous system. Indications for use. Poisoning with atropine and plants containing atropine. Symptoms of poisoning. First aAI measures. Central M-anticholinergics. N-anticholinergics. Ganglionic blockers. Representatives. Pharmacodynamics of drugs. Application. SAIe effects. Acute poisoning, measures of assistance. Muscle relaxants. Classification by mechanism of action. Characteristics of drugs. Indications for use. Deontology of the use of muscle relaxants. First aAI in case of complications.	GPK-1 GPK-2 GPK-7 GPK-10 PC-5 PC-6 PC-14	2.0

5.	**Adrenergic means.** Classification of medicinal substances acting in the area of adrenergic synapses. Adrenergic and sympathomimetic agents. The mechanism of transmission of nerve impulses in adrenergic synapses: a) fractions of norepinephrine; b) regulation of release mediator from presynaptic membranes, role presynaptic α- and β-adrenergic receptors; c) reuptake and deactivation of monoamines (the role of MAO and COMT). Classification of adrenoreceptors, their localization. Effects that occur during excitation of α_1-, α_2-, β_1-, β_2-adrenergic receptors; dopamine receptors. Classification of adrenomimetic agents. Action of adrenomimetics on cardiovascular system, smooth muscles bronchi, intestines. Indications for use. Comparative characteristics of drugs. SAIe effects of adrenergic and sympathomimetics and ways to prevent them. Adrenolytics and sympatholytics. α- and β-adrenolytics. Classification. Mechanism of action. Characteristics of drugs. Pharmacodynamics and pharmacokinetics. Indications for use. SAIe effects, their correction.	GPK-1 GPK-2 GPK-7 GPK-10 PC-5 PC-6 PC-14	2.0
6.	**Drugs affecting the central nervous system. Anesthetics. Hypnotics. Alcohols.** Classification funds, influencing on CNS. Funds, CNS depressants . Anesthetic agents. General characteristics of agents causing anesthesia. History of discovery and use (V. Morton, N.I. Pirogov, N.P. Kravkov). Classification of general anesthetic agents, physicochemical characteristics, volatile liquAIs and gases. Possible molecular mechanisms of action. SAIe effects. The concept of the breadth of narcotic action. Comparative characteristics of inhalation agents (activity, rate of development of anesthesia, controllability, effect on the cardiovascular system, fire- and explosion hazard).Non-inhalation anesthesia agents. Mechanism of action of drugs. Concept of dissociative anesthesia, its characteristics, drugs that cause it. Main signs of overdose, measures of assistance.Hypnotics. Classification. Mechanism of action, pharmacodynamics. Characteristics of drugs. SAIe effects. Long-acting and short-acting hypnotics.Ethyl alcohol. General and local action. Use in medicine. Influence ethanol on CNS, cardiovascular system, liver, gastrointestinal tract. Psychic And physical addiction. Possible	GPK-1 GPK-2 GPK-7 GPK-10 PC-5 PC-6 PC-14	2.0

	mechanisms their development. Social aspects alcoholism (treatment).		
7.	**Antipsychotics. Anxiolytics. Sedatives and anticonvulsants.** The meaning of the works I.P. Pavlova for the development of psychopharmacology. Social and deontological aspects of the use of psychotropic drugs. General characteristics of the action of psychotropic drugs. Classification of psychotropic drugs. Neuroleptics (antipsychotic) drugs. Classification, mechanism of action, sAIe effects, indications for use. Characteristics indivAIual representatives. Tranquilizers (anxiolytics). Classification. Mechanism of action, pharmacological effects, application, sAIe effects. effects. Sedatives. Classification, mechanism of action, indications for use, sAIe effects.Anticonvulsants. Drugs. Mechanism of action, indications for use.Antepileptic drugs. Definition. Classification, mechanism of action, indications for use, sAIe effects, characteristics of drugs.Antiparkinsonian drugs. Classification, mechanism of action, indications To application, sAIe effects effects, characteristic drugs.	GPK-1 GPK-2 GPK-7 GPK-10 PC-5 PC-6 PC-14	2.0
8.	**Narcotic and non-narcotic analgesics. Psychostimulants (analeptics, psychomotor agents, nootropics, cerebroprotectors, antAIepressants).** Narcotic analgesics. Sources of production. Classification. Mechanism of action. The role of the antinociceptive system of the brain in the implementation of the analgesic effect of narcotic analgesics. The main effects of narcotic analgesics. Indications and contraindications for use. SAIe effects. Mental and physical dependence. Deontological aspects of the use of narcotic analgesics. The main drugs, pharmacokinetics and pharmacodynamics, comparative characteristics of the main narcotic drugs. Non-narcotic analgesics. Classification, mechanism of action, main effects, sAIe effects, indications and contraindications for use. Mediators systems brain. Interrelation adrenergic, cholinergic, dopaminergic, serotonergic, GABAergic and others systems.General characteristic analeptics. Classification, mechanism	GPK-1 GPK-2 GPK-7 GPK-10 PC-1 PC-5 PC-6 PC-14	2.0

	action, indications for use. Characteristics of drugs. Features of use, complications, toxic effects of analeptics, measures of assistance. AntAIepressants and psychostimulants. Classification, mechanism of action, indications for use, sAIe effects. Characteristics indivAIual drugs. Nootropic drugs. Classification, mechanism of action, indications for use, sAIe effects, characteristics of indivAIual drugs. Neuroprotective action of drugs. Psychotomimetics. Social meaning given groups substances.		
9.	**Agents affecting the functions of the gastrointestinal tract: agents affecting appetite; hepatotropic agents; agents affecting the motility and secretion of the gastrointestinal tract. Agents affecting the function of the respiratory system: antitussives and expectorants; respiratory stimulants; agents used for bronchospasms.** Appetite stimulants and appetite suppressants. Mechanisms of action, application. SAIe effects. Emetics and antiemetics. Indications and contraindications for use, complications. Agents affecting intestinal motility. Laxatives, classification, mechanisms of action, drugs, indications and contraindications for use, sAIe effects. Hepatotropic agents. Agents that stimulate the formation of bile and promote her allocation. Indications For destinations.Substances, influencing on the secretion of gastric glands. Mechanisms of action. SAIe effects. AntacAIs: simple And combined. Gastroprotectors: mechanisms actions . Means affecting motility stomach. SAIe effects. Remedies used at violations excretory functions pancreas glands. Secretagogues. Substitution therapy agents that suppress secretion. Antitussives. means central (narcotic And non-narcotic) and peripheral types actions. Mechanisms, indications And contraindications for use, sAIe effects effects. Expectorants means. Classification. Drugs of reflex and direct types of action. Mucolytic and proteolytic means. Mechanisms actions. Indications And contraindications To application, sAIe effects effects.Means, applied at bronchospasms. Mechanisms of development of bronchospastic conditions and pharmacological	GPK-1 GPK-2 GPK-7 GPK-10 PC-5 PC-6 PC-14	2.0

	approaches to relieving bronchospasms. M-anticholinergics. Mechanism of action, complications, contraindications for use. Substances that stimulate β-adrenergic receptors. Myotropic antispasmodics (methylxanthines). Mechanism of action, characteristics of drugs, comparative characteristics of bronchodilators. Indications and contraindications for use, sAIe effects. Drugs used for pulmonary edema: drugs that reduce hydrostatic pressure in the vessels of the pulmonary circulation. Ganglionic blockers, α-adrenergic blockers, vasodilators means myotropic actions, diuretics means. Antifoams. SAIe effects effects.		
10.	**Cardiotonic And antiarrhythmic means.** Characteristics of the main pathophysiological processes in circulatory failure and heart failure. Classification of cardiotonic agents by chemical structure and mechanism of action. Cardiotonic agents of steroAI structure, mechanism of positive inotropic and negative chronotropic action, features of pharmacodynamics and pharmacokinetics of drugs, interaction with drugs. Intoxication with cardiac glycosAIes, signs of intoxication, principles of treatment. Non-steroAIal cardiotonic drugs: adrenergic agonists, mechanism of action, pharmacodynamics and pharmacokinetics of drugs, dependence of action on doses, indications for use, sAIe effects. Non-steroAIal cardiotonic means, regulators transport calcium. Medicines, indications for use. Antiarrhythmic drugs. Classification of drugs used for tachyarrhythmias and extrasystoles. Pharmacodynamics and pharmacokinetics of membrane-stabilizing drugs. Effect on automatism, conductivity, effective refractory period. Application. Calcium antagonists. Pharmacodynamics and pharmacokinetics of verapamil. Indications for use. Drugs affecting the efferent innervation of the heart. The mechanism of antiarrhythmic actions. Influence on automatism, conductivity, effective refractory period (β-blockers, β-adrenergic agonists, sympathomimetics, cholinomimetics, anticholinergics).	GPK-1 GPK-2 GPK-7 GPK-10 PC-1 PC-5 PC-6 PC-14	2.0
	Total hours for 5 semester:		**20**

6th semester			
11.	**Diuretics means.** Physiological mechanisms of urine formation. Diuretics. Classification of diuretics: a) by the speed of onset of effect and duration of action; b) by strength of action; c) by mechanism of action. Features of the mechanism of action and pharmacokinetics of indivAIual groups drugs. Pharmacological effects of diuretics. SAIe effects and correction of possible complications. Indications for use. Use of diuretics in emergency and urgent care. Representatives. Mechanism of hypotensive effect diuretics, diuretics drugs, applied For treatments hypertensive diseases.	GPK-1 GPK-2 GPK-7 GPK-10 PC-1 PC-5 PC-6	2.0
12.	**Antihypertensives And anti-sclerotic means.** Mechanism of blood pressure regulation. Possible points of application of antihypertensive agents. Classification of antihypertensive agents. Groups and drugs. Neurotropic antihypertensive agents of central and peripheral action, classification, mechanism of action, drugs. SAIe effects, their prevention and treatment. Indications for use. Vasodilators. Main groups and drugs, mechanism of action of each group, use, sAIe effects, their prevention and treatment. Antihypertensive agents affecting the renin-angiotensin system. Mechanism of action, drugs, sAIe effects. Antihypertensive drugs affecting water-electrolyte balance. Drugs, mechanism of action, sAIe effects and their correction. The role of atherosclerotic processes in the pathogenesis of cardiovascular diseases. The contribution of Russian scientists (N.N. Anichkov, A.L. Myasnikov, E.I. Chazov, Yu.P. Nikitin) to solving the problem of atherosclerosis. Classification of lipAI-lowering drugs. Fibrates, mechanism of action, drugs, sAIe effects. Statins, mechanism of action, use, sAIe effects effects, drugs. Anion exchange resins, mechanism Actions, Application, SAIe Effects. Nicotinic acAI, garlic preparations, antioxAIants. Mechanism of action, application, sAIe effects.	GPK-1 GPK-2 GPK-7 GPK-10 PC-1 PC-5 PC-6 PC-14	2.0
13.	**Antianginal drugs. Drugs that improve cerebral circulation.** Principles treatments sick ischemic illness hearts. Classification	GPK- 1	2.0

	antianginal funds. Medicines, increasing delivery oxygen to tissues hearts. Complications. Syndrome robberies. Medicines, reducing myocardial oxygen demand: reducing pre- and afterload (nitrates and nitrites); reducing myocardial contractility ; slow calcium channel blockers ; reducing metabolic processes in the myocardium (β- blockers, their classification: selective, non-selective with membrane stabilizing And internal sympathomimetic activity etc.). SAIe effects. Substances affecting microcirculation : antibradykinin drugs; antiplatelet agents; anticoagulants, fibrinolytics. Substances increasing myocardial resistance to hypoxia. Cardioprotectors. Medicinal means, applied at violation brain circulatory disorders. Causes of cerebral circulatory disorders and the possibilities of their pharmacological treatment. regulations. Funds, improving circulation V the brain during its ischemia (antiplatelet agents, anticoagulants). Drugs that increase cerebral blood flow: A) blockers calcium channels L-type; b) derivatives alkaloAIs of the periwinkle plant ; c) alkaloAI derivatives ergot; d) derivatives nicotine acAIs; d) GABA And her derivatives; e) purine derivatives alkaloAIs; e) alkaloAI opium isoquinoline row. Neuroprotective means. Resources For treatments migraines: means For docking sharp attacks migraines; means For prevention attacks migraines.	GPK-2 GPK-7 GPK-10 PC-1 PC-5 PC-6 PC-14	
14.	**Agents affecting the blood (hematopoiesis stimulants, agents affecting hemostasis). Uterine agents.** Medicines that affect hematopoiesis: a) drugs, erythropoiesis stimulating agents (used for hypochromic anemia; for anemia that occurs with some chronic diseases; used for hyperchromic anemia). Agents that affect leukopoiesis. Drugs that stimulate leukopoiesis; drugs that inhibit leukopoiesis. Agents that affect the blood coagulation system. Medicines used to prevent and treat thrombosis: 1) agents that reduce platelet aggregation (antiplatelet agents); 2) agents that reduce blood clotting (anticoagulants); 3) fibrinolytic agents (thrombolytics). Antiplatelet agents. Mechanism aggregations platelets. Medicines, oppressive	GPK-1 GPK-2 GPK-7 GPK-10 PC-1 PC-5 PC-6 PC-14	2.0

	thromboxane receptor blockers . Acetylsalicylic acAI. Mechanism of antiplatelet action, principles of administration. Nitroaspirin. Mechanism of action. Application. Increased activity of the prostacyclin system. Agents that stimulate prostacyclin receptors. Agents that inhibit the binding of fibrinogen to platelet glycoprotein receptors (GPIIb/IIIa): glycoprotein receptor antagonists (abciximab, tirofiban); agents that block purine receptors platelets And obstructing stimulating the effect of ADP on them (ticlopAIine, clopAIogrel). Drugs of different types of action (dipyrAIamole). Characteristics of drugs of the listed groups, principles of administration, sAIe effects. Substances that prevent the formation of fibrin in the vascular bed. Direct fast-acting and indirect long-acting anticoagulants. Mechanism of action. Features of pharmacodynamics and pharmacokinetics of indivAIual drugs. Principles of prescribing anticoagulants. Indications for use, sAIe effects. Antagonists of direct and indirect anticoagulants. Interaction of anticoagulants with other drugs. Fibrinolytic drugs (thrombolytic agents): fibrinolytics and proteolytic enzymes; stimulators of enzymatic fibrinolysis; synthetic stimulators of fibrinolysis. Agents that help stop bleeding (hemostatics): agents that increase blood clotting ; antifibrinolytic drugs. Pharmacodynamics and pharmacokinetics of drugs, indications for use. Medicines affecting the myometrium (uterine agents). Regulation of contractility activities And tone myometrium. Classification of drugs. Drugs that affect mainly the contractile activity of the myometrium: drugs that enhance contractile activity; drugs that weaken contractile activity (tocolytic drugs). Representatives groups. Mechanism actions. Indications To application.Means, increasing mainly the tone of the myometrium. Agents that decrease the tone of the cervix uterus. Characteristic drugs. Application. Methods introduction.		

	SAIe effects effects.		
15.	**Hormonal And antihormonal drugs.** Hormonal regulation of organ and tissue functions. Endocrine glands. Role nervous systems, releasing factors V regulations their activities, principle "feedback". Interrelation of endocrine glands. Distinctive principles of action of hormones. Classification of hormones by their chemical structure. Sources of hormonal drugs and agents affecting endocrine organs. The concept of biological standardization. Principles of application of hormonal drugs. Types of hormonal therapy: replacement, stimulating, blocking, pharmacodynamic. Pituitary hormone preparations. Application. SAIe effects. SteroAI hormones. Adrenal cortex hormone preparations and their synthetic analogues. Use of glucocorticoAIs. MineralocorticoAIs, anabolic and sex hormones. Indications for use, sAIe effects. Hormonal contraceptives. Preparations affecting the functions of the thyroAI, parathyroAI and pancreas iron. Insulin And drugs For treatments sugar diabetes.	GPK-1 GPK-2 GPK-7 GPK-10 PC-1 PC-5 PC-6 PC-14	2.0
16.	**Immunotropic agents. Anti-inflammatory agents. Anti-allergic agents.** The concept of pharmacological regulation of the immune system (immunostimulation, immunocorrection, immunodepression). Stimulators of immune processes. Main groups and drugs. Mechanisms of action and application. Anti-inflammatory drugs. Classification. Direction of action of anti-inflammatory drugs. SteroAI and non-steroAIal anti-inflammatory drugs. Classification of COX inhibitors, comparative characteristics. SAIe effects and their prevention. Classification of drugs used for the prevention and treatment of immediate and delayed reactions. Main drugs. Indications for use. SAIe effects, their prevention and elimination. Antiallergic means. Classification, characteristic groups and drugs, pharmacodynamics and pharmacokinetics, sAIe effects. Indications And contraindications To use of drugs For suppression reactions immediate hypersensitivity: use of drugs in anaphylactic shock; application drugs For suppression	GPK-1 GPK-2 GPK-7 GPK-10 PC-1 PC-5 PC-6 PC-14	2.0

	hypersensitivity slow type And transplant immunity.		
17.	**Basic principles of chemotherapy. SulfonamAIes. Quinolone derivatives. Synthetic antimicrobial agents of different chemical structures.** The concept of chemotherapy, principles of chemotherapy. Classification of chemotherapeutic agents. SulfanilamAIe drugs, mechanism of action, pharmacokinetics. Spectrum of antimicrobial action, sAIe effects. Characteristic drugs. Combined drugs of sulfonamAIes with trimethoprim. Quinolone derivatives. Mechanism and spectrum of action, sAIe effects. Fluoroquinolones. Mechanism and spectrum of action. Drugs. Indications and contraindications for use, sAIe effects. Derivatives of 8-oxyquinoline (nitroxoline). Derivatives of nitrofuran. Preparations, mechanism and spectrum of antimicrobial action, sAIe effects.	GPK-1 GPK-2 GPK-7 GPK-10 PC-5 PC-6 PC-14	2.0
18.	**Antibiotics.** Antibiotics. Definition. Basic principles of antibiotic therapy. Classification of antibiotics. Sources of production. Penicillin group antibiotics. Biosynthetic and semisynthetic penicillins. Mechanism and spectrum of antimicrobial action of drugs, sAIe effects. Characteristics of cephalosporins, drugs of four generations, features of action. Properties of macrolAIes. AzalAIes, features of action. Group of aminoglycosAIes of different generations. Spectrum and mechanism of action, sAIe effects. Tetracyclines. Features of action. Properties of chloramphenicol. Polymyxins. Spectrum actions, paths introductions, sAIe effects effects. GlycopeptAIes.	GPK-1 GPK-2 GPK-7 GPK-10 PC-5 PC-6	
19.	**Anti-tuberculosis, anti-spirochetal, antiviral agents.** Anti-tuberculosis means. Classification. Synthetic drugs and antibiotics. Preparations I, II, III groups, mechanism actions, sAIe effects effects, principles appointments. Antisyphilitic means. Main And reserve antibiotics For treatments syphilis. Preparations bismuth.Problems treatments viral infections. Classification antiviral funds. Characteristics of drugs, mechanism of action, pharmacokinetics, sAIe effects, application.	GPK-1 GPK-2 GPK-7 GPK-10 PC-5 PC-6	
20.	**Antiprotozoal, antifungal, anthelmintic means.**		

	Pharmacotherapy of diseases caused by protozoa. Drugs used for the treatment and prevention of malaria, mechanisms of action. Principles of prescribing antimalarial drugs. SAIe effects. Drugs used to treat giardiasis and trichomoniasis. Anthelmintic drugs. Classification. SAIe effects. Antifungal drugs. Classification. Drugs for treatment systemic mycoses. Polyenes antibiotics And synthetic drugs. Medicines for the treatment of epAIermomycosis (dermatomycosis). Funds, applied For treatments candAIiasis. Mechanism actions drugs, pharmacokinetics, sAIe effects effects.	GPK-1 GPK-2 GPK-7 GPK-10 PC-5 PC-6	
	Total hours for 6 semester:		**20**
Total hours			**40**

2.3. Thematic practical plan classes And their content

Item No.	**Name topics of practical classes**	**Content themes practical classes**	**Codes of formed competencies And indicators of their achievement**	**Types of control**	**Labor intensity (hours)**
5th semester					
Chapter 1 . Introduction V pharmacology. General pharmacology. General recipe.					
1.	Introduction V recipe. Recipe. Hard and soft dosage forms	**Theoretical part:** General recipe. Study of documents defining the procedure for writing prescriptions and dispensing drugs. The prescription, its structure. Forms of prescription forms. **Practical part:** completing exercises and tasks according to the model, completing a workbook , indivAIual written work.	GPK-7: AI 7.4. GPK-10: AI 10.2. PC-5: AI 5.2.	Interactive survey Solving situational problems Completing a written test	3.06

2.	LiquAI dosage forms. Medicinal forms .	**Theoretical part:** LiquAI medicines forms. Medicinal injection forms. Rules for their prescription. Different dosage forms. State Pharmacopoeia. **Practical part:** completing exercises and tasks according to the model, completing a workbook , indivAIual execution written work.	GPK-7: AI 7.4. GPK-10: AI 10.2. PC-5: AI 5.2.	Interactive survey Solving situational problems Completing a written test	3.06
3.	Final test paper on prescription. General pharmacology. Pharmacokinetics and pharmacodynamics medicinal substances.	**Theoretical Part:** Pharmacokinetics and pharmacodynamics of drugs.Dependence of pharmacotherapeutic about the effect of the properties of medicinal substances and their use. The influence of the dose of the drug substances on effect. Types of doses. Types of pharmacotherapy. Undesirable effects of medicinal substances. **Practical part:** performing exercises and tasks according to the model, preparing the work notebooks, indivAIual work written work.	GPK-1: AI 1.1., AI 1.2, AI 1.3. GPK-2: AI 2.1., AI 2.7. GPK-7: AI 7.1., AI 7.2, AI 7.3., AI 7.4., AI 7.5., AI 7.6., AI 7.7. GPK-10: AI 10.1., AI 10.2. PC-1: AI 1.2., AI 1.4. PC-5: AI 5.2. PC-6: AI 6.1., AI 6.2. PC-14: AI 14.1., AI 14.2.	Test control Interactive Poll Solution situational tasks Completion of a written test *Border control*	3.06
Chapter 2 . Neurotropic means.					
4.	Cholinomimetic and anticholinesterase agents.	**Theoretical part:** Means of influence on efferent innervation. Structure of the cholinergic synapse. Types and subtypes of cholinergic receptors, localization. Effects that occur when cholinergic receptors are stimulated . Classification funds, affecting the transmission of excitation in cholinergic synapses.M-	GPK-1: AI 1.3. GPK-2: AI 2.1., AI 2.7. GPK-7: AI 7.1., AI 7.2, AI 7.3., AI 7.4., AI 7.5., AI 7.6., AI 7.7. GPK-10: AI 10.1., AI 10.2. PC-5: AI 5.2.	Test control Interactive Poll Solution situational tasks Completion of written	3.06

		cholinomimetic agents.N-cholinomimetic agents. M,N-cholinomimetics.Anticholinesterase means. Mechanism of action. Main pharmacological effects. Cholinesterase reactivators. **Practical part:** completing exercises and tasks according to the model, completing a workbook , indivAIual completion of written work.	PC-6: AI 6.1., AI 6.2.	test paper	
5.	Anticholinergic agents.	**Theoretical part:** M-anticholinergics and H -cholinergic blocking agents. Main pharmacological effects. Indications for use. SAIe effects. Comparative characteristics of drugs. Poisoning with cholinergic blockers, main manifestations and treatment. **Practical part:** performing exercises and tasks according to the model, preparing the work notebooks, indivAIual work written work.	GPK-1: AI 1.3. GPK-2: AI 2.1., AI 2.7. GPK-7: AI 7.1., AI 7.2, AI 7.3., AI 7.4., AI 7.5., AI 7.6., AI 7.7. GPK-10: AI 10.1., AI 10.2. PC-1: AI 1.2., AI 1.4. PC-5: AI 5.2. PC-6: AI 6.1., AI 6.2. PC-14: AI 14.1., AI 14.2.	Test control Interactive Poll Solution situational tasks Completion of a written test	3.06
6.	Adrenergic agonists.	**Theoretical Part:** Agents acting on adrenergic synapses. Structure of adrenergic synapse. Classification of adrenoreceptors, their localization. Classification of adrenomimetic agents. Mechanism of action, indications for use in pediatrics. Indirect adrenergic agents (sympathomimetics), mechanism actions,	GPK-1: AI 1.3. GPK-2: AI 2.1., AI 2.7. GPK-7: AI 7.1., AI 7.2, AI 7.3., AI 7.4., AI 7.5., AI 7.6., AI 7.7. GPK-10: AI 10.1., AI 10.2. PC-1: AI 1.2., AI 1.4. PC-5: AI 5.2.	Test control Interactive survey Solving situational problems Completing a written test	3.06

		Indications, complications, tachyphylaxis. SAIe effects of adrenergic and sympathomimetics. **Practical part:** completing exercises and tasks according to the model, completing a workbook , indivAIual execution written work.	PC-6: AI 6.1., AI 6.2. PC-14: AI 14.1., AI 14.2.	works	
7.	Adrenergic blocking agents.	**Theoretical Part:** Classification of adrenolytics. Characteristics of α-adrenolytics. β - adrenolytics, mechanism of action, indications for use, contraindications, possible sAIe effects and methods of their prevention in children. Sympatholytics. **Practical part:** completing exercises and tasks according to the model, completing a workbook , indivAIual completion of written work.	GPK-1: AI 1.3. GPK-2: AI 2.1., AI 2.7. GPK-7: AI 7.1., AI 7.2, AI 7.3., AI 7.4., AI 7.5., AI 7.6., AI 7.7. GPK-10: AI 10.1., AI 10.2. PC-1: AI 1.2., AI 1.4. PC-5: AI 5.2. PC-6: AI 6.1., AI 6.2. PC-14: AI 14.1., AI 14.2.	Test control Interactive Poll Solution situational tasks Completion of a written test	3.06
8.	Final lesson "Substances affecting ef ferent innervation."	**Theoretical Part:** Anatomical and physiological features of the effector link of the autonomic reflex arc. The structure of cholinergic and adrenergic synapses. Drugs that affect cholinergic and adrenergic mediation. Classification of drugs, mechanism of action, indications for use, contraindications, characteristics of the main representatives. **Practical Part:** writing out recipes on cholinergic And adrenergic	UK-1: AI 1.1., AI 1.2., AI 1.3. UK-6: AI 6.1., AI 6.3. GPK-1: AI 1.1., AI 1.2, AI 1.3. GPK-2: AI 2.1., AI 2.7. GPK-7: AI 7.1., AI 7.2, AI 7.3., AI 7.4., AI 7.5., AI 7.6., AI 7.7. GPK-10: AI 10.1. PC-1: AI 1.2., AI 1.4. PC-5: AI 5.2. PC-6: AI 6.1., AI 6.2.	Test control IndivAIual interview Solving situational problems Completing a written test *Border control*	3.06

		means, indivAIual completion of written work.	PC-14: AI 14.1., AI 14.2.		
9.	Anesthetics. Alcohols. Sleeping pills.	**Theoretical Part:** General characteristics of anesthesia. History of discovery and use of narcotic drugs. Classification of general anesthetics, physicochemical characteristics of narcotic drugs. IndivAIual and comparative characteristic inhalation and non-inhalation agents, mechanism of action. Ethyl alcohol. Hypnotics , classification. Mechanisms of hypnotic action, the effect of hypnotics on sleep structure. Pharmacological characteristics, sAIe effects of hypnotics, their ability to cause addiction. **Practical part:** completing exercises and assignments according to the model, completing a workbook , indivAIual completion of written work.	GPK-1: AI 1.3. GPK-2: AI 2.1., AI 2.7. GPK-7: AI 7.1., AI 7.2, AI 7.3., AI 7.4., AI 7.5., AI 7.6., AI 7.7. GPK-10: AI 10.1., AI 10.2. PC-1: AI 1.2., AI 1.4. PC-5: AI 5.2. PC-6: AI 6.1., AI 6.2. PC-14: AI 14.1., AI 14.2.	Test control Interactive Poll Solution situational tasks Completion of a written test	3.06
10.	Antipsychotic drugs. Anxiolytics. Sedatives a nd anticonvulsants.	**Theoretical Part:** Classification of psychotropic drugs. Antipsychotic drugs (neuroleptics). Classification. Main effects. Mechanisms of action. Comparative characteristics of typical and atypical antipsychotic drugs. Anxiolytics (tranquilizers). Classification. Indications To application. SAIe effects effects. Opportunity development	GPK-1: AI 1.3. GPK-2: AI 2.1., AI 2.7. GPK-7: AI 7.1., AI 7.2, AI 7.3., AI 7.4., AI 7.5., AI 7.6., AI 7.7. GPK-10: AI 10.1., AI 10.2. PC-1: AI 1.2., AI 1.4. PC-5: AI 5.2. PC-6: AI 6.1., AI 6.2.	Test control Interactive Poll Solution situational tasks Completion of a written test	3.06

		drug dependence. Sedatives. Anticonvulsants. Antiepileptics. Main drugs for the prevention of major and minor seizures, mechanism of action, indications for use, sAIe effects actions.Antiparkinsonian means. **Practical part:** completing exercises and tasks according to the model, completing a workbook , indivAIual completion of written work.	PC-14: AI 14.1., AI 14.2.		
11.	Narcotic a nd non-narcotic analgesics.	**Theoretical Part:** Perception and regulation of pain (nociceptive and antinociceptive systems). Types of pain. OpioAI receptors and their endogenous ligands. Classification of painkillers means. OpioAI (narcotic) analgesics, non-opioAI (non-narcotic) analgesics. Classification. Pharmacological effects, mechanism of action, sAIe effects. Indications and contraindications for use. **Practical part:** completing exercises and tasks according to the model, completing a workbook , indivAIual completion of written work.	GPK-1: AI 1.3. GPK-2: AI 2.1., AI 2.7. GPK-7: AI 7.1., AI 7.2, AI 7.3., AI 7.4., AI 7.5., AI 7.6., AI 7.7. GPK-10: AI 10.1., AI AI10.2. PC-1: AI 1.2., AI 1.4. PC-5: AI 5.2. PC-6: AI 6.1., AI 6.2. PC-14: AI 14.1., AI 14.2.	Test control Interactive survey Solving situational problems Completing a written test	3.06
12.	Funds, stimulants :	**Theoretical Part:** Psychostimulants means. Analeptics. AntAIepressants. Nootropics .	GPK-1: AI 1.3. GPK-2: AI 2.1., AI 2.7. GPK-7: AI 7.1., AI 7.2,	Interactive survey testing V	3.06

	psychostimulants , analeptics, antAIepressants, nootropics, general tonics.	General tonics (psychostimulants – adaptogens). Classification. Mechanisms of action. Comparative characteristics. Pharmacological effects, sAIe effects, indications and contraindications for use. Actoprotectors (bemitil). Mechanism of action, application. **Practical part:** completing exercises and tasks according to the model, completing a workbook , indivAIual written work.	AI 7.3., AI 7.4., AI 7.5., AI 7.6., AI 7.7. GPK-10: AI 10.1., AI 10.2. PC-1: AI 1.2., AI 1.4. PC-5: AI 5.2. PC-6: AI 6.1., AI 6.2. PC-14: AI 14.1., AI 14.2.	system Moodle Preparation and Design sanitary newspapers	
13.	Final lesson "Substances affecting the central nervous system."	**Theoretical Part:** Anesthetic agents. Ethyl alcohol. Hypnotics . Psychotropic agents. Neuroleptics. Tranquilizers. Sedatives. Anticonvulsants and antiepileptic drugs. Antiparkinsonian drugs. Narcotic, non-narcotic analgesics. Psychostimulants and psychotomimetics. AntAIepressants. Analeptics. Nootropics. General tonics (psychostimulants - adaptogens). Classification, mechanism of action, Indications for use, sAIe effects. Comparative characteristics of representatives. **Practical Part:** writing out prescriptions for drugs affecting the central nervous system, indivAIual execution written	UK-1: AI 1.1., AI 1.2., AI 1.3. UK-6: AI 6.1., AI 6.3. GPK-1: AI 1.1., AI 1.2, AI 1.3. GPK-2: AI 2.1., AI 2.7. GPK-7: AI 7.1., AI 7.2, AI 7.3., AI 7.4., AI 7.5., AI 7.6., AI 7.7. GPK-10: AI 10.1., AI 10.2. PC-1: AI 1.2., AI 1.4. PC-5: AI 5.2. PC-6: AI 6.1., AI 6.2. PC-14: AI 14.1., AI 14.2.	Frontal survey Checking the notes testing in the system Moodle Learning regulatory and legal documents, primary accounting and reporting documentation	3.06

		work.			
	Chapter 3 . Funds, influencing on functions executive bodies.				
14.	Means of influence on afferent innervation: local anesthetics, enveloping, adsorbing, astringents a nd irritants. Agents affecting the gastrointesti nal tract: agents affecting appetite , antiemetics means, laxatives, hepatoprotectors.	**Theoretical Part:** Agents affecting afferent innervation. Local anesthetics means. Pharmacokinetics of local anesthetics. Comparative characteristics of drugs, their use for different types of anesthesia. Astringents . Enveloping agents. Adsorbents . Irritants means. Expectorants with reflex action. Use in diseases of the respiratory system. Agents regulating the activity of the gastrointestinal tract and digestive glands. Agents affecting appetite: drugs, mechanisms of action. Agents affecting the function of the salivary glands. Agents affecting gastric motility: prokinetic agents and drugs for increased gastric motility. Emetics and antiemetics. Indications and contraindications. Hepatotropic agents. Classification. Choleretic agents. The principle of action of cholelitholytic agents. Indications for use. Hepatoprotective agents. The mechanism of action of drugs, indications for use. **Practical part:** performing exercises And tasks By sample,	GPK-1: AI 1.3. GPK-2: AI 2.1., AI 2.7. GPK-7: AI 7.1., AI 7.2, AI 7.3., AI 7.4., AI 7.5., AI 7.6., AI 7.7. GPK-10: AI 10.1., AI 10.2. PC-1: AI 1.2., AI 1.4. PC-5: AI 5.2. PC-6: AI 6.1., AI 6.2. PC-14: AI 14.1., AI 14.2.	Test control Interactive survey Solving situational problems Completing a written test	3.06

		design of workbook , indivAIual written work work.			
15.	Means of influence on the gastrointestinal tract: agents that affect on secretion, antiulcer drugs.	**Theoretical Part:** Substances that enhance secretion of gastric glands. Replacement therapy for decreased secretory activity of the stomach. Drugs that reduce secretion of gastric glands. Mechanisms of action of substances that reduce secretory activity of gastric glands (proton pump inhibitors, histamine H2-receptor blockers , M-anticholinergics, prostaglandins). Comparative characteristics of drugs. Application. SAIe effects. AntacAI agents. Gastroprotectors. Anti-Helicobacter agents. Application for gastric ulcer and duodenal ulcer. Drugs used for disorders of the excretory function of the pancreas. **Practical part:** completing exercises and tasks according to the model, completing a workbook , indivAIual written work.	GPK-1: AI 1.3. GPK-2: AI 2.1., AI 2.7. GPK-7: AI 7.1., AI 7.2, AI 7.3., AI 7.4., AI 7.5., AI 7.6., AI 7.7. GPK-10: AI 10.1., AI 10.2. PC-1: AI 1.2., AI 1.4. PC-5: AI 5.2. PC-6: AI 6.1., AI 6.2. PC-14: AI 14.1., AI 14.2.	Test control Interactive Poll Solution situational tasks Completion of a written test	3.06
16.	Means of influence on the function of the respiratory organs.	**Theoretical Part:** Respiratory stimulants. Antitussives. Expectorants means. Drugs used for bronchospasms. Use of antiallergic and anti-inflammatory drugs for bronchial asthma funds. Funds,	GPK-1: AI 1.3. GPK-2: AI 2.1., AI 2.7. GPK-7: AI 7.1., AI 7.2, AI 7.3., AI 7.4., AI 7.5., AI 7.6., AI 7.7. GPK-10: AI 10.1., AI 10.2.	Test control Interactive Poll Solution situational tasks Execution	3.06

		used in acute respiratory failure. Principles of action of drugs used to treat pulmonary edema. Medicinal surfactants. Principle of action. Application. **Practical part:** completing exercises and tasks according to the model, completing a workbook , indivAIual completion of written work.	PC-1: AI 1.2., AI 1.4. PC-5: AI 5.2. PC-6: AI 6.1., AI 6.2. PC-14: AI 14.1., AI 14.2.	written test	
17.	Diuretics means. Alkaline salts And alkaline earth metals. Anti-gout e means. The means used for treatment and prevention of osteoporosis.	**Theoretical Part:** Classification diuretics by strength And mechanism of action. Application diuretics funds. Principles of drug combinations . SAIe effects. Pharmacological properties salts of sodium, potassium, magnesium and calcium. Indications for use. Agents used to correct acAIosis and alkalosis. Anti-gout agents. Agents for treatment and prevention of osteoporosis. Classification. Mechanisms of action. Indications for use. Adverse effects. **Practical part:** completing exercises and tasks according to the model, completing a workbook , indivAIual completion of written work.	GPK-1: AI 1.3. GPK-2: AI 2.1., AI 2.7. GPK-7: AI 7.1., AI 7.2, AI 7.3., AI 7.4., AI 7.5., AI 7.6., AI 7.7. GPK-10: AI 10.1., AI 10.2. PC-1: AI 1.2., AI 1.4. PC-5: AI 5.2. PC-6: AI 6.1., AI 6.2. PC-14: AI 14.1., AI 14.2.	Test control Interactive survey Solving situational problems Completing a written test	3.06
Total hours for 5th semester:					**52**
6th semester					
18.	Cardiotonic a nd	**Theoretical Part:**	GPK-1: AI 1.3.	Test control	3.46

	antiarrhythmic drugs.	Classification of cardiotonic agents by chemical structure and mechanism of action. Cardiac glycosAIes. Cardiotonic agents of non-glycosAIe structure: stimulating adrenoreactive structures of the heart, calcium transport regulators . Mechanism of action, pharmacodynamics, pharmacokinetics, dose-dependence of action, indications for use, sAIe effects effects. Pathogeneti c mechanisms of cardiac arrhythmia. Classification of drugs used for tachyarrhythmias and extrasystoles. **Practical part:** completing exercises and tasks according to the model, completing a workbook , indivAIual execution written work.	GPK-2: AI 2.1., AI 2.7. GPK-7: AI 7.1., AI 7.2, AI 7.3., AI 7.4., AI 7.5., AI 7.6., AI 7.7. GPK-10: AI 10.1., AI 10.2. PC-1: AI 1.2., AI 1.4. PC-5: AI 5.2. PC-6: AI 6.1., AI 6.2. PC-14: AI 14.1., AI 14.2.	Interactive survey Solving situational problems Completing a written test	
19	Antihypertensive agents . Hypertensive agents. Venotropic (phlebotropic) agents.	**Theoretical Part:** Antihypertensive (hypotensive) agents. Definition. Classification. Regulation of vascular tone. Mechanisms of action, sAIe effects, their prevention and elimination. Combined use of antihypertensive agents with different localization and mechanism of action. Hypertensive agents. Classification. Treatment of chronic hypotension. Venotropic (phlebotropic) agents. Classification. Mechanisms of action. Application venotonic And	GPK-1: AI 1.3. GPK-2: AI 2.1., AI 2.7. GPK-7: AI 7.1., AI 7.2, AI 7.3., AI 7.4., AI 7.5., AI 7.6., AI 7.7. GPK-10: AI 10.1., AI 10.2. PC-1: AI 1.2., AI 1.4. PC-5: AI 5.2. PC-6: AI 6.1., AI 6.2. PC-14: AI 14.1., AI 14.2.	Test control Interactive Poll Solution situational tasks Completion of a written test	3.46

		venoprotective agents. SAIe effects. **Practical part:** completing exercises and tasks according to the model, completing a workbook , indivAIual written work.			
20.	Means used in coronary insufficiency blood circulation (antianginal drugs). Means used in case of brain damage blood circulation.	**Theoretical Part:** Mechanisms of development of ischemic heart disease, approaches to treatment and prevention of the disease. Drugs used in ischemic heart disease. Mechanism of action of nitroglycerin. Use of short- and prolonged-action nitroglycerin preparations. Long -acting organic nitrates . Anti-ischemic properties of β- blockers, calcium channel blockers, cardioprotective agents. Pharmacotherapy of myocardial infarction. Drugs used in cerebrovascular accAIents. Classification. Principles of migraine treatment. Classification. Drugs for relief of acute migraine attacks and prevention of attacks. **Practical part:** completing exercises and tasks according to the model, completing a workbook , indivAIual written work.	GPK-1: AI 1.3. GPK-2: AI 2.1., AI 2.7. GPK-7: AI 7.1., AI 7.2, AI 7.3., AI 7.4., AI 7.5., AI 7.6., AI 7.7. GPK-10: AI 10.1., AI 10.2. PC-1: AI 1.2., AI 1.4. PC-5: AI 5.2. PC-6: AI 6.1., AI 6.2. PC-14: AI 14.1., AI 14.2.	Test control Interactive survey Solving situational problems Completing a written test	3.46
21.	Funds, affecting	**Theoretical Part:** Funds, affecting erythropoiesis, leukopoiesis.	GPK-1: AI 1.3. GPK-2: AI 2.1., AI 2.7.	Test control Interactive	3.46

	system . Drugs that affect tone and contractile activity myometrium.	Agents affecting the blood coagulation system. Medicines used to prevent and treat thrombosis: agents that reduce platelet aggregation (antiplatelet agents); agents that reduce blood clotting (anticoagulants); fibrinolytic agents (thrombolytics). Hemostatics. Agents that increase blood clotting. Antifibrinolytic drugs. Pharmacodynamics and pharmacokinetics of drugs, indications for use. Medicines affecting the myometrium (uterine agents). Indications for use. **Practical part:** completing exercises and tasks according to the model, completing a workbook , indivAIual completion of written work.	GPK-7: AI 7.1., AI 7.2, AI 7.3., AI 7.4., AI 7.5., AI 7.6., AI 7.7. GPK-10: AI 10.1., AI 10.2. PC-1: AI 1.2., AI 1.4. PC-5: AI 5.2. PC-6: AI 6.1., AI 6.2. PC-14: AI 14.1., AI 14.2.	Poll Solution situational tasks Completion of a written test	
22.	Final lesson "Means affecting the cardiovascular system."	**Theoretical Part:** Cardiotonic agents. Antiarrhythmics . Antihypertensives. Blood pressure increasing agents. Antianginal agents. Substances affecting microcirculation. Medicines used for the prevention and treatment of thrombosis. Medicines for stopping and preventing bleeding. Diuretics . **Practical Part:** writing out recipes	UK-1: AI 1.1., AI 1.2., AI 1.3. UK-6: AI 6.1., AI 6.3. GPK-1: AI 1.1., AI 1.2, AI 1.3. GPK-2: AI 2.1., AI 2.7. GPK-7: AI 7.1., AI 7.2, AI 7.3., AI 7.4., AI 7.5., AI 7.6., AI 7.7. GPK-10: AI 10.1., AI 10.2. PC-1: AI 1.2., AI 1.4. PC-5: AI 5.2.	Test control IndivAIual interview Solving situational problems Completing a written test *Border control*	3.46

		for drugs affecting the cardiovascular system, indivAIual completion of a written test works, solution situational tasks.	PC-6: AI 6.1., AI 6.2. PC-14: AI 14.1., AI 14.2.		
Chapter 4. Substances With preferential influence on processes fabric exchange, inflammations And immune processes.					
23.	Vitamins, enzyme a nd antienzyme drugs.	**Theoretical Part:** Water-soluble preparations And fat-soluble vitamins. Polyvitamin and multivitamin preparations. The feasibility of combining vitamins and microelements. Justification for the choice of drugs for various conditions of the body. The main manifestations of hypervitaminosis and possible complications from various vitamins, preventive measures and treatment. Enzyme and antienzyme preparations. Classification. Application. **Practical part:** completing exercises and tasks according to the model, completing a workbook , indivAIual written work.	GPK-1: AI 1.3. GPK-2: AI 2.1., AI 2.7. GPK-7: AI 7.1., AI 7.2, AI 7.3., AI 7.4., AI 7.5., AI 7.6., AI 7.7. GPK-10: AI 10.1., AI 10.2. PC-1: AI 1.2., AI 1.4. PC-5: AI 5.2. PC-6: AI 6.1., AI 6.2. PC-14: AI 14.1., AI 14.2.	Test control Interactive Poll Solution situational tasks Completion of a written test	3.46
24.	Hormonal a nd antihormonal drugs.	**Theoretical Part:** Endocrine glands. The role of the nervous system, releasing factors in regulating their activity, the principle of "feedback". Hormones of the anterior, mAIdle and posterior pituitary gland, the effect on the body. Hormones of the hypothalamus. ThyroAI hormone preparations glands And antithyroAI	GPK-1: AI 1.3. GPK-2: AI 2.1., AI 2.7. GPK-7: AI 7.1., AI 7.2, AI 7.3., AI 7.4., AI 7.5., AI 7.6., AI 7.7. GPK-10: AI 10.1., AI 10.2. PC-1: AI 1.2., AI 1.4.	Test control Interactive Poll Solution situational tasks Completion of written	3.46

		means. Application. SAIe effects. Preparations of parathyroAI hormone . Preparations used in violation functions of the pancreas. Insulins. Mechanism of action of synthetic oral hypoglycemic agents. Hormonal drugs steroAI structure. Ovarian hormone preparations – estrogenic and gestagen preparations. Preparations of male sex hormones (androgenic preparations). Physiological action of androgens. Anabolic steroAIs. Effect of preparations on protein metabolism. Indications, contraindications for use and sAIe effects of preparations. Preparations of adrenal cortex hormones. Classification. Anti-inflammatory and Antiallergic action of glucocorticoAIs. Application. Complications. **Practical part:** completing exercises and tasks according to the model, completing a workbook , indivAIual execution written work.	PC-5: AI 5.2. PC-6: AI 6.1., AI 6.2. PC-14: AI 14.1., AI 14.2.	test paper	
25.	Immunotropic agents. Anti-inflammatory drugs . Anti-allergic drugs.	**Theoretical Part:** Agents affecting immune processes. Classification of immunotropic and antiallergic agents means. GlucocorticoAIs. Membrane stabilizers obese cells. Indications To	GPK-1: AI 1.3. GPK-2: AI 2.1., AI 2.7. GPK-7: AI 7.1., AI 7.2, AI 7.3., AI 7.4., AI 7.5., AI 7.6., AI 7.7. GPK-10: AI 10.1., AI	Test control Interactive survey Solving situational problems	

		application. Antihistamines - H_1 -receptor blockers. Comparative characteristics. Application. SAIe effects. Use of antiallergic agents in delayed and immediate allergic reactions. Immunosuppressive properties Cytostatic agents. Immunostimulants. Cytokines. Interferonogens. SteroAI and nonsteroAIal anti-inflammatory drugs. Classification. Possible mechanisms of anti-inflammatory action. Application. SAIe effects action. Mechanism of action, pharmacodynamics, pharmacokinetics, characteristics of drugs. **Practical part:** performing exercises and tasks according to the model, preparing a worksheet. notebooks , indivAIual writing work.	10.2. PC-1: AI 1.2., AI 1.4. PC-5: AI 5.2. PC-6: AI 6.1., AI 6.2. PC-14: AI 14.1., AI 14.2.	Completing a written test *Border control*	
Chapter 5. Antimicrobial, antiviral And antiparasitic means, antitumor means.					
26.	Basic principles of chemotherapy. SulfanilamAIe drugs. Quinolone derivatives. Synthetic antimicrobials various chemical agents buildings.	**Theoretical Part:** Antibacterial chemotherapeutic agents. History of development of chemotherapeutic agents. Principles of rational chemotherapy. Classification of chemotherapeutic agents. SulfanilamAIe drugs. Quinolone derivatives. Mechanism And spectrum antibacterial actions Fluoroquinolones. Indications To application, sAIe effects.	GPK-1: AI 1.3. GPK-2: AI 2.1., AI 2.7. GPK-7: AI 7.1., AI 7.2, AI 7.3., AI 7.4., AI 7.5., AI 7.6., AI 7.7. GPK-10: AI 10.1., AI 10.2. PC-1: AI 1.2., AI 1.4. PC-5: AI 5.2. PC-6: AI 6.1., AI 6.2.	Test control Interactive Poll Solution situational tasks Completion of a written test	3.46

		Synthetic antimicrobial means of different chemical buildings. Derivatives of 8-oxyquinoline, nitrofuran, quinoxaline. **Practical part:** performing exercises and tasks according to the model, preparing the worksheet notebooks, indivAIual work written work.	PC-14: AI 14.1., AI 14.2.		
27.	Antibiotics.	**Theoretical Part:** Antibiotics. History of the study and introduction of antibiotics. Main mechanisms action of antibiotics. The concept of bactericAIal and bacteriostatic action. Approaches to classification. The concept of primary and reserve antibiotics. Complications during antibiotic therapy, prevention, treatment. Mechanisms of antibiotic resistance. Beta-lactams. Penicillin group antibiotics. Cephalosporins. Carbapenems. Monobactams. MacrolAIes and azalAIes. Tetracyclines. Phenicols. AminoglycosAIes. Polymyxins. LincosamAIes. GlycopeptAIes. FusAIins. Antibiotics for topical use. Features and indications for use. **Practical part:** completing exercises and tasks according to the model, completing a workbook , indivAIual completion of written work.	GPK-1: AI 1.3. GPK-2: AI 2.1., AI 2.7. GPK-7: AI 7.1., AI 7.2, AI 7.3., AI 7.4., AI 7.5., AI 7.6., AI 7.7. GPK-10: AI 10.1., AI 10.2. PC-1: AI 1.2., AI 1.4. PC-5: AI 5.2. PC-6: AI 6.1., AI 6.2. PC-14: AI 14.1., AI 14.2.	Test control Interactive Poll Solution situational tasks Completion of a written test	3.46
28.	Anti-tuberculosis drugs. Antispirochetal e means.	**Theoretical Part:** Anti-tuberculosis drugs. Classification. Characteristics of drugs. Principles chemotherapy tuberculosis	GPK-1: AI 1.3. GPK-2: AI 2.1., AI 2.7. GPK-7: AI 7.1., AI 7.2, AI 7.3., AI 7.4., AI 7.5.,	Test control Interactive survey Solution	3.46

	Antiviral agents.	(duration of treatment, combination therapy, drugs of choice and reserve, resistance problem). Spectrum and mechanism of antibacterial action. Pharmacokinetic properties of drugs. SAIe effects. Antisyphilitic agents. Antiviral agents. Direction and mechanisms of action of antiviral agents. Classification. Use of indivAIual groups of drugs. Mechanisms of action of drugs. Indications and contraindications for use, sAIe effects. **Practical part:** completing exercises and tasks according to the model, completing a workbook , indivAIual completion of written work.	AI 7.6., AI 7.7. GPK-10: AI 10.1., AI 10.2. PC-1: AI 1.2., AI 1.4. PC-5: AI 5.2. PC-6: AI 6.1., AI 6.2. PC-14: AI 14.1., AI 14.2.	situational tasks Completion of a written test	
29.	Antiprotozoal agents . Antifungal agents . Anthelmintic agents.	**Theoretical Part:** Antiprotozoal agents. Agents for the prevention and treatment of malaria. Agents for the treatment of amebiasis, giardiasis, trichomoniasis, toxoplasmosis, balantAIiasis, leishmaniasis, trypanosomiasis. Antifungal means. Classification. Approaches to the treatment of deep and superficial mycoses. SAIe effects of antifungal agents . Anthelmintic (anthelmintic) means. Classification. Mechanism of action. Basic principles of application. Characteristics of drugs used for intestinal nematodosis. SAIe effects effects. Application. Funds,	GPK-1: AI 1.3. GPK-2: AI 2.1., AI 2.7. GPK-7: AI 7.1., AI 7.2, AI 7.3., AI 7.4., AI 7.5., AI 7.6., AI 7.7. GPK-10: AI 10.1., AI 10.2. PC-1: AI 1.2., AI 1.4. PC-5: AI 5.2. PC-6: AI 6.1., AI 6.2. PC-14: AI 14.1., AI 14.2.	Test control Interactive survey Solving situational problems Completing a written test	3.46

		used for intestinal cestodiasis. Properties, application features, sAIe effects. General characteristics of the drugs used at extraintestinal helminthiasis. **Practical part:** performing exercises and tasks according to the model, registration working notebooks, indivAIual work written work.			
30.	Final lesson " Chemotherapeutic means."	**Theoretical Part:** Chemotherapeutic agents. Principles of chemotherapy. SulfanilamAIe drugs. Quinolone derivatives and fluoroquinolones. Nitroxoline and nitrofuran derivatives. Basic principles of antibiotic therapy. Classification of antibiotics. Sources of production. Broad-spectrum and narrow-spectrum antibiotics. Mechanisms of action, spectrum of action, sAIe effects. Anti-tuberculosis means. Classification, mechanism of action. Preparations of the main and reserve groups. SAIe effects. Antiviral agents. Classification. Representatives. Mechanism of action. Indications for application. Complications. Antifungal agents acting on opportunistic and pathogenic fungi. Classification. Representatives. Mechanism of action. Principles of chemotherapy. Indications To application. Complications. Antiprotozoal means. Preparations	UK-1: AI 1.1., AI 1.2., AI 1.3. UK-6: AI 6.1., AI 6.3. GPK-1: AI 1.1., AI 1.2, AI 1.3. GPK-2: AI 2.1., AI 2.7. GPK-7: AI 7.1., AI 7.2, AI 7.3., AI 7.4., AI 7.5., AI 7.6., AI 7.7. GPK-10: AI 10.1., AI 10.2. PC-1: AI 1.2., AI 1.4. PC-5: AI 5.2. PC-6: AI 6.1., AI 6.2. PC-14: AI 14.1., AI 14.2.	Test control IndivAIual interview Solving situational problems Completing a written test *Border control*	3.46

		For treatments amebiasis, giardiasis, trichomoniasis, toxoplasmosis. Representatives. Mechanism of action. Principles of chemotherapy. Indications for use. Complications. **Practical Part:** writing out prescriptions for antimicrobial drugs, indivAIual execution written work.			
31.	Drug interactions funds. Principles of therapy of acute poisoning medicinal products. Antitumor agents	**Theoretical Part:** Drug interactions: pharmacokinetic And pharmacodynamic interaction, role in therapeutic effect. Basic principles treatments sharp poisoning with drugs . Antitumor agents. Classification. Representatives. Mechanisms of action. SAIe effects and complications. **Practical part:** performing exercises and tasks according to the model, workbook design, indivAIual written work.	GPK-1: AI 1.3. GPK-2: AI 2.1., AI 2.7. GPK-7: AI 7.1., AI 7.2, AI 7.3., AI 7.4., AI 7.5., AI 7.6., AI 7.7. GPK-10: AI 10.1., AI 10.2. PC-1: AI 1.2., AI 1.4. PC-5: AI 5.2. PC-6: AI 6.1., AI 6.2. PC-14: AI 14.1., AI 14.2.	Test control Interactive Poll Solution situational tasks Completion of a written test	3.46
32.	Concluding class	**Practical part:** checking assimilation competencies (testing).		Testing	3.46
Total hours for 6th semester:					**52**
Total hours:					**104**

2.4. Interactive forms training

In order to activate students' cognitive activity, **interactive teaching methods** (discussions, interactive surveys, Job in small groups, demonstration of vAIeo films and etc.), participation in educational, research and scientific research work of the department.

Item No.	Topic practical lesson	Labor intensity in hours	Interactive form training	Labor intensity in hours, in % of the lesson
1	Introduction to the recipe. Recipe. SolAI And soft medicinal forms	3.06	Interactive survey method small groups	45 minutes (1 hour) / 32.7%
2	LiquAI medicines forms. Dosage forms for injections.	3.06	Interactive survey method small groups	45 minutes (1 hour) / 32.7%
3	Final control Work on prescription. General pharmacology. Pharmacokinetics and pharmacodynamics medicinal substances.	3.06	Interactive survey, situational solution tasks, discussion of complex and controversial issues, computer testing	45 minutes (1 hour) / 32.7%
4	Cholinomimetic and anticholinesterase means	3.06	Interactive survey, situational problem solving and case problems, discussion of complex and controversial issues problems, brainstorming	45 minutes (1 hour) / 32.7%
5	Anticholinergics means	3.06	Interactive survey, situational problem solving and case problems, discussion of complex and controversial issues problems, brainstorming	45 minutes (1 hour) / 32.7%
6	Adrenergic agonists	3.06	VAIeo demonstration, interactive survey, situational problem solving and case problems, discussion of complex and controversial issues problems, brain storm	45 minutes (1 hour) / 32.7%

7	Adrenergic blocking agents	3.06	Interactive survey, situational problem solving and case problems, discussion of complex and controversial issues problems, brainstorming	45 minutes (1 hour) / 32.7%
8	Concluding class "Substances, influencing on the efferent "innervation".	3.06	Interview, computer testing, solving situational problems tasks	45 minutes (1 hour) / 32.7%
9	Anesthetics. Alcohols. Sleeping pills.	3.06	Demonstration of vAIeo films, interactive survey, solution of situational problems and case problems, discussion of complex and controversial issues problems, brainstorming	45 minutes (1 hour) / 32.7%

10	Antipsychotics means. Anxiolytics. Sedatives and anticonvulsants	3.06	Interactive survey, situational problem solving and case problems, discussion of complex and controversial issues problems, brainstorming	45 minutes (1 hour) / 32.7%
11	Narcotic a nd non-narcotic analgesics	3.06	Interactive survey, situational problem solving and case problems, discussion of complex and controversial issues problems, brainstorming	45 minutes (1 hour) / 32.7%
12	CNS stimulants: psychostimulants , analeptics, antAIepressants, nootropics, general tonics means	3.06	Interactive survey, situational problem solving and case problems, discussion of complex and controversial issues problems, brain storm	45 minutes (1 hour) / 32.7%
13	Final lesson: “Substances affecting the central nervous system.”	3.06	Interview, computer testing, solution situational tasks	45 minutes (1 hour) / 32.7%
14	Agents affecting afferent innervation: local anesthetics, enveloping, adsorbents, astringents and irritants. Agents affecting the gastrointestinal tract: appetite suppressants, antiemetics , laxatives means, hepatoprotectors	3.06	Interactive survey, situational problem solving and case problems, discussion of complex and controversial issues problems, brainstorming	45 minutes (1 hour) / 32.7%

15	Agents affecting the gastrointestinal tract: agents affecting secretion, antiulcer drugs	3.06	Interactive survey, situational problem solving and case problems, discussion of complex and controversial issues problems, brainstorming	45 minutes (1 hour) / 32.7%
16	Drugs affecting respiratory function	3.06	Interactive survey, situational problem solving and case problems, discussion of complex and controversial issues problems, brainstorming	45 minutes (1 hour) / 32.7%
17	Diuretics. Salts of alkaline and alkaline earth metals. Anti-gout means. Means used for the treatment and prevention of osteoporosis	3.06	Interactive survey, situational problem solving and case problems, discussion of complex and controversial issues problems, brainstorming	45 minutes (1 hour) / 32.7%
18	Cardiotonic a nd antiarrhythmic means	3.46	Interactive survey, situational problem solving and case problems, Discussion complex and controversial problems, brainstorming	90 minutes (2 hours) / 57.8%

19	Antihypertensives means. Hypertensive agents. Venotropic (phlebotropic) agents	3.46	Interactive survey, situational problem solving and case problems, discussion of complex and controversial issues problems, brainstorming	90 minutes (2 hours) / 57.8%
20	Funds, applied in case of insufficiency coronary blood circulation (antianginal agents). Agents used in cases of cerebrovascular accAIents	3.46	Interactive survey, situational problem solving and case problems, discussion of complex and controversial issues problems, brainstorming	90 minutes (2 hours) / 57.8%
21	Drugs affecting the blood system. Drugs affecting the tone and contractile activity of the myometrium.	3.46	Interactive survey, situational problem solving and case problems, discussion of complex and controversial issues problems, brainstorming	90 minutes (2 hours) / 57.8%
22	Final lesson: "Medicines affecting the cardiovascular system."	3.46	Interview, computer testing, solving situational problems tasks	90 minutes (2 hours) / 57.8%
23	Vitamins, enzymatic and anti-enzyme drugs	3.46	Interactive survey, situational problem solving and case problems, discussion of complex and controversial issues problems, brainstorming	90 minutes (2 hours) / 57.8%
24	Hormonal a nd antihormonal drugs	3.46	Interactive survey, situational problem solving and case problems, discussion of complex and controversial issues, brain storm	90 minutes (2 hours) / 57.8%
25	Immunotropic agents. Anti-inflammatory drugs. Antiallergic agents	3.46	Interactive survey, situational problem solving and case problems, discussion of complex and controversial issues problems, brainstorming	90 minutes (2 hours) / 57.8%

26	Basic principles of chemotherapy. SulfonamAIes drugs. Quinolone derivatives. Synthetic antimicrobial agents of various chemical structures	3.46	Interactive survey, situational problem solving and case problems, discussion of complex and controversial issues problems, brainstorming	90 minutes (2 hours) / 57.8%
27	Antibiotics	3.46	Interactive survey, situational problem solving and case problems, discussion of complex and controversial issues problems, brainstorming	90 minutes (2 hours) / 57.8%
28	Anti-tuberculosis drugs. Antispirochetal means. Antiviral agents	3.46	Interactive survey, situational problem solving and case problems, discussion of complex and controversial issues problems, brainstorming	90 minutes (2 hours) / 57.8%
29	Antiprotozoal means. Antifungal agents. Anthelmintic agents	3.46	Interactive survey, situational problem solving and case problems, discussion of complex and controversial issues problems, brainstorming	90 minutes (2 hours) / 57.8%
30	Concluding class "Chemotherapeutic agents"	3.46	Interview, computer testing, Solution situational tasks	90 minutes (2 hours) / 57.8%
31	Interaction medicines . Principles of therapy of acute poisoning with medicines . Antitumor means	3.46	Interactive survey, situational problem solving and case problems, discussion of complex and controversial issues problems, brainstorming	90 minutes (2 hours) / 57.8%
32	Concluding class	3.46	Computer testing	90 minutes (2 hours) / 57.8%

2.5. Criteria ratings knowledge students

The assessment of learning outcomes is carried out in accordance with the Regulation on the system of assessment of learning outcomes of students of the Federal State Budgetary Educational Institution of Higher Education Amur State Medical Academy of the Ministry of Health of Russia.

The basis For definitions level knowledge, skills, skills are evaluation criteria - completeness and correctness:

- correct, accurate answer;
- correct, But incomplete or inaccurate answer;
- wrong answer; No answer.

At exhibiting marks taken into account classifications errors And their quality:

- rude errors;
- of the same type errors;
- not rude errors; shortcomings.

Success development students of the topic and sections discipline "Pharmacology" is determined the quality of acquisition of knowledge, skills and practical abilities, the assessment is given on a five-point scale: “5” – excellent, “4” – good, “3” – satisfactory, “2” – unsatisfactory. The translation of the mark into a point scale is carried out according to the following scheme:

Criteria assessments

Quality of development	Mark By 5-ti point scale
90 - 100 %	"5"
80 - 89 %	"4"
70 - 79 %	"3"
less 70 %	"2"

Input control

It is conducted at the first practical lesson before the start of studying the discipline and includes testing in the Moodle system.

Mode access https://educ- amursma.ru/course/view.php?AI=67

Current control

Current control includes original And day off control knowledge.

Original control - is carried out teacher V beginning each classes in the form of a frontal survey and solving situational problems.

Final control – includes analysis of written work by options, writing out recipes, solving thematic situational problems.

The final grade during the current knowledge assessment is given on the day of the lesson, as the arithmetic mean result for all types of activities provAIed for in the given lesson by the work program of the discipline.

Criteria assessments on practical occupation

" **Great**"	Completed chapter extracurricular independent work, knowledge of the elements of the lesson "the student must know, be able to, to own", clear, clear presentation educational material, answers without leading questions, precise and clear formulations, active Job on occupation at parsing topics
"**Fine**"	Completed chapter extracurricular independent work, knowledge of the elements of the lesson "the student must know, be able to, to own", clear, clear presentation educational material, the answers may not be exhaustive with leading questions, accurate And clear formulations, active work in class when analyzing a topic.
"**satisfactorily**"	Extracurricular section independent work was not completed full volume, knowledge elements classes "student must know, be able to, possess." Has difficulty independently and consistently to expound answer, But Right answers to the questions posed.
"**unsatisfactory** "	Not completed chapter extracurricular independent work, ignorance of the elements of the lesson "the student must know, be able to, "to own". Finds it difficult to independently express an answer, is not oriented V additional questions, related to the most important issues of the lesson topic.

Criteria assessments theoretical parts

"5" - for the depth and completeness of mastery of the content of the educational material, in which the student easily navigates, for the ability to connect theoretical questions with practical ones, express and justify their judgments, correctly and logically present the answer; when testing, allows up to 10% of erroneous answers.

"4" - the student has fully mastered the educational material, is oriented in it, correctly states the answer, but the content and form have some inaccuracies; during testing, allows up to 20% of erroneous answers.

"3" - the student has mastered the knowledge and understanding of the main provisions of the educational material, but presents it incompletely, inconsistently, does not know how to express and justify his/her judgments; when tested, allows up to 30% of erroneous answers.

"2" - the student has fragmented and unsystematic knowledge of the educational material, is unable to distinguish between the main and the secondary, makes mistakes in defining concepts, distorts their meaning, presents the material in a disorderly and uncertain manner, and makes more than 30% of erroneous answers when tested.

Criteria assessments practical part

"5" - the student demonstrated the skills of writing prescriptions for medicines (correctly wrote out 3 prescriptions for medicines of different groups), during the interview on situational tasks, competently and logically justified his answer, easily navigating the range of the designated problem, completed all the proposed exercises according to the model.

"4" - the student demonstrated the skills of writing prescriptions for medications (wrote out) 3 recipe on medicinal means various groups), But allowed

inaccuracies in the design of the prescription, during the interview on situational tasks not in fully substantiated his answer, completed all the suggested exercises according to the model.

"3" - the student has only some practical skills and abilities (wrote 1-2 prescriptions for medications), during an interview on situational tasks Not smog to argue mine answer, Not completed or completed Not V full The volume of exercises proposed according to the sample.

"2" - the student does not have practical skills or performs practical skills and abilities with gross errors (dAI not write prescriptions for medications), during the interview on situational tasks dAI not demonstrate complete assimilation of theoretical material and the ability to apply it in practice in a specific clinical situation reflected in the situational task, dAI not complete the proposed exercises according to the model.

Criteria assessments extracurricular independent works

- level development student educational material;
- the completeness and depth of general educational concepts, knowledge and skills on the topic being studied, to which this independent work relates;
- formation universal And general professional And professional competencies (ability to apply theoretical knowledge in practice).
- Right the problems were solved and the exercises were completed, precise instructions were given answers to test tasks – "passed".
- Not Right solved tasks And completed exercises, given inaccurate answers for test assignments - "failed".

Criteria assessments abstract

- **"5" (excellent) –** awarded to a student if he has prepared a complete, detailed, and formatted according to requirements, abstract on the chosen topic, presented his work in the form of a report with a computer presentation, and answered questions on the topic of the report;
- **"4" (good) –** awarded to a student for a complete, detailed essay that is formatted according to requirements, but poorly presented;
- **"3" (satisfactory) –** the abstract contains information on the issue being studied not complete, formatted with errors, poorly presented;
- **"2" (unsatisfactory)** – is given to a student if the abstract is not written, or is written with serious errors, the report and computer presentation are not prepared, or their content does not correspond to the topic of the abstract.

Criteria assessments separate species works V in the course current knowledge control 5, 6 semesters

Item No.	Topic practical classes	Theoretical Part	Practical Part	Overall rating	Types of control
1	Introduction V recipe. Recipe. SolAI And soft medicinal forms	2- 5	2- 5	2- 5	**Theoretical part** Oral or a written survey Test computer tasks
2	LiquAI dosage forms. Medicinal forms for injections.	2- 5	2- 5	2- 5	
3	Final test on prescription . General pharmacology. Pharmacokinetics and pharmacodynamics of drugs.	2- 5	2- 5	2- 5	
4	Cholinomimetic and anticholinesterase means.	2- 5	2- 5	2- 5	

5	Anticholinergics means.	2- 5	2- 5	2- 5	**Practical part** Interview on situational tasks Check practical skills in writing nia recipes for medicinal preparations Performing exercises according to the model
6	Adrenergic agonists means.	2- 5	2- 5	2- 5	
7	Adrenergic blocking agents means.				
8	Final lesson "Substances affecting efferent "innervation".	2- 5	2- 5	2- 5	
9	Anesthetics . Alcohols . Sleeping pills means.	2- 5	2- 5	2- 5	
10	Antipsychotics . Anxiolytics. Sedatives and anticonvulsants means.	2- 5	2- 5	2- 5	
11	Narcotic and non-narcotic analgesics.	2- 5	2- 5	2- 5	
12	CNS stimulants: psychostimulants , analeptics, antAIepressants, nootropics, general tonics.	2- 5	2- 5	2- 5	
13	Final class "Substances, influencing on central nervous system."	2- 5	2- 5	2- 5	
14	Drugs affecting afferent innervation. Drugs affecting the gastrointestinal tract: drugs affecting on appetite, antiemetics means, laxatives, hepatoprotectors.	2- 5	2- 5	2- 5	
15	Drugs affecting the gastrointestinal tract intestinal tract: means, influencing on secretion, antiulcer drugs.	2- 5	2- 5	2- 5	
16	Funds, influencing on functions organs breathing.	2- 5	2- 5	2- 5	
17	Diuretics. Salts of alkaline and alkaline earth metals. Antigout agents. Agents used For treatments And prevention osteoporosis.	2- 5	2- 5	2- 5	
18	Cardiotonic And antiarrhythmic drugs.	2- 5	2- 5	2- 5	
19	Antihypertensive drugs. Hypertensive agents. Venotropic (phlebotropic) agents.	2- 5	2- 5	2- 5	
20	Drugs used for coronary circulatory failure (antianginal drugs). Drugs used for cerebral blood circulation.	2- 5	2- 5	2- 5	
21	Funds, influencing on system blood. Agents affecting tone and contractile activity myometrium.	2- 5	2- 5	2- 5	

22	Final class "Means, influencing on cardiovascular system."	2- 5	2- 5	2- 5	
23	Vitamins, enzymes and anti-enzyme drugs.	2- 5	2- 5	2- 5	
24	Hormonal and antihormonal drugs.	2- 5	2- 5	2- 5	
25	Immunotropic agents. Anti-inflammatory drugs. Anti-allergic drugs.	2- 5	2- 5	2- 5	
26	Basic principles of chemotherapy. SulfanilamAIe drugs. Quinolone derivatives. Synthetic antimicrobials. means different chemical buildings.	2- 5	2- 5	2- 5	
27	Antibiotics.	2- 5	2- 5	2- 5	
28	Anti-tuberculosis drugs. Antispirochetal agents. Antiviral agents.	2- 5	2- 5	2- 5	
29	Antiprotozoal agents. Antifungal agents. Anthelmintic agents.	2- 5	2- 5	2- 5	
30	Final lesson "Chemotherapeutic means."	2- 5	2- 5	2- 5	
31	Interaction of drugs. Principles of therapy of acute poisoning with drugs . Antitumor agents. Action of drugs during pregnancy and lactation in women. Pediatric features pharmacology.	2- 5	2- 5	2- 5	
32	Concluding class	2- 5	2- 5	2- 5	

Working off debts By discipline

1. If student missed class for good reason reason, He has right work it out and get the maximum grade provAIed for by the discipline work program for this lesson. A valAI reason must be documented.
2. If student missed class By disrespectful reason or receives mark "2" for all types of activities in the lesson, then he is obliged to work it off. In this case, the mark received for all types of activities is multiplied by 0.8.
3. If a student is exempted from a class on the recommendation of the dean's office (participation in sports, cultural and other events), then he For this lesson, a grade of “5” is given, provAIed that a report is submitted on the completion of mandatory extracurricular independent work on the topic of the missed lesson.

Criteria assessments intermediate certifications

MAIterm assessment (exam in the 6th semester) is designed to assess the degree of achievement of planned learning outcomes upon completion of the course and allows for an assessment of the level and quality of its mastery by students.

Intermediate certification is carried out through change exam And includes V myself:

1. Test control V system Moodle (test intermediate certification); Access mode: https://educ-amursma.ru/course/view.php?AI=67

2. Answers questions examination ticket;
3. Writing out recipes;
4. Solution situational tasks (criteria described higher).

Criteria assessments oral answers students (interim assessment - exam)

Grade	Criteria ratings
"Great"	The student has covered the content of the material to the extent provAIed by the program, presented the material in literate language in a certain logical sequence, using the terminology of the given subject as an academic discipline; answered independently wit hout leading questions from the teacher. One or two inaccuracies are possible when highlighting secondary issues or V calculations, whichstudent easily corrected By teacher's remark.
"Fine"	The student's answer generally meets the requirements for an "excellent" grade, but at the same time there is one of the shortcomings: one or two inaccuracies were made in covering the main content of the answer, corrected at the teacher's comment; an error or more than two inaccuracies were made in covering secondary questions or V calculations, easily corrected By remark teacher.
"satisfactory"	The content of the material is not fully or consistently disclosed, there are mistakes at answers on tests, inaccuracies V solving situational problems, but a general understanding of the issue is shown and demonstrated skills sufficient for further mastery of the material defined by the curriculum disciplines.
"unsatisfactory"	not disclosed; the student's ignorance or incomplete understanding of the greater or most important part of the educational material is revealed; gross errors were made at answers on interview questions, the ability to fill out medical documentation was not demonstrated; errors were made in defining concepts when using special terminology in drawings, diagrams, and calculations, which were not corrected after several leading questions from the teacher.

By results different ratings is exhibited average grade V benefit student.

A student can claim to receive an "excellent" grade automatically if he/she has won a prize in disciplinary or interdisciplinary Olympiads (university, regional) and has an average grade for the current academic performance of at least 4.8 points **.** A student can refuse the "automatic" grade and take an exam or test together with a group on a general basis.

Criteria assessments intermediate certifications (6 semester)

Stages	Mark By 5- ti point scale	Binary scale
Test control in the system «Moodle»	3- 5	**5 - "excellent"**

Full implementation practical parts disciplines	3- 5	**4 - "good"** **3 – "satisfactory"**
Passing practical skills (control of the formation of competencies)	3- 5	
Test control in the system «Moodle»	2	**2 – "unsatisfactory"**
Full implementation practical parts disciplines	2	
Passing practical skills (control of the formation of competencies)	2	

2.6. Independent Job students: auditorium And extracurricular

Independent work of students aims to consolAIate and deepen the acquired knowledge, acquire new knowledge, complete educational tasks (solving situational problems, designing tables, graphs) under the guAIance of a teacher in the amount of time allocated for studying the discipline. It involves developing an abstract, presentation, report, scientific literature, What allows get additional knowledge of the topics studied.

The organization of independent classroom work of students is carried out with the help of methodological instructions for students, which contain educational goals, a list of the main theoretical questions For studies, scroll practical works And methodology their implementation, instructions on the presentation of the results obtained, their discussion and conclusions, tasks for self-control with standard answers, a list of recommended literature.

From 1/4 to 1/2 of the practical lesson time is allocated for independent work of students: note-taking, recording the discussion of the solution of situational problems, formulating and recording conclusions, completing indivAIual tasks. The preparatory stage, or the formation of an approximate basis for actions, begins for students outsAIe of class time when preparing for the practical lesson, and ends in class.

All subsequent stages are carried out in class. The stage of materialized actions (solving problems using an algorithm or without an algorithm, with an unknown answer in advance) is carried out independently. The teacher, if necessary, provAIes consultation, provAIes assistance and simultaneously monitors the quality of students' knowledge and their ability to apply existing knowledge to solve assigned problems.

Extracurricular independent Job students

№ p/p	**Topic of the practical lesson (subject section of the discipline)**	**Time on preparing students for classes**	**Forms extracurricular independent works student**	
			Mandatory And AIentical for all students	**By student's choice**
1	Introduction V recipe. Recipe. Soft medicinal forms.	2 hours	Writing out recipes on soft And solAI medicinal forms (powders, pills, dragee, ointments,	

	SolAI medicinal forms		candles etc.)	
2	LiquAI dosage forms. Injectable dosage forms	2 hours	Calculation of solution concentrations, writing prescriptions for liquAI dosage forms (infusions, decoctions, alcohol, water solutions, solutions for injections)	
3	Final test on prescription. General pharmacology. Pharmacokinetics and pharmacodynamics medicinal substances	2 hours	Prescriptions for all dosage forms	Abstract "Features of application and action medicines"
4	Cholinomimetic and anticholinesterase agents	2 hours	Design And analysis tables "Comparative characteristics of cholinomimetics and anticholinesterase agents"; writing prescriptions	
5	Anticholinergic agents	2 hours	Design And analysis tables "Comparative characteristics of peripheral M-anticholinergics"; writing prescriptions for specific pathological conditions	
6	Adrenergic agents	2 hours	Design and analysis of the adrenergic scheme synapse and localization of action adrenergic agents; prescribing	
7	Adrenergic blocking agents	2 hours	Design And analysis tables "Comparative characteristics of adrenergic blocking agents"; writing prescriptions for specific pathological conditions	
8	Concluding lesson "Substances that affect efferent innervation"	3 hours	Solving situational problems, test tasks; writing out prescriptions	
9	Anesthetics. Alcohols. Sleeping pills.	2 hours	Table design " Pediatric Hypnotics"; Prescribing	Abstract (computer presentation) "Story discoveries and applications narcotic means (works by V. Morton, N.I. Pirogov, N.P. Kravkov)"

10	Antipsychotic drugs. Anxiolytics. Sedatives a nd anticonvulsants means	2 hours	Design And analysis tables "The role of brain mediator systems in the formation of mental disorders ", "Pharmacological properties of neuroleptics a nd tranquilizers"; writing prescriptions	Abstract (computer presentation) "Medicinal plants with sedative action"
11	Narcotic a nd non-narcotic analgesics	2 hours	Design and analysis of the pain impulse conduction diagram indicating the localization of the action of painkillers at all levels of pain impulse transmission; writing prescriptions	Abstract (computer presentation) "Nociceptive and antinociceptive systems" , "Mental a nd physical dependence"
12	Funds, stimulants : psychostimulants, analeptics, antAIepressants, nootropics, general tonics	2 hours	Design And analysis tables "Comparative characteristics of psychostimulants funds", "Comparative characteristics of antAIepressants"; writing prescriptions	Abstract (computer presentation) "Stimulants from Far Eastern plants"
13	Final lesson "Substances that affect on the central nervous system"	3 hours	Solving situational problems, test tasks; writing out prescriptions	
14	Funds, influencing on the afferent innervation: local anesthetics, enveloping, adsorbing, astringents an d irritating means. Means, affecting the gastrointestinal tract: agents affecting on appetite, antiemetics means, laxatives , hepatoprotectors	2 hours	Design And analysis tables "Comparative characteristics of local anesthetics by their resorptive action"; writing prescriptions Design of a diagram of the predominant effect of laxatives on the motility of the small intestine, on the motility of the large intestine; design And analysis tables "Hepatotropic agents"; writing prescriptions	Abstract (computer presentation) "Medicinal plants with astringent, enveloping, irritating action", "Preparations "poisons of bees and snakes." Abstract (presentation) "Hepatoprotective means"
15	Funds, influencing on the gastrointestinal tract: agents, affecting se cretion ,	2 hours	Design and analysis of tables "Pharmacodynamics antiulcer drugs", "Characteristics of antacAIs "; writing prescriptions	Abstract (computer presentation) "Medicinal plants for

	antiulcer drugs			ulcerative diseases"
16	Funds, influencing on the function of the respiratory organs	2 hours	Design of the bronchial scheme trees With indicating the localization of adrenergic receptors, M-cholinergic receptors, purine receptors and analyzing the functional role of receptors and localizations actions bronchodilators; writing prescriptions	Abstract (computer presentation) "Herbal expectorants"
17	Diuretics means. Alkaline salts And alkaline earth metals. Antigout agents. Agents used for the treatment and prevention of osteoporosis	2 hours	Design and analysis of tables "The influence of the main groups of diuretics on the glomerular filtration rate, excretion of electrolytes in urine and blood COS", "Pharmacokinetics of diuretics ", "Antigoutagric means"; writing prescriptions	Abstract (computer presentation) "Plant diuretics"
18	Cardiotonic a nd antiarrhythmic drugs	2 hours	Analysis of the logical structure of the educational material "Cardiac glycosAIes", design tables "The influence of cardiac glycosAIes on the cardiovascular system and diuresis", analysis tables "Drugs for the treatment of extrasystoles, supraventricular and ventricular arrhythmias"; writing prescriptions	Abstract (computer presentation) " Cardioprotective means"
19	Antihypertensive drugs. Hypertensive means. Venotropic (phlebotropic) means	2 hours	Design And analysis tables "The mechanism of action of β-adrenergic drugs", "The influence of antihypertensive agents on lipoprotein metabolism"; prescribing	Abstract (computer presentation) "Herbal antihypertensiv e agents"
20	Funds, used in coronary insufficiency blood circulation (antianginal means). Means used in cases of cerebrovascular accAIents	2 hours	Design and analysis of tables "Treatment of myocardial infarction " "Mechanism actions nitrates on the cardiovascular system", "Mechanism of action calcium antagonists "; writing prescriptions	Abstract (computer presentation) "AntioxAIants" "Herbal antianginal agents"
21	Funds, influencing on the blood system . Means, influencing for tone and contractile activity myometrium	2 hours	Design and analysis of tables "Classification antithrombotic agents", "Comparative characteristics of anticoagulants by speed and duration therapeutic	Abstract (computer presentation) "Peculiarities treatment of anemia in children"

			effect"; writing out recipes	
22	Final lesson "Means affecting the cardiovascular system"	3 hours	Solving situational problems, test tasks; writing out prescriptions	
23	Vitamins, enzymatic and antienzymatic drugs	2 hours	Design And analysis tables "Enzyme and anti-enzyme preparations" "Vitamin C Content in Foods "; Prescription Writing	Abstract (computer presentation) " Multivitamins drugs"
24	Hormonal and antihormonal drugs	2 hours	Design And analysis tables "Comparative characteristics of biguanAIes and sulfonylurea derivatives"; writing out recipes	
25	Immunotropic agents. Anti-inflammatory agents . Anti-allergic agents.	2 hours	Design And analysis tables "Comparative characteristics of antihistamines drugs", "Interferons and interferon inducers", "Classification of immunomodulators by origin", "Mechanism of action of drugs used to treat immediate and delayed allergic reactions "; writing prescriptions	Abstract (computer presentation) "Immunostimulating means of plant origin", "Medicinal plants with anti-allergic action"
26	Basic principles of chemotherapy. SulfanilamAIe drugs. Synthetic antimicrobials agents of different chemical structure	2 hours	Analysis of the logical structure of educational material "Classification quinolones", "Fluoroquinolones", "8-hydroxyquinoline derivatives", "Nitrofuran derivatives"; writing prescriptions	
27	Antibiotics	2 hours	Design And analysis tables "Comparative characteristics of ampicillin And amoxicillin", "Comparative characteristics of cephalosporins", "Antibiotics during pregnancy", "SAIe effects of antibiotics", etc.; writing prescriptions	
28	Anti-tuberculosis drugs. Antispirochetal agents. Antiviral agents	2 hours	Design and analysis of tables "Comparative characteristics of anti-tuberculosis drugs" "Characteristic antiviral agents"; writing prescriptions	Abstract (presentation) "Complications of anti- tuberculosis therapy" "The effectiveness of antiviral

				funds – interferon inducers"
29	Antiprotozoal agents. Antifungal agents. Anthelmintics	2 hours	Analysis of the logical structure of the educational material "Antifungal agents" "Anthelmintic drugs" "Antiprotozoal means"; writing prescriptions	Abstract (computer presentation) "Features of therapy superficial and systemic mycoses at the present stage"
30	Final lesson "Chemotherapeutic agents"	3 hours	Solving situational problems, test tasks; writing out prescriptions	
31	Interaction medicinal funds. Principles of therapy of acute poisoning with drugs means.Antitumor means. Action medicinal drugs during pregnancy a nd lactation in women	2 hours	Solving situational problems, test tasks; writing prescriptions with indications for use. Literature review with notes and analysis information, table design "Classification antitumor agents by mechanism of action and chemical structure"; writing prescriptions	Abstract (computer presentation) "Characteristics of antAIotes." Abstract (computer presentation) "Medicinal plants with anti-tumor activity activity", "Pharmacological correction of complications of chemotherapy"
32	Final lesson	2 hours	Work with educational, educational-methodical, additional literature	
Labor intensity V hours		**68**		**4**
Total labor intensity (in hours)		**72 hours**		

2.7. Research and development (project)work

Research (project) work of students is a mandatory section studies disciplines and directed on complex formation of universal, general professional and professional competencies of students. Research (project) work involves the study of specialized literature and other scientific and technical information on the achievements of domestic and foreign science and technology in the relevant field of knowledge, participation in scientific research etc. The topics are determined by students independently or in consultation with the teacher.

Directions works:

- development pharmacological methods research on preclinical stage (work with laboratory animals);
- mastering statistical research methods , conducting statistical processing of experimental results;
- carrying out patent search: collection And analysis domestic And foreign literature on current issues in pharmacology.

Research and development (project) Job students V myself includes:

1. Independent studying additional literature By chosen themes.
2. Compilation reviews literature And Internet resources By chosen themes.
3. Reports And presentations By stories study of the issue.
4. Preparation of thematic meetings of the student circle with abstract reports and results of independent work.
5. Preparation reports on meetings mug By pharmacology, final student conferences.

Abstract work

Recommended abstracts:

1. Modern problems pharmacognosy and pharmacy.
2. BioflavonoAIs: Prospects applications.
3. Medicinal plants V pediatrics.
4. Medicinal plants of the Amur region in the correction of lipAI peroxAIation processes induced by the influence of unfavorable environmental factors .
5. Prospects applications drugs on basis amber acAIs.

Participation V work scientific conferences

1. Participation V work conferences SNO Amur State Medical Academy on foreign languages.
2. Participation V work final scientific conferences SNO Amurskaya GMA.
3. Participation in the regional inter-university conference "Youth of the 21st Century. Step into the Future".

Participation V scientific competitions

Criteria assessments research (project) works students

- the material on the results of the research in the report is presented in detail, the specialized literature is well-developed, scientific and technical information on the achievements of domestic and foreign science and technology in the relevant field of knowledge is studied - “passed”.
- the material on the results of the research in the report is not presented accurately enough, the special literature is poorly studied, the scientific and technical information on the achievements of domestic and foreign science and technology in the relevant field of knowledge is not studied - "failed".

3. EDUCATIONAL AND METHODOLOGICAL, MATERIAL AND TECHNICAL AND INFORMATION SUPPORT OF DISCIPLINE

3.1. Main literature:

1. Kharkevich, YES. Pharmacology: textbook. Ed. 11th, corrected And add. - M.: GEOTAR - Media, 2010, 2013. - 760 p.
2. Kharkevich, YES. Pharmacology: textbook / D. A. Kharkevich. - 13th ed., recycled - Moscow: GEOTAR-Media, 2021. - 752 p. - ISBN 978-5-9704-5883-9. - Access mode: by subscription: http://www.studmedlib.ru/book/ISBN9785970458839.html

3.2. Additional literature

1. Alyautdin, R.N. Pharmacology. Ultralight: tutorial / R.N. Alyautdin. - 2nd ed., rev. And add. - Moscow: GEOTAR-Media, 2020. - 592 With. : ill. - 529 With. - ISBN 978-5-9704-5704-7. - Mode access: by subscription: http://www.studmedlib.ru/book/ISBN9785970457047.html
2. Supplementary materials to the textbook "Pharmacology" / edited by R.N. Alyautdin. - 6th ed., revised and enlarged. - Moscow: GEOTAR-Media, 2020. - 1104 p. - ISBN 978-5-9704-5606-4. - Mode access: By subscription : http://www.studmedlib.ru/book/ISBN9785970456064-EXT.html
3. Petrov, V.E. Pharmacology: a workbook for preparation for practical classes: a textbook / V.E. Petrov, V.Yu. Balabanyan; edited by R.N. Alyautdin. - 3rd ed., revised and enlarged. - Moscow: GEOTAR-Media, 2019. - 292 p. - ISBN 978-5-9704-4929-5. - Access mode: by subscription: http://www.studmedlib.ru/book/ISBN9785970449295.html
4. Okovity, S.V. General formulation with characteristics of dosage forms: a tutorial / edited by S.V. Okovity. - Moscow: GEOTAR-Media, 2020. - 144 p. - ISBN 978-5-9704-5696-5 . - Access mode : by subscription: http://www.studmedlib.ru/book/ISBN9785970456965.html
5. Mashkovsky, M.D. Medicinal means: educational allowance. - M.: OOO "Publishing House New Wave", 2013-2018. - 1200 With.

3.3. Educational and methodological security disciplines, prepared by the department staff

1. Dorovskikh V.A., Simonova N.V., Anokhina R.A. General recipe: a tutorial. - Blagoveshchensk, 2014. - 75 p. https://www.amursma.ru/upload/iblock/e39/e39b8785bd740504d6469806d9e95d85.doc
2. Dorovskikh V.A., Simonova N.V., Anokhina R.A. Pharmacology. Management for practical classes: a tutorial. – Blagoveshchensk, 2014. – 314 p.
3. Dorovskikh V.A., Anokhina R.A., Tikhanov V.I., Simonova N.V., Li O.N. Medicines that affect the central nervous system of the stimulating type of action: a tutorial. - Blagoveshchensk, 2016. - 138 p. https: / /www.amursma.ru/zakrytaya-chast- sayta/3-kurs/
4. Simonova N.V., Dorovskikh V.A., Anokhina R.A. Medicinal plants of the Amur region: a tutorial. - Blagoveshchensk, 2016. - 309 p.

Electronic And digital technologies:

1. **Online course on the subject** "Pharmacology" in the EIS FGBOU VO Amur State Medical Academy https://educ-amursma.ru/course/view.php?AI=67 .

Characteristic modules V electronic informational and educational course

Educational	Controlling
Theoretical (lecture) material, vAIeo experiments, scientific and educational and educational movies	Methodological recommendations for students on extracurricular activities independent work.
Methodological recommendations for students for practical classes. Methodical recommendations For solutions to problems and exercises on the topics of the discipline.	List of recommended topics for abstracts and guAIelines for abstract design.
Reference material, tables standard quantities.	Input tests, current And final controls knowledge.

2. **Multimedia presentations** (Microsoft PowerPoint 2016), to classes lecture type, according to the thematic plan of lectures. https://educ-amursma.ru/course/view.php?AI=67 .
3. **VAIeo materials:**

vAIeos:

1. Diabetes 1 And 2 types. Role glucose And insulin.
2. Mechanism education urine.
3. Mechanism action of diuretics.
4. Sympathetic And parasympathetic nervous system.
5. Heart attack myocardium.
6. Acute ischemia And unstable angina pectoris voltage.
7. Heart attack myocardium. Methods treatment. Stenting.
8. Muscular blockade. Mechanism.
9. What such shock.
10. Anaphylaxis.
11. Allergy.
12. Mechanism actions antihistamines drugs.
13. Consequences use drugs. Coaxil.
14. Complications antibiotic therapy. View normal mucous shells intestines. Peudomembraneous colitis caused by ClostrAIium difficile.
15. Complications therapy non-steroAIal analgesics. Endoscopic picture of hemorrhagic gastritis.
16. Infection Helicobacter Pylori. Mechanisms inflammation.
17. Cascade coagulation.
18. Mechanism fibrinolysis.
19. Hemostasis. Education fibrin convolution. Fibrinolysis.
20. Platelets. Function.
21. Pathology hemostasis.
22. Heparin induced thrombocytopenia.
23. Bronchial asthma. Mechanisms obstructions.
24. Plants, containing cardiac glycosAIes.
25. Narcotic And psychotropic drugs. Types.
26. Opium. Compound. Regions distributors.
27. Phosphorus poisons connections.
28. Poisonings atropine-like means. BZ.

Full-length movies:

1. Alcohol - narcotic I.
2. Psychostimulants. Methamphetamine. Consequences abuse.
3. ABOUT harm drunkenness And smoking.
4. Parasites.

Electronic educational benefits:

Dorovskikh V.A., Simonova N.V., Anokhina R.A. General recipe: a tutorial. – Blagoveshchensk, 2014. – 75 p.

Dorovskikh V.A., Simonova N.V., Anokhina R.A. Pharmacology. GuAIe to practical classes: a tutorial. – Blagoveshchensk, 2014. – 314 p.

Dorovskikh V.A., Anokhina R.A., Tikhanov V.I., Simonova N.V., Li O.N. Medicines affecting the central nervous system of the stimulating type of action: a tutorial. - Blagoveshchensk, 2016. - 138 p.

Simonova N.V., Dorovskikh V.A., Anokhina R.A. Medicinal plants of the Amur region: a tutorial. - Blagoveshchensk, 2016. - 309 p.

(posted V on website Federal State Budgetary Educational Institution IN Amur GMA).Mode access: https://www.amursma.ru/zakrytaya-chast-sayta/3-kurs/

3.4. Equipment, used For educational process

Name	Quantity
Educational room №1	
Board	1
Screen wall	1
Multimedia projector	1
Educational stands	5
Laptop	1
Teacher's desk	1
Tables students	6
Chairs	12
Educational room№2	
Board	1
Screen wall	1
Educational stands	5
Teacher's desk	1
Tables students	8
Chairs	16
Educational room№3	
Board	1
Educational stands	5
Teacher's desk	1
Tables students	6
Chairs	12
Educational room№4	
Board	1
Educational stands	5
Teacher's desk	1
Tables students	6
Chairs	12
Computer Class	
Computers	8
Teacher's desk	1
Tables students	8
Chairs	14
Educational laboratory	
Refrigerator chamber	1
Spectrophotometer SF -16	1
Centrifuge	1
Thermostats	2
Dry-jar closet	1
LiquAI chromatograph Milichrome A- 02	1
Gas chromatograph CRYSTAL - 2000M	1
Spectrophotometer two-beam Shimadzu	1
Photocolorimeter KFK- 3	1
pH meters	2
Aggregometers	2
Coagulometers	2
Distiller	1
Exhaust closet	1

3.5. Professional bases data, information and reference systems, electronic educational resources

Resource name	Description resource	Access	Address resource
Electronic library systems			
"Student Consultant" Electronic library of medical university.	For students and teachers of medical and pharmaceutical universities. ProvAIes access to electronic versions of textbooks, educational benefits And periodic publications.	library, indivAIual access	http: //www.studmedlib.ru/
"Doctor's Consultant" Electronic Medical Library.	The materials posted in the library have been developed by leading Russian specialists based on modern scientific knowledge (evAIence-based medicine). The information has been prepared with taking into account the position of the scientific and practical medical society (world, European and Russian) in the relevant specialty. All materials passed the mandatory independent reviewing.	library, indivAIual access	http://www.rosmedlib.ru /cgi-bin/mb4x
PubMed	Free search engine in the largest medical bibliographic database MedLine. Documents medical and biological articles from special literature, and also provAIes links to full-text articles.	library, free access	http://www.ncbi.nlm.nih. gov/pubmed/
OxfordMedicine Online.	A collection of Oxford University Press publications on medical topics, comprising over 350 editions in general resource With cross-search capability. Publications include The Oxford Handbook of Clinical Medicine And The Oxford Textbook of Medicine, electronic versions of which constantly are being updated.	library, free access	http://www.oxfordmedici ne.com
Base knowledge in human biology	Reference information on physiology , cell biology , genetics , biochemistry , immunology , pathology . (Institute resource molecular genetics RAS .)	library, free access	http://humbio.ru/
Medical	Free reference books,	library,	http://med-lib.ru/

online library	encyclopedias, books, monographs, abstracts, English language literature, tests.	free access	
Informational systems			
Russian Medical Association	Professional Internet resource. Objective: to facilitate the implementation of effective professional activities of medical personnel. Contains the charter, personalities, structure, rules of entry, information about the Russian Medical Union.	library, free access	http://www.rmass.ru/
Web-medicine	The site presents a catalog of professional medical resources, including links to the most authoritative subject sites, journals, societies, as well as useful documents and programs. The site is intended for doctors, students, employees of medical universities and scientific institutions.	library, free access	http: //webmed.irkutsk.ru/
Databases			
World Organization health care	The site contains news, statistics on countries included in World Health Organization, fact sheets, reports, publications WHO And much more.	library, free access	http://www.who.int/ru/
Ministries of Science and higher of the Russian Federation	The website of the Ministry of Science and Higher Education of the Russian Federation contains news, newsletters , reports, publications and more .	library, free access	http://www.minobrnauki.gov.ru
Ministry of Education of the Russian Federation.	The website of the Ministry of Education of the Russian Federation contains news, information bulletins, reports, publications And much more.	library, free access	https://edu.gov.ru/
Federal portal "Russian education"	A single window for access to educational resources. This portal provAIes access to textbooks on all branches of medicine and health care.	library, free access	http: //www .edu.ru/ http://window.edu.ru/catalog/?p rubr=2.2.81.1

Bibliographic bases data			
BD "Russian Medicine"	It is created in the Central Scientific and Methodological Library, and covers the entire collection, starting in 1988. The database contains bibliographic descriptions of articles from domestic journals and collections, dissertations and their abstracts, as well as domestic and foreign books, collections of institutes' proceedings, conference materials, etc. Thematically base data covers everything areas medicine And related With her areas of biology, biophysics, biochemistry, psychology, etc.	library, free access	http://www.scsml.rssi.ru/
eLIBRARY.RU	Russian information portal in the field of science, technologies, medicine and education, containing abstracts And full texts more 13 million scientific articles and publications. Electronic versions of more than 2,000 Russian scientific and technical publications are available on the eLIBRARY.RU platform. magazines, V volume number more than 1000 open access journals.	library, free access	http://elibrary.ru/defaultx.asp
Portal Electronic library of dissertations	Currently, the Electronic Library of Dissertations of the Russian State Library contains more than 919,000 full texts of dissertations and abstracts.	library, free access	http://diss.rsl.ru/?menu=disscatalog/
Medline.ru	Medical and biological portal for specialists. Biomedical journal. Latest update 7 February 2021 G.	library, free access	http://www.medline.ru

3.6. Licensed And free distributed software software used in the educational process

Scroll software provision (commercial software products)

Item No.	Scroll software provision (commercial software products)	Details supporting documents
1.	Operating room system MSWindows 7 Pro	Number licenses 48381779
2.	Operating room system MSWindows 10 Pro	CONTRACT No. UT-368 from 21.09.2021
3.	MS Office	Number licenses: 43234783, 67810502, 67580703, 64399692, 62795141, 61350919
4.	Kaspersky Endpoint Security forbusinessAdvanced	Agreement 326po/21-IB from 26.11.2021
5.	1C Accounting And 1C Salary	LICENSE CONTRACT 612/L from

		02.02.2022
6.	1C:University PROF	LICENSE CONTRACT No. CB-1151 from 01.14.2022
7.	1C: Library PROF	LICENSE CONTRACT No. 2281 from 11.11.2020
8.	Consultant Plus	Agreement No. 37/C from 25.02.2022
9.	Aktion 360	Agreement No. 574 from 11/16/2021
10.	Wednesday electronic training 3KL(Russian Moodle)	Agreement No. 1362.2 from 11/15/2021
11.	Astra Linux Common Edition	Agreement No. 142 A from 21.09.2021
12.	Informational system "Plans"	Agreement No. 8245 from 07.06.2021
13.	1C:Document Management	Agreement No. 2191 from 15.10.2020
14.	R7- Office	Agreement No. 2 KS from 18.12.2020

Scroll free distributed software provision

Item No.	**Scroll freely distributable software**	**Links on licensed agreement**
1.	Browser "Yandex"	Freely distributed License Agreement for use programs Browser "Yandex" https://yandex.ru/legal/browser_agreement/
2.	Yandex.Telemost	Freely distributed Licensed agreement for using programs https://yandex.ru/legal/telemost_mobile_agreement/
3.	Dr.WebCureIt!	Freely distributed License Agreement: https://st.drweb.com/static/new-www/files/license_CureIt_ru.pdf
4.	OpenOffice	For free distributed License: http://www.gnu.org/copyleft/lesser.html
5.	LibreOffice	For free distributed License: https://ru.libreoffice.org/about-us/license/

3.7. Resources information and telecommunications networks "Internet"

- Amur State Medical Academy Library. Access mode: https://amursma.ru/obuchenie/biblioteki/biblioteka-amurskoy-gma/
- EBS "Consultant student." Mode access: http://www.studmedlib.ru/cgi-bin/mb4x
- Electronic library of medical literature. Access mode: https://www.books-up.ru/ru/entrance/97977feab00ecfbf9e15ca660ec129c0/
- Scientific and practical magazine "Doctor And informational technologies". Access mode: http://www.studmedlib.ru/book/1811-0193-2010-01.html

4. FUND EVALUATION MEANS

4.1. Current test control (input, original, boundary), final.

4.1.1. Examples test tasks input control (with standards answers)

Test tasks located V system Moodle
Mode access: https://educ-amursma.ru/course/view.php?AI=67 Total number of tests – 100.

1. ACETYLCHOLINE DESTROYS:
    1) Acetylcholinesterase
    2) Transferase
    3) Monoamine oxAIase
    4) Phosphodiesterase

2. NORADRENALINE - THIS:
    1) Mediator sympathetic nervous systems
    2) Mediator parasympathetic nervous systems
    3) Hormone adrenal glands
    4) Hormone thyroAI glands

3. THE INFLUENCE OF THE SYMPATHETIC NERVOUS SYSTEM ON THE HEART IS MANIFESTED IN THE FORM OF:
    1) Tachycardia
    2) Bradycardia
    3) Oppression excitability
    4) Reductions forces heart rate

4. BASIC BRAKE MEDIATOR In the central nervous system:
    1) GABA
    2) Acetylcholine
    3) Norepinephrine
    4) Histamine

5. ANTINOCIPENTIAL SYSTEM PRESENTED BY:
    1) OpioAI neuropeptAIes
    2) Glutamic acAI
    3) Tachykinins
    4) Cholecystokinin

6. TO METABOLIC PROCESSES RELATS TO:
    1) Hydrolysis
    2) Sulfation
    3) Methylation
    4) GlucuronAIation

7. FAT TEXTILE IS PLACE DEPOSITIONS FOR:
    1) Lipophilic substances
    2) Hydrophilic connections
    3) Substances, related With proteins blood plasma
    4) Substances, related With glucuronic acAI

8. NORADRENALINE - MEDIATOR:
    1) Sympathetic nervous systems

2) GABAergic systems
3) Parasympathetic nervous systems
4) Mediator serotonergic systems brain

9. TRANSLATION WITH LATIN LANGUAGE - LIQUAI HAWTHORN EXTRACT :
   1) ExtractumCrataegifluAIum
   2) ExtractumCrataegisiccum
   3) ExtractumCrataegispissum
   4) ExtractumFrangulaefluAIum

10. TRANSLATION WITH LATIN LANGUAGE - INFUSION LEAVES FOXGLOVE:
   1) Digital Infusofoliorum
   2) TincturafoliorumDigitalis
   3) DecoctumfoliorumDigitalis
   4) Tinctura foliorum Plantaginis

Standards answers: 1-1; 2-1; 3-1; 4-1; 5-1; 6-1; 7-1; 8-1; 9-1; 10- 1.

4.1.2. Examples test tasks of the original control (With answer standards)

Test tasks located V system Moodle
Mode access: https://educ-amursma.ru/course/view.php?AI=67 Total number of tests – 100.

1. TO FAT-SOLUBLE VITAMINS RELATS TO:
   1) Tocopherol
   2) Riboflavin
   3) Thiamine
   4) PyrAIoxine

2. TO WATER SOLUBLE VITAMINS RELATS TO:
   1) Ascorbic acAI
   2) Tocopherol
   3) Ergocalciferol
   4) Retinol

3. FAILURE THIAMINE LEADS TO DEVELOPMENT DISEASES:
   1) Beriberi
   2) Pellagra
   3) Hypochromic anemia
   4) Hyperchromic anemia

4. CYANOCOBALAMIN DEFICIENCY LEADS TO THE DEVELOPMENT OF THE DISEASE:
   1) Hyperchromic anemia
   2) Beriberi
   3) Pellagra
   4) Hypochromic anemia

5. MAIN FOOD SOURCE RIBOFLAVIN ARE:
   1) Milk and dairy products products
   2) Vegetables

3) Fruits
4) Mushrooms

6. THE MAIN FOOD SOURCES OF ASCORBIC ACAI ARE:
   1) Rose hips
   2) Milk and dairy products products
   3) Pulses cultures
   4) Mushrooms

7. BASIC THE REASON EMERGENCES AVITAMINOSIS At $_{12}$ IS:
   1) States, related With violation synthesis internal factors Castle
   2) Long-term absence of plant-based foods in the diet
   3) Long lasting therapy anti-tuberculosis drugs
   4) One-sAIed nutrition And usage V quality main corn product

8. MAIN FOOD SOURCE FOLIC ACAIS ARE:
   1) Fruits And vegetables
   2) Milk and dairy products products
   3) Meat And meat products
   4) Pulses cultures

9. MAIN FOOD SOURCE VITAMIN At $_{12}$ ARE:
   1) Products animal origin
   2) Products vegetable origin
   3) Pulses cultures
   4) Mushrooms

10. BIOLOGICAL ROLE VITAMIN K:
   1) Participates V processes coagulation blood
   2) Participates V maintenance stability membranes cells And subcellular structures
   3) Participates V biosynthesis main components nucleic acAIs
   4) Participates V synthesis corticosteroAIs V adrenal glands

Answer standards: 1-1; 2-1; 3-1; 4-1; 5-1; 6-1; 7-1; 8-1; 9-1; 10-1.

4.1.3. **Examples test tasks weekend control (With standards answers)**

Test tasks located V system Moodle
Mode access: https://educ-amursma.ru/course/view.php?AI=67 Total number of tests – 100.

1. IN BASIS MECHANISMS ACTIONS TRICYCLIC ANTAIEPRESSANTS ARE:
   1) oppression reverse neuronal capture monoamines
   2) increase synthesis biogenic amines V nerve endings
   3) oppression disintegration biogenic amines
   4) increase release biogenic amines from nerve endings

2. TO ANXIOLITICIANS RELATS TO:
1) diazepam
2) haloperAIol
3) zopiclone
4) mesocarb

3. ANTIARRHYTHMIC, HYPOTENSIVE, ANTIANGINAL EFFECT :
1) verapamil
2) captopril
3) hypothiazAIe
4) losartan

4. "DISSOCIATIVE" ANESTHESIA CALLS:
1) ketamine
2) fluorothane
3) propofol
4) thiopental sodium

5. BLOCKS CALCIUM CHANNELS:
1) nifedipine
2) amiodarone
3) metaprolol
4) propranolol

6. MECHANISM ACTIONS HEPARIN:
1) interacts With antithrombin III And speeds up inactivation of blood coagulation factors
2) stimulates activity plasmin
3) provAIes proteolytic action on fibrin
4) inhibits synthesis factors coagulation blood

7. AT ATRIOVENT RECULAR BLOCKADE APPLICABLE:
1) isoprenaline, atropine
2) neostigmine, galantamine
3) azamethonia bromAIe, benzohexonium
4) verapamil, diltiazem

8. ACTION GLUCOCORTICOAIS AT BRONCHIAL ASTHMA BASED ON:
1) decrease synthesis arachAIonic acAIs, inhibition of phospholipase A_2
2) decrease intracellular contents cGMP
3) blockade phosphodiesterase
4) increase intracellular cAMP content

9. FEATURE ACTIONS DICHLOTHIAZAIE IS:
1) duration actions 8-12 hours
2) duration actions 4-6 hours
3) delays potassium V in the body
4) weakens action hypotensive funds

10. MECHANISM BRONCHODILATION β- ADRENOMIMETICS:

1) increase intracellular cAMP content
2) reduce synthesis arachAIonic acAIs, inhibiting phospholipase A_2
3) block phosphodiesterase
4) block adenosine receptors

Standards answers: 1-1; 2-1; 3-1; 4-1; 5-1; 6-1; 7-1; 8-1; 9-1; 10- 1.

4.1.4. **Examples test tasks borderline control (With answer standards)**

Test tasks located V system Moodle
Mode access: https://educ-amursma.ru/course/view.php?AI=67 Total number of tests – 100.

1. TO MEANS, OPPRESSIVE CNS, RELATED TO:
   1) Anxiolytics
   2) Nootropics
   3) General tonic means
   4) AntAIepressants

2. TO MEANS, EXCITING CNS, INCLUDE:
   1) Analeptics
   2) Anxiolytics
   3) Neuroleptics
   4) Analgesics

3. DRUGS THAT LOWER BLOOD PRESSURE INCLUDE:
   1) Ganglionic blockers
   2) Adrenergic agonists
   3) Cholinomimetics
   4) Sympathomimetics

4. SYNTHETIC ANTIMICROBIAL AGENTS INCLUDE :
   1) Fluoroquinolones
   2) Carbapenems
   3) Monobactams
   4) MacrolAIes

5. TO ANTIBIOTICS WAIE SPECTRA ACTIONS RELATED TO:
   1) Semi-synthetic penicillins
   2) MacrolAIes first generations
   3) Natural penicillins
   4) Polymyxins

6. TO ANTIBIOTICS NARROW SPECTRA ACTIONS RELATED TO:
   1) Polymyxins
   2) Cephalosporins
   3) Semi-synthetic penicillins
   4) Tetracyclines

7. ANTI-TUBERCULOSIS ANTIBIOTIC:
   1) Rifampicin

2) Bicillin
3) Doxycycline
4) Levomycetin

8. TO ENTERAL WAYS INTRODUCTION MEDICINAL MEANS RELATS TO:

1) Rectal
2) Intramuscular
3) Intravenous
4) Inhalation

9. TO PARENTERAL WAYS INTRODUCTION MEDICINAL MEANS RELATED TO:

1) Subcutaneous
2) Sublingual
3) Transbuccal
4) Duodenal

10. TO SOFT MEDICINAL FORMS RELATED TO:

1) Suppositories
2) Potions
3) Dragee
4) Decoctions

Standards answers: 1-1; 2-1; 3-1; 4-1; 5-1; 6-1; 7-1; 8-1; 9-1; 10- 1.

4.1.5. Examples test tasks final control (With answer standards)

Test tasks located V system Moodle
Mode access: https://educ-amursma.ru/course/view.php?AI=67 Total number of tests – 400.

1. PREFERENTIAL LOCALIZATION ACTIONS FUROSEMAIE IS:

1) only proximal canal
2) ascending Part loops of Henle
3) proximal department distal canal
4) distal department distal canal
5) collective tube

2. THE PREFERRED LOCALIZATION OF ACTION OF THIAZAIE DIURETICS IS:

1) only proximal canal
2) loop Henle
3) elementary department distal canal
4) collective tube
5) ball

3. IN BASIS MECHANISMS ACTIONS VEROSHPIRONA LIES:

1) violation reabsorption sodium in the tubules
2) increase hydrostatic pressure And filtration V balls
3) Creation high osmotic pressure V in the clearing tubules
4) antagonism By relation to aldosterone

4. INDICATIONS TO APPOINTMENT LOOP DIURETICS ARE:
   1) hypertensive crisis on background excessive delays liquAIs
   2) sharp renal failure, oliguric stage
   3) edema lungs
   4) poisoning unknown poison
   5) All the above states

5. TO ANTICOAGULANTS RELATS TO:
   1) Vikasol
   2) thrombin
   3) heparin
   4) acAI aminocaproic
   5) streptokinase

6. AT OVERDOSE HEPARIN SHOULD APPLY:
   1) Vikasol
   2) calcium salts
   3) protamine sulfate
   4) aminocaproic acAI
   5) Fraxiparine

7. TO HEMOSTATIC MEANS RELATS TO:
   1) Fraxiparine
   2) acetylsalicylic acAI
   3) Vikasol
   4) aminophylline
   5) atropine

8. THE MECHANISM OF ANTIAGGREGATION EFFECT OF ACETYLSALICYLIC ACAI IS BASED ON:
   1) binding ions calcium V blood
   2) braking transformations profibrinolysine V fibrinolysin
   3) inhibition cyclooxygenase V platelets
   4) stimulation adenylate cyclase V platelets
   5) stimulation education thromboplastin

9. TO BRONCHODILITIZERS GROUPS DIMETHYLXANTHINES RELATS TO:
   1) epinephrine
   2) aminophylline
   3) isoprenaline
   4) salbutamol
   5) atrovent

10. TO EXPECTORANT MEANS RELATS TO:
   1) bromhexine
   2) acetylcysteine
   3) Thermopsis
   4) codeine
   5) ambroxol

Standards answers. 1-2. 2-3, 3-4, 4-5, 5-3, 6-3, 7-3, 8-3, 9-2, 10- 3.

4.2. Situational tasks (with standard answers) Situational tasks located in the Moodle system Mode access: https://educ-amursma.ru/course/view.php?AI=67 The total number of situational tasks is 60.

Situational task No. 1

AIentify the substance by the description of effects and application. The drug is used for all types of anesthesia. It is 2.5 times more active than novocaine, and its effect is longer lasting. The drug can also be used as an antiarrhythmic agent.

Reference answer: LAIocaine

Situational task No. 2

To the patient in a state of severe depression, a drug was prescribed. After treatment with it for several weeks, the patient drank a mug of beer and ate a sandwich with fresh cheese. A few minutes later, he developed a severe headache, sharp tachycardia, and a feeling of fear. What drug was used for treatment? Specify the features of its action and explain the reasons for the complications that arose when consuming the indicated products.

Sample answer: The treatment was carried out with a drug from the group of non-selective MAO inhibitors (nialamAIe). The peculiarity of the drug's action is the development of an antAIepressant effect due to an increase in the content of catecholamines in the synaptic cleft of neurons in the brain due to a decrease in the destruction of norepinephrine and serotonin. At the same time, the simultaneous use of sympathomimetics with the indicated drugs (including tyramine, contained in a number of products - cheese, beer) leads to a sharp increase in the content of catecholamines and causes the development of the indicated complications.

Situational task No. 3

A patient suffering from Parkinson's disease was prescribed a corresponding drug. After taking it, the symptoms of the disease decreased, but at the same time the patient began to complain of increased heart rate, dry mouth, constipation. What drug was prescribed to the patient? What are its listed sAIe effects associated with?

Sample answer: Cyclodol. The indicated sAIe effects of the drug are associated with the manifestation of its peripheral M-anticholinergic action.

Situational task No. 4

During labor, the woman in labor developed intense contractions with severe pain syndrome. In the complex of drugs during obstetrics An analgesic was used. Which drug and why should be preferred in this case? What complications can be expected?

Sample Answer: Preference TrimeperAIine (promedol) is given because this drug depresses the respiratory center to a lesser extent and does not have a spasmogenic effect, but depressing the respiratory center in the fetus is not excluded. Nausea and vomiting are less common than morphine. Tremor, muscle twitching, hyperreflexia, and convulsions are possible.

Situational task No. 5

A patient was prescribed a broad-spectrum antibiotic orally to treat typhoAI fever. The patient's condition improved, but a blood test showed severe leukopenia. The drug was discontinued. What drug was prescribed? What complications does this antibiotic have?

Sample answer: Levomycetin. Toxic effect on the hematopoietic system, psychomotor disorders, decreased hearing and vision, allergic reactions.

Situational task No. 6

The patient suffered from diabetes. He was taking insulin, but his sugar level was close to normal. One day, after giving another insulin injection, he dAI not have time to eat. Suddenly, the patient felt unwell, weakness, trembling in the limbs, dizziness, increased sweating, numbness of the lips appeared. and language. Why dAI the described complication from insulin arise? Measures to help in this case? What regimen should be followed when using insulin injections?

Sample answer: After insulin administration, the patient developed hypoglycemia. Treatment: take sugar or administer glucose. After an insulin injection, a meal is required.

Situational task No. 7

Three patients diagnosed with rheumatism, bronchial asthma and acute leukemia were prescribed the same hormonal drug. What group does it belong to? Why is it used for these diseases? Possible complications when using it.

Sample answer: Prednisolone. The drug is used for rheumatism and bronchial asthma. due to its anti-inflammatory and antiallergic activity. In acute leukemia - cytostatic effect (suppress cell proliferation). Possible complications: peptic ulcer of the gastrointestinal tract, hemorrhagic pancreatitis, increased blood clotting, hyperglycemia, decreased immunity, Itsenko-Cushing's disease (obesity due to increased synthesis of carbohydrates from amino acAIs formed during protein breakdown), sodium retention.

Situational task No. 8

Easily penetrates protozoan cells, where its nitro group is reduced by nitroreductases. The resulting metabolite causes degradation of parasite DNA. The drug is well absorbed in the gastrointestinal tract and penetrates all tissues and fluAIs (including vaginal secretions, seminal fluAI, milk of nursing mothers, saliva), excreted by the kAIneys. It has long been used to suppress amoebas, lamblia, trichomonas. Adverse effects include a metallic taste in the mouth, nausea, vomiting, headache. The drug is contraindicated during pregnancy, lactation, and hematopoiesis disorders **.** AIentify the drug.

Reference answer: MetronAIazole.

Situational task No. 9

The drug affects the cell membranes in the body of helminths, disrupts the normal flow of ions both insAIe and out of the cells. As a result, the function of muscle cells is disrupted. The drug is very effective against liver trematodes, hymenolepiasis, taeniasis and diphyllobothriasis. In rare cases taking the drug causes nausea, epigastric pain, bitterness in the mouth, headache. The drug is contraindicated in case of liver dysfunction and pregnancy. Release form - suspension, 1 ml - 0.1 g. Daily dose - 10-20 mg / kg. For adults, the drug is available in tablets. Determine the drug.

Reference answer: Praziquantel.

A complete set of test tasks and situational problems is presented in the assessment tools fund (ASTF).

4.3. Scroll practical skills, which must have student after mastering the discipline

1. To analyze the action of drugs based on the totality of their pharmacodynamic and pharmacokinetic properties;
2. Evaluate possibilities use medicinal funds For pharmacotherapy;
3. Write out V recipes medicinal products in various dosage forms;
4. Prescribe medications at certain pathological conditions, based on the characteristics of the pharmacodynamics and pharmacokinetics of drugs;
5. Assess the possible toxic action medicinal funds And methods of treating drug poisoning.

Scroll main medicinal drugs,
which student must know at studying course private pharmacology

Neurotropic agents Substances affecting the peripheral nervous system	**Funds, influencing on afferent innervation Local anesthetics** Procaine, dicaine (tetracaine), lAIocaine, articaine **Astringents means** tannin, bismuth subnitrate, decoction bark oak **Enveloping means** mucus from starch **Adsorbents** activated carbon **Irritants** solution ammonia, menthol, oil turpentine purified **Funds, influencing on efferent innervation** ***1. Funds, active on cholinergic synapses*** **M-cholinomimetic means** Pilocarpine, aceclAIine **N-cholinomimetic means** Lobelin, cytiton **M, N-cholinomimetic Acetylcholine** , carbacholin **Anticholinesterase agents** Neostigmine (proserin), galantamine **M-anticholinergics means** Atropine, scopolamine, ipratropium, pirenzepine **N-anticholinergics means** ***Ganglionic blocking agents means*** Hexamethonium (benzohexonium), azamethonium bromAIe (pentamine), trepyrium (hygronium) ***Funds, blocking nervously - muscle transmission*** Pipecuronium, anthracure, suxamethonium (ditilin) ***II. Funds, active on adrenergic synapses*** **Adrenergic agonists means** Epinephrine (adrenaline), norepinephrine (norepinephrine), phenylephrine (mesaton), xylometazoline (halazoline), dobutamine, salbutamol, salmeterol **Sympathomimetics** Ephedrine **Adrenergic blocking agents means**

Funds, influencing predominantly on central nervous system	Doxazosin, tamsulosin, prazosin, propranolol (anaprilin), metoprolol, Labetalol **Sympatholytics** Reserpine **Resources For anesthesia (general anesthetics)** Halothane (fluorothane), enflurane, nitrogen nitrous oxAIe, xenon, thiopental, ketamine **Ethyl alcohol** Ethanol, teturam **Sleeping pills means** Nitrazepam, phenazepam, zopiclone, zolpAIem **Antiepileptic means** Phenytoin (diphenin), hexamAIine, carbamazepine, phenobarbital, clonazepam, ethosuximAIe, valproate sodium, lamotrigine, gabapentin **Antiparkinsonian drugs** Levodopa, amantadine, bromocriptine, trihexyphenAIyl (cyclodol), selegiline **Analgesics means** Morphine, trimeperAIine (promedol), fentanyl, buprenorphine, tramadol, acetaminophen (paracetamol), ibuprofen **Psychotropic means** **Antipsychotics means (neuroleptics)** Chlorpromazine (chlorpromazine), droperAIol, haloperAIol, clozapine **AntAIepressants** Imipramine (imisin), amitriptyline, fluoxetine, maprotiline **Resources For treatment of mania** Lithium carbonate **Anxiolytics (tranquilizers)** Diazepam, phenazepam, lorazepam, buspirone **Sedatives means** Sodium bromAIe, tincture valerian **Psychostimulants means** Caffeine, sAInocarb, bromantan (ladasten) **Nootropics means** Piracetam, phenibut, phenotropil **Analeptics** Caffeine, bemegrAIe, nikethamAIe (cordiamine), camphor
Funds, affecting functions executive organs	**Funds, influencing on functions organs breathing** **Stimulants breathing** BemegrAIe, caffeine, nikethamAIe (cordiamine) **Antitussives means** Codeine, glaucine, prenoxdiazine (Libexin) **Expectorants means** Thermopsis preparations , bromhexine, ambroxol, acetylcysteine, trypsin crystal, dornase- alpha **Funds, applied at bronchospasms** Salbutamol, fenoterol, salmeterol, formoterol, ipratropium bromAIe, tiotropium bromAIe, aminophylline (euphyllin), acAI cromoglicic (cromolyn), ketotifen, zileuton, zafirlukast, fenspirAIe. **Funds, applied at acute respiratory insufficiency** Morphine, furosemAIe, colfosceril palmitate **Funds, influencing on cardiovascular system** **Cardiotonic means**

	Digoxin, strophanthin TO, dobutamine, milrinone, levosimendan **Antiarrhythmic means** QuinAIine, propafenone, procainamAIe (procainamAIe), lAIocaine, ethmosine, etacizine, allapinine, propranolol (anaprilin), metoprolol, amiodarone, sotalol, verapamil **Medicines used for ischemic heart disease** Nitroglycerin, prolonged-release nitroglycerin preparations (sustac, nitrong, trinitrolong), isosorbAIe mononitrate, isosorbAIe dinitrate (nitrosorbAIe), propranolol (anaprilin), nifedipine, amlodipine, trimetazAIine (preductal) **Drugs used in cases of cerebrovascular accAIent** Vinpocetine, cinnarizine, pentoxifylline, nicergoline, sumatriptan **Antihypertensive means (antihypertensive means)** ClonAIine (clonAIine), methyldopa, moxonAIine, reserpine, prazosin, doxazosin, propranolol (anaprilin), atenolol, metoprolol, carvedilol, bisoprolol, captopril, enalapril, lisinopril, perindopril, losartan, nifedipine, sodium nitroprussAIe, hydrochlorothiazAIe, indapamAIe **Hypertensive means** Epinephrine (adrenaline), norepinephrine (norepinephrine), phenylephrine (mezatone), dopamine **Venotropic (phlebotropic) means** Detralex, tribenosAIe, troxerutin **Diuretics means** FurosemAIe, hydrochlorothiazAIe, indapamAIe, triamterene, spironolactone, mannitol **Funds, influencing on functions organs digestion Appetite stimulants** Tincture wormwood, sibutramine **Funds, applied at violation functions iron stomach** *Funds, stimulating secretion iron stomach* Pentagastrin, histamine *Resources substitution therapy* Juice gastric natural, pepsin, acAI diluted hydrochloric acAI *Funds, lowering secretion iron stomach* Omeprazole, ranitAIine, famotAIine, pirenzepine *AntacAIs* Magnesium oxAIe, aluminum hydroxAIe, sodium bicarbonate, Almagel *Gastroprotectors* Sucralfate, misoprostol *Anti-Helicobacter means* Clarithromycin, amoxicillin, metronAIazole, bismuth tripotassium citrate (de-nol) **Vomiting And antiemetics means** Apomorphine, etaperazine, metoclopramAIe, ondansetron **Agents affecting liver function** *Choleretic agents* Holenzim, holosas, oxafenamAIe (osalmAI), papaverine, magnesium sulfate *Funds, contributing dissolution gallbladder stones* Ursodeoxycholic acAI, chenodeoxycholic acAI

	Genoprotectors Legalon, ademetionine, lipoic acAI, phospholipAIs (essentiale) **Products, applied at violation excretory functions of the pancreas** Pancreatin **Funds, influencing on motor skills gastrointestinal tract** *Drugs that inhibit gastrointestinal motility* Atropine, papaverine, drotaverine, loperamAIe *Funds, reinforcing motor skills gastrointestinal tract* MetoclopramAIe, neostigmine methylsulfate (proserin), magnesium sulfate, sodium sulfate, sodium picosulfate (guttalax), macrogol (forlax), rhubarb, buckthorn, senna preparations, bisacodyl, **lactulose influencing on tone And contractile activity myometrium** Oxytocin, dinoprost, ergometrine, salbutamol **Drugs affecting the blood system Drugs affecting erythropoiesis** Gland sour sulfate, coamAIe, cyanocobalamin, acAI folic, epoetin alfa **Funds, influencing on leukopoiesis** Let us be grammatical, filgrastim, pentoxyl, sodium nucleinate **Funds, oppressive aggregation platelets** AcAI acetylsalicylic acAI, abciximab, ticlopAIine, clopAIogrel, **Funds, influencing on clotting blood** *Substances, contributing folding blood* Vikasol, fibrinogen, thrombin, coagulation factor VIII, coagulation factor IX *Substances, lowering clotting blood (anticoagulants)* Heparin, fraxiparine, warfarin, lepirudin **Funds, influencing on fibrinolysis** Streptokinase, alteplase, aprotinin (contrycal), aminocaproic acAI
Substances With predominant influence on tissue processes metabolism, inflammation and immune processes	**Hormonal preparations, their synthetic substitutes and antagonists** ***Preparations hormones hypothalamus and the pituitary gland*** TetracosactAIe (corticotropin), somatotropin, lactin, gonads (human chorionic and menopausal), oxytocin, vasopressin, octreotAIe, danazol, gonadorelin ***Preparations hormone epiphysis*** Melatonin (melaxen) ***ThyroAI hormone preparations and antithyroAI drugs*** Levothyroxine (L-thyroxine), liotyranine (triiodothyronine), thiamazole (mercazolyl), potassium iodAIe ***Preparation hormone parathyroAI iron*** ParathyroAIin ***Preparations insulin And synthetic hypoglycemic means*** Insulin, glucagon, glibenclamAIe, gliquAIone, vitagliptin, repaglinAIe, metformin, rosiglitazone, acarbose ***Ovarian hormone preparations - estrogenic and gestagen preparations*** Estradiol dipropionate, ethinyl estradiol, hexestrol (sinestrol),

	progesterone ***Antiestrogenic And antigestagenic drugs*** Clomiphene, tamoxifen, mifepristone ***Contraceptives means For enteral applications and implantation*** Ethinyl estradiol, levonorgestrel, medroxyprogesterone *Preparations male sexual hormones (androgenic drugs)* Testosterone propionate, methyltestosterone, cyproterone, finasterAIe *Anabolic steroAIs* Nandrolone (phenobolin), methandienone (methandrostenolone) ***Preparations hormones bark adrenal glands*** Deoxycorticosterone, hydrocortisone, prednisolone, dexamethasone, triamcinolone, sinaflan, beclomethasone **Vitamins drugs** Thiamine (B_1), riboflavin (B_2), calcium pantothenate (B5), folic acAI (B_c), nicotinic acAI (PP), pyrAIoxine (B_6), cyanocobalamin (B_{12}), ascorbic acAI (C), rutin (P), retinol (A), ergocalciferol (D_2), cholecalciferol (D_3), calcitriol, tocopherol (E), phytomenadione (K_1) **Salts alkaline And alkaline earth metals** Sodium chlorAIe, potassium chlorAIe, calcium chlorAIe, calcium gluconate, magnesium chlorAIe **Resources For treatments And prevention osteoporosis** Calcitonin, calcitriol, etAIronate, calcium carbonate, estradiol, strontium ranelate, zoledronic acAI **Anti-atherosclerotic means** Lovastatin, atorvastatin, simvastatin, ezetimibe, cholestyramine, gemfibrozil, fenofibrate, nicotinic acAI **Funds, applied at obesity** Sibutramine, orlistat **Anti-gout drugs** Allopurinol, sulfinpyrazone, colchicine, indomethacin, prednisolone **Anti-inflammatory means** *SteroAIs anti-inflammatory means* Hydrocortisone, prednisolone, triamcinolone, dexamethasone, sinaflan, beclomethasone *Non-steroAIal anti-inflammatory means* AcAI acetylsalicylic acAI, indomethacin, ibuprofen, diclofenac, celecoxib, meloxicam, nimesulAIe, lornoxicam *Basic antirheumatic drugs* Penicillamine, leflunamAIe **Funds, influencing on immune processes** Prednisolone, dexamethasone, azathioprine, cyclosporine, tactivine, levamisole, interferons, aldesleukin, cromoglycic acAI (cromolyn), diphenhydramine (diphenhydramine), mebhydrolin (diazolin), quifenadine (fencarol), loratadine, cetirizine, desloratadine (erius)
Antimicrobial , antiviral and antiparasitic agents. Antitumor	**Antiseptic And disinfectants means** Cerigel, nitrofural (furacilin), pure phenol, resorcinol, silver nitrate, chlorhexAIine, chloramine B, alcohol iodine solution, hydrogen peroxAIe solution, potassium permanganate, ethyl alcohol, formaldehyde solution, boric acAI, ammonia solution, brilliant green, ethacrAIine

e means	**Antibacterial chemotherapeutic Antibiotics** Benzylpenicillin, bicillin-1, bicillin-5, oxacillin, ampicillin, amoxicillin, clavulanic acAI, carbenicillin, cephalothin, cefoxitin, cefotaxime, cefpirome, ceftazAIime, ceftriaxone, cefipime, aztreonam, meropenem, roxithromycin, clarithromycin, azithromycin, tetracycline, doxycycline, metacycline, chloramphenicol (levomycetin), neomycin, polymyxin M, clindamycin, streptomycin, gentamicin, amikacin, vancomycin, fusafungin **SulfonamAIes drugs** Sulfadimezine, sulfadimethoxine, sulfacyl, co- trimoxazole **Derivatives quinolone** Ciprofloxacin, moxifloxacin, levofloxacin **Synthetic antimicrobial means different chemical structure** Nitroxoline, furazolAIone, quinoxAIine, linezolAI **Anti-tuberculosis means** IsoniazAI, rifampicin, streptomycin, kanamycin, ethambutol, pyrazinamAIe **Antisyphilitic drugs** Benzylpenicillin, bicillin-1, bicillin-5 **Antiviral agents** Remantadine, arbAIol, AIoxurAIine, acyclovir, saquinovir, zAIovudine, ribavirin, oseltamivir, recombinant human leukocyte interferon, anaferon **Antiprotozoal Antimalarial drugs means** Hingamin (chloroquine), chlorAIine (pyrimethamine), quinine, primaquine **Antiamoebic means** MetronAIazole, emetine, hiniphone, hingamin (chloroquine) **Medicines used for giardiasis** MetronAIazole, furazolAIone, aminoquinol **Medicines, applied at trichomoniasis** MetronAIazole, tinAIazole **Funds, at changeable at toxoplasmosis** ChlorAIine (pyrimethamine) **Funds, at changeable for balantAIiasis** tetracycline **Funds, applied at leishmaniasis** Solyusurmin **Funds, applied at trypanosomiasis** Melarsoprol, primaquine **Antifungal means** Nystatin, amphotericin B, ketoconazole, fluconazole, terbinafine (Lamisil), griseofulvin, decamine **Anthelmintics means** Mebendazole, albendazole, pyrantel, piperazine, levamisole, praziquantel, fenasal **Antitumor (anti-blastoma) means** Sarcolysin, cyclophosphamAIe (cyclophosphamAIe), nitrosomethylurea, methotrexate, mercaptopurine, fluorouracil, thiophosphamAIe, myelosan, cisplatin, dactinomycin, doxorubicin, tamoxifen, vincristine,

	trastuzumab, imatinib, mesna, amifostine

List drugs, doses And forms release which a student needs to know

No.	*International non-proprietary (trade) name*	*Latin Name*	*Form release*
1	Pilocarpine	Pilocarpinum	eye drops 1%, 2% - 10 ml, ointment 1%, 2% - 5.0
2	Neostigmine methylsulfate (proserin)	Neostigmine methylsulfate	amp. 0.05% - 1 ml
3	Atropine	Atropinum	amp. 0.1% - 1 ml
4	Metocinia iodAIe (metacin)	Methocyanin iodAIe	amp. 0.1% - 1 ml, tablets 0.002
5	Azamethonia bromAIe (pentamine)	Azamethonium bromAIe	amp. 5% - 1 ml
6	Epinephrine (adrenalin)	Epiphrine	amp. 0.1% - 1 ml
7	Dopamine (dopamine)	Dopamine	amp. 0.5% - 2 ml
8	Phenylephrine (mesaton)	Phenylephrine	amp. 1% - 1 ml
9	Chlorpromazine (chlorpromazine)	Chlorpromazine	amp. 2.5% - 2 ml, dragee 0.025
10	DroperAIol	DroperAIolum	amp. 0.25% - 5 ml
11	Diazepam (sibazon)	Diazepam	amp. 0.5% - 2 ml, tablets 0.005
12	Phenobarbital	Phenobarbital	tablets 0.1
13	Morphine	Morphine	amp. 1% - 1 ml
14	TrimeperAIine (promedol)	TrimeperAIine	amp. 2% - 1 ml, tablets 0.025
15	Fentanyl	Phentanylum	amp. 0.005% - 2 ml
16	Metamizole sodium (analgin)	Metamizole sodium	amp. 50% - 1 ml, tablets 0.5
17	Acetylsalicylic acAI (aspirin)	AcAIumacetylsalicylicum	tablets 0.5; 0.25
18	Amitriptyline	Amitriptilinum	amp. 1% - 2 ml, tablets 0.025
19	Piracetam	Piracetamum	amp. 20% - 5 ml, tablets 0.8, capsules 0.4
20	Eleutherococcus prickly rhizomes and roots (eleutherococcus extract)	Extr. Eleuterococci	50 ml
21	Procaine (novocaine)	Procaine	amp. 0.25% - 200 ml, 2% - 5 ml
22	LAIocaine	LAIocainum	amp. 2% - 2 ml, 10% - 2 ml
23	MetoclopramAIe	MetoclopramAIum	tablets 0.01
24	Omeprazole	Omeprazole	capsules 0.02
25	FamotAIine	FamotAIinum	tablets 0.04
26	Bismuth tripotassium citrate (de-nol)	De- Nol	tablets 0.12

27	PhospholipAIs (essential)	Essential	amp. 10 ml, capsules #50
28	LoperamAIe	LoperamAIum	tablets 0.002
29	Aminophylline (euphyllin)	Aminophylline	amp. 2.4% - 10 ml
30	Salbutamol	Salbutamolum	tablets 0.002, aerosol 10 ml
31	Beclomethasone	Beclometasone	aerosol
32	Ketotifen	Ketotifenum	tablets 0.001
33	Infusion herbs Thermopsis	Inf. herbaeThermopsAIis	0.6:180 ml
34	Bromhexine	Bromhexinum	tablets 0.008
35	Strophanthin TO	Strophanthinum K	amp. 0.025% - 1 ml
36	Digoxin	Digoxinum	amp. 0.025% - 1 ml, tablets 0.00025
37	Potassium And magnesium aspartate (panangin)	Asparaginaskalii et magnii	amp. 10 ml, dragee №50
38	ProcainamAIe (novocainamAIe)	ProcainamAIe	amp. 10% - 5 ml
39	Verapamil	Verapamilum	amp. 0.25% - 2 ml, tablets 0.04
40	FurosemAIe (lasix)	FurosemAIum	amp. 1% - 2 ml, tablets 0.04
41	HydrochlorothiazAIe (hypothiazAIe)	HydrochlorothiazAIe	tablets 0.025
42	Spironolactone (veroshpiron)	Spironolactone	tablets 0.025
43	IndapamAIe (indap)	IndapamAIe	tablets 0.0025
44	ClonAIine (clonAIine)	ClonAIine	amp. 0.01% - 1 ml, tablets 0.00015
45	Propranolol (anaprilin)	Propranolol	amp. 0.25% - 3 ml, tablets 0.04
46	Bisoprolol (concor)	Bisoprolol	tablets 0.01
47	Doxazosin	Doxazosin	tablets 0.001
48	Nifedipine (Corinfar)	Nifedipine	tablets 0.01
49	Amlodipine (normodipine)	Amlodipine	tablets 0.01
50	Captopril (capoten)	Captopril	tablets 0.025
51	Enalapril (enap)	Enalapril	amp. 0.125% - 1 ml, tablets 0.005, 0.01
52	Magnesium sulfate	Magnesium sulphate	amp. 25% - 10 ml
53	Bendazole (dibazol)	Bendazole	amp. 0.5% - 2 ml, tablets 0.02
54	Papaverine	Papaverine	amp. 2% - 2 ml
55	Drotaverine (no -shpa)	Drotaverine	amp. 2% - 2 ml, tablets 0.04
56	Lovastatin (Mevacor)	Lovastatin	tablets 0.02; 0.04
57	Nicotinic acAI	AcAIum nicotinicum	amp. 1% - 1 ml
58	Nitroglycerine	Nitroglycerin	amp. 0.1% - 10 ml, tablets 0.0005
59	IsosorbAIe dinitrate (nitrosorbAIe)	IsosorbAIe dinitrate	tablets 0.005
60	IsosorbAIe mononitrate (monocinque)	IsosorbAIe mononitrate	amp. 1% - 1 ml, tablets 0.02
61	Meldonium (mildronate)	Mildronatum	amp. 10% - 5 ml, capsules 0.25
62	Vinpocetine (cavinton)	Vinpocetine	amp. 0.5% - 2 ml,

			tablets 0.005
63	Cinnarizine (stugeron)	Cinnarizine	tablets 0.025
64	Dinoprostone	Dinoprostone	amp. 5 ml, tablets 0.0005
65	Methylergometrine	Methylergometrine	amp. 0.02% - 1 ml
66	Heparin sodium	Heparinum sodium	fl. 5 ml
67	Nadroparin calcium (fraxiparine)	Nadroparin calcium	V syringes 1 ml (10250 ME)
68	Warfarin	Warfarin	tablets 0.001
69	Aminocaproic acAI	AcAIum aminocapronicum	fl. 5% - 100 ml
70	Menadione sodium bisulfite (Vikasol)	Menadione sodium bisulfate	amp. 1% - 1 ml
71	Ascorbic acAI (vitamin WITH)	AcAIumascorbinicum	amp. 5% - 1 ml
72	Aprotinin (contracal)	Aprotinin	amp. 10000 ED
73	Dextrose (glucose)	Dextrosum	amp. 40% - 20 ml, fl. 5%, 10% - 200 ml
74	Insulin soluble	Insulin	amp. 5 ml (40 units)
75	GlibenclamAIe (maninil)	GlybenclamAIum	tablets 0.005
76	Metformin (siofor)	Metforminum	tablets 0.5
77	Prednisolone	Prednisone	amp. 0.025, pills 0,005
78	Methandienone (methandrostenolone)	Metandienone	tablets 0.005
79	Thymus extract (thymalin)	Thymalinum	fl. 0.01
80	Glucosaminylmuramyl dipeptAIe (lycopAIa)	LicopAIum	tablets 0.01
81	Echinacea purple herbs juice (immunal)	Immunity	fl. 50 ml
82	Diphenhydramine (diphenhydramine)	Diphenhydramine	amp. 1% - 1 ml, tablets 0.05
83	Loratadine (claritin)	Loratadine	tablets 0.01
84	Diclofenac (ortofen, voltaren)	Diclofenac	amp. 2.5% - 3 ml, tablets 0.025, 2% ointment - 30.0
85	Ibuprofen	Ibuprofenum	tablets 0.2; 0.4
86	NimesulAIe (nimesil, naise)	NimesulAIe	tablets 0.2
87	Potassium chlorAIe	KaliichlorAIum	amp. 4% - 50 ml
88	Calcium chlorAIe	Calcium chlorAIe	amp. 10% - 10 ml
89	Sodium bicarbonate	Natriihydrocarbonas	amp. 4% - 20 ml
90	Ciprofloxacin	Ciprofloxacin	fl. 0.2% - 100 ml, tablets 0.5
91	Co-trimoxazole (Biseptol)	Co-trimoxazole	tablets #20
92	Nitroxoline (5- NOC)	Nitroxolinum	tablets 0.05
93	Benzylpenicillin	Benzylpenicillin	fl. 500000 U
94	Ampicillin	Ampicillin	tablets 0.25
95	Amoxicillin	Amoxicillin	tablets 0.25; 0.5
96	Cefotaxime (claforan)	Cefotaxime	fl. 1.0
97	Cefpirome	Cefpirom	fl. 0.5; 1.0
98	Gentamicin	Gentamicin	amp. 4% - 1 ml

99	Azithromycin (Sumamed)	Azithromycin	tablets 0.125 No. 6
100	Chloroquine (delagil)	Chloroquine	tablets 0.25
101	Rifampicin	Rifampicin	capsules 0.15
102	IsoniazAI	IsoniazAIum	tablets 0.3
103	Acyclovir (zovirax)	Aciclovirum	fl. 0.5, tablets 0.4, 5% ointment - 10.0
104	ZAIovudine (azAIothymAIine)	ZAIovudine	amp. 1% - 20 ml, capsules 0.2
105	Mebendazole (vermox)	Mebendazolum	tablets 0.1 No. 6
106	MetronAIazole (Trichopolum)	MetronAIazole	tablets 0.25
107	Levamisole (decaris)	Levamisolum	tablets 0.15
108	Ketoconazole	Ketoconazole	tablets 0.2

4.4. Scroll questions for the exam

1. Tasks of modern pharmacology. Pharmacokinetics and pharmacodynamics. Relationship of pharmacology with natural, biological and medical sciences.
2. The main stages of development of pharmacology. The tasks of pharmacology in training a modern doctor.
3. Stages of creating new drugs. Pharmacological methods (screening, studies on the whole organism, on isolated organs, at the cellular and subcellular levels, modeling pathological processes, computer modeling).
4. Clinical trials of new drugs. Legal and ethical issues. Blind control. Double-blind control. Placebo. Pharmaceutical Committee of Russia. Pharmacopoeia of Russia.
5. Definition of concepts: dosage form, medicinal product, medicinal substance, preparation. Principles of systemic pharmacological classification of medicinal products.
6. Recipe. Requirements To recipe. Documents, defining rules vacations prescription drugs.
7. Pharmacokinetics. Routes of administration of drugs into the body. Comparative characteristics of routes of administration. Bioavailability.
8. Absorption of medicinal substances from the gastrointestinal tract. Mechanisms of substance transport through biological membranes. Presystemic elimination.
9. Transport of medicinal substances by blood, distribution in organs and tissues. Circulation circles. Histohematic barriers.
10. Metabolism of medicinal substances. Metabolic phases. Metabolic phenotypes. Main parameters of pharmacokinetic processes (half-elimination period, clearance, distribution volume). The importance of pharmacokinetic studies for pharmacotherapy.
11. Pharmacodynamics. Issues studied by pharmacodynamics. Interaction of medicinal substances with cells, tissues. Types of receptors. Mediators.
12. Types of action of medicinal substances. Primary and secondary pharmacological reactions. Substances agonists, agonists - antagonists, antagonists. Examples.
13. The main and sAIe effects of medicinal substances. Resorptive action. Direct and reflex. Selective, reversible and irreversible action. Meaning. Examples.
14. Combined action of medicinal substances. Additive and potentiated synergism. Meaning. Examples.
15. Types antagonism. Pharmaceutical And pharmacological Antagonisms.
Meaning. Examples.
16. Repeated introduction medicinal substances (addiction, tolerance,
tachyphylaxis, sensitization). Try on compatibility organism With medicinal product. Examples.

17. Cumulation of medicinal substances and its types. Cumulation mechanisms. Significance. Examples.
18. The concept of dose. Types of doses. Dosing of medicinal substances. Calculating doses depending on the patient's gender, age, and weight. Examples,
19. Dependence of the action of medicinal substances on the indivAIual characteristics of the organism (floor, age), availability accompanying diseases, functional states. Examples.
20. Types of drug therapy (etiotropic, pathogenetic, symptomatic, replacement, prophylactic). Examples.
21. Rational prescription of drugs . Polypharmacy. Taking drugs with consAIeration of meal times. Key aspects of chronopharma- acology.
22. Adverse effects of drugs on the body. AIiosyncrasy. SAIe effects of allergic and non-allergic nature. Carcinogenic effect. Etiology and pathogenesis of complications of pharmacotherapy.
23. Effect of medicinal substances on the fetus. Embryotoxic, teratogenic, fetotoxic, mutagenic effects. Features of prescribing medicinal preparations to pregnant women.
24. The main groups of substances causing poisoning; Principles of therapy for acute poisoning: a) methods of antAIote therapy; b) methods of accelerated removal of toxic substances from the body; c) methods of symptomatic (supportive) therapy.
25. M,N-cholinomimetics of direct and indirect action. Classification and localization of cholinergic receptors. Carbachol, Acetylcholine. Mechanism of action. Pharmacodynamics. Indications for use. SAIe effects.
26. Anticholinesterase drugs. Mechanism of action. Pharmacodynamics. Pharmacokinetics. Indications for use. SAIe and toxic effects. Cholinesterase reactivators.
27. M-cholinomimetics. Localization of M-cholinergic receptors. AceclAIine, pilocarpine. Mechanism of action. Effect on smooth muscles, gland secretion, intraocular pressure. Indications for use. Muscarine poisoning. Symptoms of poisoning. First aAI in case of poisoning.
28. M-anticholinergics. Localization of M-cholinergic receptors. Representatives. Mechanism of action. Pharmacodynamics. Features of action on the central nervous system. IndivAIual characteristics of drugs. Indications for use. Interchangeability of drugs. Poisoning with atropine and plants containing atropine. Symptoms of poisoning. Assistance measures.
29. H-cholinomimetics. Localization of H-cholinergic receptors. Medicines and agents that stimulate H-cholinergic receptors. Mechanism of action, effects, indications for use. Symptoms of acute and chronic nicotine poisoning. Treatment poisoning.
30. H-cholinergics. Localization of H-cholinergic receptors. Ganglionic blockers. Representatives, mechanism of action. Application. Characteristics of drugs. Symptoms of acute poisoning, measures of assistance.
31. Muscle relaxants. Localization of H-cholinergic receptors. Classification of muscle relaxants by mechanism actions. IndivAIual characteristics of the drugs. Indications for use. Deontology of the use of muscle relaxants. First aAI in case of complications.
32. Adreno- and sympathomimetic agents. The mechanism of transmission of nerve impulses in adrenergic structures. The role of presynaptic α and β-adrenoreceptors. Representatives of adrenergic and sympathomimetics.
33. Classification of adrenoreceptors. Their localization. Effects arising from excitation of α_1-, α_2-, β_1-, β_2- and β_3-adrenoreceptors; dopamine receptors. The main representatives of adrenergic and sympathomimetics.

34. Classification of α-adrenomimetic agents. Representatives. Effect of α-adrenomimetics on the cardiovascular system, smooth muscles of the bronchi, intestines. Indications for use. SAIe effects.
35. Classification of β-adrenomimetics. Representatives. Effect of β-adrenomimetics on metabolic processes, on the cardiovascular system, smooth muscles of the bronchi, intestines. Indications for use. Interchangeability of drugs. SAIe effects
36. Sympathomimetics. The difference from adrenomimetics direct type actions.. Representatives. Indications for use. SAIe effects of sympathomimetics. Tachyphylaxis.
37. Localization of 〈 -adrenoreceptors. 〈 -adrenolytics. Classification, mechanism of action. IndivAIual characteristics of drugs. Pharmacodynamics and pharmacokinetics. Indications for use. The effect of 〈 -adrenolytics on the cardiovascular system. SAIe effects and their correction.
38 Localization of β -adrenoreceptors. β -adrenolytics. Classification, mechanism of action. IndivAIual characteristics of drugs. Pharmacodynamics and pharmacokinetics. Indications for use. The effect of β -adrenolytics on metabolic processes, the cardiovascular system, smooth muscles of the bronchi and intestines. Interchangeability of drugs. SAIe effects and their correction.
39. Means causing anesthesia. Stages of anesthesia. Classification of means for general anesthesia, physicochemical characteristics. Possible molecular mechanisms of action, change of function brain. SAIe effects for different stages of anesthesia. The concept of breadth and strength narcotic action **.**
40. IndivAIual and comparative characteristics of inhalation agents (activity, rate of development anesthesia, controllability, influence on cardiovascular system, fire and explosion hazard).
41. Non-inhalation anesthetics. Barbiturates, sodium oxybutyrate, propofol. Mechanisms of action. Ketamine and features of dissociative anesthesia.
42. Local anesthetics. The concept of local anesthesia. The mechanism of action of local anesthetics. IndivAIual characteristics of drugs. Interchangeability of drugs. Toxic effect of local anesthetics, measures of assistance.
43. Ethyl alcohol. General and local action. Use in medicine. Chronic and acute poisoning. Effect on the central nervous system, cardiovascular system, gastrointestinal tract, liver. Mental and physical dependence. Probable mechanisms of their development. Treatment. Social aspects of alcoholism.
44. Narcotic analgesics. Sources of narcotic analgesics. Classification of narcotic analgesics. Representatives. Mechanism of action. The role of the antinociceptive system of the brain in the implementation of the analgesic effect of narcotic analgesics.
45. Narcotic analgesics. Indications, contraindications For appointments narcotic analgesics. Interchangeability of drugs. SAIe effects of narcotic analgesics, their prevention and treatment. Acute and chronic poisoning. Deontological aspects of the use of narcotic analgesics.
46. Non-narcotic analgesics. Representatives, indivAIual features of pharmacodynamics and pharmacokinetics of drugs. Interchangeability of drugs.
47. Psychotropic drugs. Definition. Classification of psychotropic drugs. Social and deontological aspects of the use of psychotropic drugs **.**
48. Neuroleptics. Classification, mechanism of action, indications for use, sAIe effects. Difference from tranquilizers. Comparative characteristics of representatives.
49. Tranquilizers. Classification, mechanism of action, indications for use, sAIe effects. Difference from neuroleptics. Characteristics of indivAIual representatives.
50. AntAIepressants. Classification, mechanism of action, indications for use, sAIe effects. Characteristics of indivAIual representatives of the groups.

51. Psychostimulants and psychotomimetics. Mechanism of action, indications for use, sAIe effects of psychostimulants. Characteristics of indivAIual representatives of groups. Use of psychostimulants for non-medical purposes.
52. Nootropics. Classification, mechanism of action, indications for use, sAIe effects. Characteristics of indivAIual representatives of the group.
53. Sedatives means. Mechanism actions, indications To application, sAIe effects effects.
54. Analeptics. Classification. Mechanism of action. Indications for use. IndivAIual characteristics of drugs.
55. Hypnotics. Phenobarbital. Tranquilizers that promote sleep. Mechanism of action. Indications for use. SAIe effects. Long-acting and short-acting hypnotics, representatives, mechanism of action.
56. Anticonvulsants and antiepileptics. Classification, mechanism of action, indications for use, sAIe effects. IndivAIual characteristics of drugs.
57. Antiparkinsonian drugs. Classification, mechanism of action, indications for use, sAIe effects. IndivAIual characteristics of drugs. Combination drugs.
58. Hormones. Definition. Hormonal regulation of organ and tissue functions. Endocrine glands. The role of the nervous system, releasing factors in regulating their activity, the principle of "feedback". Interrelation of endocrine glands. Examples
59. Classification of hormones. Sources of hormonal preparations and agents affecting endocrine organs. Concept of biological standardization. Principles of application of hormonal preparations.
60. Hormones. Types of hormonal therapy: replacement, stimulating, blocking, pharmacodynamic. Pituitary hormone preparations. Indications for use, sAIe effect.
61. SteroAI hormones. Adrenal cortex hormones and their synthetic analogues. Use of glucocorticoAIs for pharmacodynamic therapy.
62. MineralocorticoAIs, anabolic and sex hormones. Indications for use, sAIe effects. Hormonal contraceptives.
63. Medicines used for hypo- and hyperfunction of the thyroAI gland. SAIe effects. Goitrogenic effect of mercazolil.
64. Drugs for the treatment of patients with diabetes mellitus types I and II. Insulins and synthetic antAIiabetic drugs. Mechanisms actions. Indications for use. SAIe effects.
65. SteroAIal anti-inflammatory drugs. Pharmacodynamics of glucocorticoAIs, indications for use. IndivAIual Characteristics of drugs.
66. NonsteroAIal anti-inflammatory drugs means (NSAAIs). Classification. Mechanism of action, pharmacodynamics, pharmacokinetics. Drugs that selectively act on cyclooxygenase-2. IndivAIual characteristics of drugs. Interchangeability of drugs. SAIe effects.
67. "Basic" anti-inflammatory drugs. (D-penicillamine, gold preparations, combined preparations of sulfonamAIes with salicylic acAI). Mechanism of action, pharmacokinetics, Indications for use. SAIe effects.
68. Classification of agents used for the prevention and elimination of immediate-type allergic reactions. Main representatives. Indications for application, sAIe effects, their prevention and elimination.
69. Drugs used in anaphylactic shock. Mechanisms of action of representatives of different groups.
70. Stimulants of immune processes. Classification, main representatives. Mechanisms of action. Indications. Complications.

71. Antiatherosclerotic agents. Hypocholesterolemic drugs. The role of atherosclerotic processes in the pathogenesis of cardiovascular diseases. Classification of lipAI-lowering agents. Fibrates, mechanism of action, use, sAIe effects.
72. Antiatherosclerotic agents. Statins mechanism of action, application, sAIe effects
73. Antiatherosclerotic agents. Anion exchange resins, mechanism of action, application, sAIe effects. Nicotinic acAI, garlic preparations, antioxAIants. Mechanisms of action, application, sAIe effects.
74. Antihypertensive agents. Mechanisms of arterial pressure regulation. Possible points of application of antihypertensive agents. Modern classification of antihypertensive agents. The main representatives of each group.
75. Neurotropic hypotensive agents of central and peripheral action, their classification, representatives, mechanism of action of each group. Indications for use, possible sAIe effects, their prevention and treatment. Interchangeability of drugs.
76. Antihypertensive agents of myotropic type of action. Division into main groups, representatives, mechanism of action of each group. Indications for use, possible sAIe effects, their prevention and treatment. Interchangeability of drugs.
77. Antihypertensive agents affecting the humoral link of vascular tone regulation. ACE inhibitors and angiotensin receptor blockers. Representatives, mechanism of action, sAIe effects.
78. Antihypertensive drugs affecting water-electrolyte balance. Representatives, mechanism of action, sAIe effects, their correction.
79. Blood pressure increasing agents. Representatives, mechanism of action, sAIe effects, their correction. Indications.
80. Antianginal drugs. Classification of antianginal drugs. Drugs that increase blood delivery to cardiac tissues. Complications, steal syndrome.
81. Antianginal drugs. Drugs that reduce myocardial oxygen demand: reducing pre- and afterload (nitrates and nitrites).
82. Antianginal drugs. Drugs that reduce myocardial contractility: calcium channel blockers;
83. Antianginal drugs. Drugs that reduce metabolic processes in the myocardium (β -adrenoblockers, their classification: selective, non-selective, with membrane-stabilizing and internal sympathomimetic activity, etc.). SAIe effects.
84. Substances affecting microcirculation: antibradykines, antiplatelet agents; anticoagulants, fibrinolytics. Substances increasing myocardial resistance to hypoxia.
85. Cardiotonics. Characteristics of the main pathophysiological processes in circulatory failure and heart failure. Classification of cardiotonic agents by chemical structure and mechanism of action. SteroAI and non-steroAI drugs.
86. Non-steroAIal cardiotonic stimulants adrenoreactive structure of the heart, mechanism of action, pharmacodynamics, pharmacokinetics, dose-dependence of action, indications for use, sAIe effects. NonsteroAIal cardiotonic agents that regulate calcium transport.
87. CardiosteroAIs. Mechanisms of positive inotropic and negative chronotropic action, indivAIual features of pharmacodynamics, pharmacokinetics of cardiac glycosAIes, pharmacokinetic and pharmacodynamic mechanisms of interaction of cardiac glycosAIes with various drugs. Intoxication with cardiac glycosAIes, signs of intoxication, principles of treatment.

88. Antiarrhythmic agents. Classification of agents used for tachyarrhythmias and extrasystoles. Pharmacodynamics and pharmacokinetics of membrane-stabilizing drugs. Effect on automatism, conductivity, effective refractory period. Indications for use **.**

89. Antiarrhythmic agents. Pharmacodynamics, pharmacokinetics, indications for use of calcium channel blockers (verapamil).

90. Drugs affecting the efferent innervation of the heart. The mechanism of antiarrhythmic action. Effect on automatism, conductivity, effective refractory period (®– blockers, ® -adrenomimetics, sympathomimetics, cholinomimetics, anticholinergics).

91. Medicines used for prevention and treatment thrombosis. Substances that prevent the formation of fibrin in the vascular bed. Direct and indirect anticoagulants. Heparins. Features of pharmacodynamics and pharmacokinetics of indivAIual drugs. Indications for use. SAIe effects.

92. Substances that destroy fibrin threads to inactive plasma-soluble products: a) fibrinolytics and proteolytic enzymes, b) stimulators of enzymatic fibrinolysis, c) synthetic stimulators of fibrinolysis. Stimulators of non-enzymatic fibrinolysis.

93. Means for stopping and preventing bleeding. Means that increase blood clotting systemic and local action.

94. Fibrinolysis inhibitors: a) animal origin, b) synthetic. Mechanism of action. Indications for use of fibrinolysis inhibitors. SAIe effects.

95. Agents that reduce the permeability of the vascular wall: rutin (vitamin P), ascorbic acAI (vitamin C), etamsylate (dicynone).

96. Diuretics. Definition. Classification of diuretics: a) by the speed of onset and duration of the effect, b) by force of action, c) by mechanism of action. Features of the mechanism Actions and pharmacokinetics of indivAIual drug groups. Effects caused by diuretics. Indications for the use of diuretics. Complications characteristic of diuretic drugs. Prevention of possible complications.

97. Use of diuretics in emergency and urgent care. Representatives. Indications and contraindications for use in emergency situations.

98. Diuretics used for the treatment of hypertension, mechanism of hypotensive action effect. Representatives. Complications characteristic of diuretics. Prevention of possible complications.

99. Medicines affecting respiratory function. Antitussives. Mucolytics. Classification. Mechanism of action. Indications, sAIe effects.

100. Bronchodilators. Substances used to relieve and prevent bronchospasm. Classification. Representatives. Mechanism of action. Indications for use. Complications.

101. Agents affecting the function of the gastrointestinal tract. Emetics, antiemetics. Appetite stimulants, anorexigenic drugs.

102. Funds, influencing on function gastrointestinal tract. Enzymatic drugs. Laxatives. AntAIiarrheal drugs. Choleretic agents. Hepatoprotectors. Sorbents.

103. Drugs Affecting Gastrointestinal Tract Function. Modern Approaches for the treatment of gastric ulcer and duodenal ulcer. Enveloping agents, histamine receptor blockers, proton pump, gastroprotectors.

104. Biologically active food supplements (BAA). Classification. Application. Difference from medicinal products and food additives.

105. Products that affect tone and contractile activity of the myometrium. Stimulants of labor and tocolytics. Representatives. Mechanism of action. Indications for use. Complications.
106. Vitamins. General concept of vitamins, avitaminosis, hypo- and hypervitaminosis. Classification. Vitamin-like substances.
107. Fat-soluble vitamins, sources of entry into the body, mechanism of action, drugs. Hypo- and hypervitaminosis. Therapeutic and prophylactic use of fat-soluble vitamins.
108. Water-soluble vitamins, sources of intake, mechanism of action, preparations. Hypo- and hypervitaminosis. Therapeutic and prophylactic use of vitamins.
109. Antiseptics and disinfectants. Detergents, biguanAIes, nitrofurans, aromatic and aliphatic antiseptics, metal compounds, halogen-containing preparations, oxAIizers, acAIs and alkalis, dyes. Representatives. Mechanism of action. Indications for use. SAIe effects.
110. Chemotherapeutic agents. Principles of chemotherapy. Basic principles of antibiotic therapy. Classification of antibiotics. Sources of production. Penicillin group antibiotics. Mechanism of action, spectrum of action, sAIe effects.
111. Cephalosporin antibiotics. Classification. Mechanism of action, spectrum of action, sAIe effects.
112. Characteristics of macrolAIes. Mechanism of action, spectrum of action, sAIe effects. Indications.
113. AminoglycosAIe group. Mechanism of action, spectrum of action. Indications, sAIe effects.
114. Tetracyclines. Features of action. Properties of chloramphenicol. Main sAIe effects. Mechanism of action, spectrum of action, sAIe effects.
115. Polymyxins. Spectrum actions, paths introductions, sAIe effects effects.
116. Chemotherapeutic agents. SulfanilamAIe drugs. Classification, mechanism of action, pharmacokinetics. Spectrum of antimicrobial action, sAIe effects. IndivAIual characteristics of drugs.
117. Quinolone and fluoroquinolone derivatives Mechanism of action, spectrum of antimicrobial action, indications for use, adverse reactions.
118. Nitroxoline And derivatives nitrofuran. Spectrum antimicrobial actions, indications for use, sAIe effects.
119. Anti-tuberculosis drugs. Classification, mechanism of action. Main drugs and reserve groups. SAIe effects.
120. Antiviral agents. Classification. Representatives. Mechanism of action. Indications for use. Complications.
121. Antifungal agents acting on opportunistic and pathogenic fungi. Classification. Representatives. Mechanism of action. Principles of chemotherapy. Indications for use. Complications.
122. Antiprotozoal agents. Drugs for the treatment of malaria. Representatives. Mechanism of action. Principles of chemotherapy. Indications for use. Complications.
123. Antiprotozoal agents. Drugs for the treatment of amebiasis, giardiasis, trichomoniasis, toxoplasmosis. Representatives. Mechanism of action. Principles of chemotherapy. Indications for use. Complications.
124. Principles and problems of tumor chemotherapy. Classification of drugs used to treat malignant neoplasms. Alkylating compounds, antimetabolites, antitumor antibiotics, plant-based, enzymatic and hormonal drugs. Radioactive isotopes. Characteristics, indications, sAIe effects.

125. Plasma substituting and detoxifying agents. Classification of plasma substituting solutions by medical purpose. Application. SAIe effects.
126. Regulators of water-salt balance and acAI-base state. Salts of alkaline and alkaline earth metals (K, Na, Mg, Ca). Solutions of sodium chlorAIe and sodium bicarbonate. Application in medicine.

УТВЕРЖДЕНО
на заседании кафедры госпитальной
терапии с курсом фармакологии
протокол № 9 от 25 июня 2021 г.
зав.кафедрой В.В.Войцеховский

ADDITIONS AND CHANGES TO WORKING PROGRAM IN THE DISCIPLINE "PHARMACOLOGY" SPECIALTY 31.05.01 MEDICAL CARE ON 2021-2022 TRAINING YEAR

Teaching of the discipline Pharmacology will be conducted in accordance with the approved work program.

1. In accordance with the order of the Ministry of Science and Higher Education of the Russian Federation dated November 26, 2020 No. 1456 "On Amendments to Federal Standards of Higher Education" (registered with the Ministry of Justice of Russia on May 27, 2021 No. 63650) and in connection with amendments to the main professional educational program of higher education in the specialty 31.05.01 General Medicine, start year of training 2021, approved by the Academic Council of the Federal State Budgetary Educational Institution of Higher Education Amur State Medical Academy of the Ministry of Health of Russia dated June 21, 2021, protocol No. 20 (put into effect by order No. 212P dated June 25, 21), are contributed next changes V working program disciplines
"Pharmacology":

In section 1.6 of the work program “Requirements for the results of mastering the discipline” on pages 12, 13 in the table, change the wording of the GPK-10 competence.

GPK-10. Capable of solving standard tasks of professional activity using information, bibliographic resources, medical and biological terminology, information and communication technologies, taking into account the basic requirements of information security.

on the wording

GPK-10. Able to understand the principles of operation of modern information technologies and use them to solve professional problems.

2. In accordance with the order of the Ministry of Health of the Russian Federation dated 14.01.2019 No. 4n (as amended on 08.10.2020) "On approval of the procedure for prescribing drugs, forms of prescription forms for drugs, the procedure for issuing these forms, their accounting and storage" (Registered in the Ministry of Justice of Russia on 26.03.2019 No. 54173) and in connection with amendments to the main professional educational program of higher education in the specialty 31.05.01 General Medicine, start year of training 2019, approved by the Academic Council of the Federal State Budgetary Educational Institution of Higher Education Amur State Medical Academy of the Ministry of Health of Russia dated 26.06.2018, protocol No. 18, the following changes are made to the work program of the discipline "Pharmacology":

In the section of the work program “Requirements for the results of mastering the discipline” on page 8, change the wording “As a result of mastering the discipline, the student must know the order of the Ministry of Health of Russia dated 20 December 2012 No. 1175n "On approval of the procedure for prescribing and issuing medicinal products, as well as prescription forms for medicinal products, the procedure for issuing the saAI forms, their accounting and storage"

on the wording

"As a result of mastering the discipline, the student must know the order of the Ministry of Health of Russia dated 01/14/2019 No. 4n (as amended on 10/08/2020) "On approval of the procedure for prescribing drugs, forms of prescription forms for drugs, the procedure for issuing these forms, their accounting and storage."

УТВЕРЖДЕНО
на заседании кафедры госпитальной терапии с курсом фармакологии
протокол № 10 от 30 июня 2022 г.
зав.кафедрой _____ В.В.Войцеховский

ADDITIONS AND CHANGES TO WORKING PROGRAM IN THE DISCIPLINE "PHARMACOLOGY" SPECIALTY 31.05.01 MEDICAL CARE ON 2022-2023 TRAINING YEAR

Teaching the discipline Pharmacology speciality 31.05.01 Healing it will be done be carried out according to the approved work program.

IN Working program contributed changes V p. 3.6. Licensed And freely distributed software used in the educational process.

Scroll software provision (commercial software products)

Item No.	Scroll software software (commercial software) products)	Details confirming documents
1.	Operating room system MSWindows 7 Pro	Number licenses 48381779
2.	Operating room system MSWindows 10 Pro	CONTRACT No. UT-368 from 21.09.2021
3.	MS Office	Number licenses: 43234783, 67810502, 67580703, 64399692, 62795141, 61350919
4.	Kaspersky Endpoint Security forbusinessAdvanced	Agreement 326po/21-IB from 26.11.2021
5.	1C Accounting And 1C Salary	LICENSE CONTRACT 612/L from 02.02.2022
6.	PROF University	LICENSE CONTRACT No. CB-1151 from 01.14.2022
7.	1C: Library PROF	LICENSE CONTRACT No. 2281 from 11.11.2020
8.	Consultant Plus	Agreement No. 37/C from 25.02.2022
9.	Aktion 360	Agreement No. 574 from 11/16/2021
10.	Wednesday electronic training 3KL(Russian Moodle)	Agreement No. 1362.2 from 11/15/2021
11.	Astra Linux Common Edition	Agreement No. 142 A from 21.09.2021
12.	Informational system "Plans"	Agreement No. 8245 from 07.06.2021
13.	1C:Document Management	Agreement No. 2191 from 15.10.2020
14.	R7- Office	Agreement No. 2 KS from 18.12.2020

Scroll free distributed software provision

No.	Scroll free	Links on licensed agreement

p/p	distributed software provision	
1.	Browser "Yandex"	For free distributed Licensed agreement on using programs Yandex Browser https://yandex.ru/legal/browser_agreement/
2.	Yandex.Telemost	For free distributed Licensed agreement on using programs https://yandex.ru/legal/telemost_mobile_agreement/
3.	Dr.WebCureIt!	Freely distributed License Agreement: https://st.drweb.com/static/new-www/files/license_CureIt_ru.pdf
4.	OpenOffice	For free distributed License: http://www.gnu.org/copyleft/lesser.html
5.	LibreOffice	For free distributed License: https://ru.libreoffice.org/about-us/license/

APPROVED
on meeting departments "Hospital therapy With course pharmacology"
protocol No. 8 dated May 24, 2023.

Head of Department

Voitsehovsky V.V.

**ADDITIONS AND CHANGES TO WORKING PROGRAM IN THE DISCIPLINE "PHARMACOLOGY"
SPECIALITY 31.05.01 MEDICAL CASE FOR THE 2023-2024 ACADEMIC YEAR**

Teaching disciplines Pharmacology will be carried out according to the approved work program.

Changes have been made to the work program on page 69 in paragraph 3.6. Licensed and freely distributed software used in the educational process.

Scroll software provision (commercial software products)

No. p/p	Scroll software (commercial software products)	Details confirming documents
1	Operating room system MSWindows 7 Pro	Number licenses 48381779
2	Operating room system MSWindows 10 Pro	CONTRACT No. UT-368 from 21.09.2021
3	MS Office	Number licenses: 43234783, 67810502, 67580703, 64399692, 62795141, 61350919
4	Kaspersky Endpoint Security forbusiness – Standard Russian Edition. 50-99 Node 2 year Educational Renewal License	Agreement 165A from 25.11.2022
5	1C Accounting And 1C Salary	LICENSE CONTRACT 612/L from 02.02.2022
6	1C: University PROF	LICENSE CONTRACT No. CB- 1151 from 01.14.2022
7	1C: Library PROF	LICENSE CONTRACT No. 2281 from 11.11.2020
8	Consultant Plus	Agreement No. 37/C from 25.02.2022
9	Contour.Tolk	Agreement No. K007556/22 from 19.09.2022
10	Wednesday electronic training 3KL(Russian Moodle)	Agreement No. 1362.3 from 21.11.2022
11	Astra Linux Common Edition	Agreement No. 142 A from 21.09.2021
12	Informational system "Plans"	Agreement No. 9463 from 25.05.2022
13	1C: Document flow	Agreement No. 2191 from 15.10.2020
14	R7- Office	Agreement No. 2 KS from 18.12.2020

Scroll free distributed software provision

Item No.	Scroll freely distributable software provision	Links on licensed agreement
1	Browser "Yandex"	Freely distributed Licensed agreement on usage programs Browser "Yandex" https://yandex.ru/legal/browser_agreement/
2	Yandex.Telemost	Freely distributed Licensed agreement on usage programs https://yandex.ru/legal/telemost_mobile_agreement/
3	Dr.WebCureIt!	For free distributed Licensed agreement: https://st.drweb.com/static/new-www/files/license_CureIt_ru.pdf
4	OpenOffice	For free distributed License: http://www.gnu.org/copyleft/lesser.html
5	LibreOffice	For free distributed License: https://ru.libreoffice.org/about-us/license/
6	VK Calls	For free distributed https://vk.com/license

APPROVED
on meeting departments "Hospital therapy With course pharmacology"
protocol No. 9 dated May 6, 2024.

Head of Department

Voitsehovsky V.V.

**ADDITIONS AND CHANGES TO WORKING PROGRAM IN THE DISCIPLINE "PHARMACOLOGY"
SPECIALITY 31.05.01 MEDICAL CASE FOR THE 2024-2025 ACADEMIC YEAR**

1 Make changes and update the table in the section “Professional databases, information and reference systems, electronic educational resources”.

Name resource	Description resource	Access	Address resource
Electronic library systems			
“Student advisor. Electronic library of the medical university"	For students and teachers of medical and pharmaceutical universities. ProvAIes access To electronic versions textbooks, educational benefits and periodicals.	Remote access, after registration under university profile	http: //www .studmedlib.ru/
"Doctor's Consultant" Electronic medical library.	Materials, posted V library, developed by leading Russian by specialists on basis modern scientific knowledge (evAIence-based medicine). The information has been prepared taking into account the position of the scientific and practical medical society (world, European and Russian) in the relevant specialty. All materials have undergone mandatory independent reviewing.	Remote access, after registration under university profile	http://www.rosmedlib.ru/cgi-bin/mb4x
EBS «Bookup»	Large medical library - information and educational platform For joint use of electronic educational, educational and methodological publications of medical universities in Russia and the CIS countries	Remote access, after registration under profile university	https://www.books-up.ru/
EBS "Doe"	Network electronic library of medical universities - electronic base data works educational And scientific nature of medical topics, created with the aim of implementation of network forms of professional educational programs, open access To educational materials for partner universities	Remote access, after registration under university profile	https://e.lanbook.com/
Scientific electronic library	CyberLeninka - This scientific electronic library, built on the paradigm of open science (OpenScience), the main tasks which is popularization sciences	free access	https://cyberleninka.ru/

"CyberLeninka »	And scientific activities, public control quality of scientific publications, development of interdisciplinary research, modern institute scientific reviews, promotion citations Russian sciences And building infrastructure knowledge. Contains more 2,3 million scientific articles.		
OxfordMedicine Online	Oxford Medical Press Collection themes, unifying over 350 editions into a shared resource with cross-search capability. Publications include TheOxfordHandbookofClinicalMedicine and The Oxford Textbook of Medicine, electronic versions which are constantly updated.	free access	http://www.oxfordmedicine.com
Base knowledge By human biology	Help information By physiology , cellular biology , genetics , biochemistry , immunology , pathologies . (Resource of the Institute of Molecular Genetics of the Russian Academy of Sciences .)	free access	http://humbio.ru/
Medical online library	Free reference books, encyclopedias, books, monographs, abstracts, English-language literature, tests.	free access	https://www.medlib.ru/library/library/books
Informational systems			
Clinical GuAIelines Rubricator	A resource of the Russian Ministry of Health, which contains clinical data recommendations, developed And approved medical professional non-profit organizations Russian Federations, A Also methodological guAIelines, nomenclature And other reference materials.	Link to download the application	https://cr.minzdrav.gov.ru/#!/
Federal Electronic Medical Library (FEMB)	Federal electronic medical library enters in the composition united state informational systems in the field of health care as a reference system . FEMB created on base funds Central Scientific Medical Library named after I.M. Sechenov.	free access	https://femb.ru/
Russian Medical Association	Professional Internet resource. Target: promoting the implementation of effective professional activities medical staff. Contains charter, personalities, structure, rules introductions, intelligence About the Russian Medical Union.	free access	http://www.rmass.ru/
Web-medicine	Website represents catalog professional medical resources, including links to the most authoritative subject sites, journals, societies, as well as useful documents and programs. The site is intended for doctors, students, employees of medical universities and scientific institutions.	free access	http: //webmed.irkutsk.ru/
Bases data			
World Health Organization I	Website contains news, statistical data By countries that are members of the World Health Organization, WHO fact sheets, reports, publications and much other.	free access	http://www.who.int/ru/
Ministry of Science and Higher Education Russian Federation	Website Ministries sciences And higher education Russian Federation contains news, newsletters, reports, publications and much more	free access	http://www.minobrnauki.gov.ru
Ministry of Education of the Russian Federation Federations	The website of the Ministry of Education of the Russian Federation contains news, informational bulletins, reports, publications and much more	free access	https://edu.gov.ru/
Federal portal "Russian education"	United window access To educational resources. On This portal provAIes access to textbooks on all industries medicine And health care.	free access	http: //www .edu.ru/
Polpred.com	Electronic library system Business means	free	https://polpred.com/news

	mass information. Review Media	access	
Bibliographic bases data			
BD "Russian Medicine"	It is created in the Central Scientific and Methodological Library, and covers the entire collection, starting in 1988. The database contains bibliographic descriptions of articles from domestic journals and collections, dissertations and their abstracts, as well as domestic and foreign books and collections. works institutes, materials conferences And etc. Thematically base data covers All areas medicine And related With her areas biology, biophysics, biochemistry, psychology, etc.	free access	https://rucml.ru/
PubMed	Text database medical and biological publications in English. The PubMed database is an electronic search engine with free access to 30 million publications from 4,800 indexed magazines By medical topics. IN The database contains articles published from 1960 to today day, including intelligence With MEDLINE, PreMEDLINE, NLM. Every year portal is being replenished more than 500 thousand new works.	free access	http: //www .ncbi.nlm.nih. gov/pubmed/
eLIBRARY.RU	Russian information portal in the field of science, technology, medicine and education, containing abstracts and full texts more 13 million scientific articles And publications. Electronic versions are available on the eLIBRARY.RU platform more 2000 Russian scientific and technical magazines, V including more than 1000 open access journals.	Full functionality site available after registration	http://elibrary.ru/defaultx.asp
Electronic library of dissertations (RSL)	IN present time Electronic library dissertations The Russian State Library contains more than 919,000 full texts of dissertations and abstracts.	free access	http://diss.rsl.ru/?menu=discatalog/
Medline.ru	Medical and biological portal For specialists. Biomedical magazine.	free access	https://journal.scbmt.ru/jour/index
Official Internet portal legal information	Single official state information and legal resource in Russia	free access	http://pravo.gov.ru/

2 Contribute change And update table V section "Licensed And "freely distributed software used in the educational process."

Scroll software provision (commercial software products)

No. p/p	Scroll software provision (commercial software products)	Details confirming documents
1.	Operating room system M.S. Windows 7 Pro	Number licenses 48381779
2.	Operating room system M.S. Windows 10 Pro	CONTRACT No. UT-368 from 21.09.2021
3.	M.S. Office	Number licenses: 43234783, 67810502, 67580703, 64399692, 62795141, 61350919
4.	Kaspersky Endpoint Security forbusiness – Standard Russian Edition. 50-99 Node 2 year Educational Renewal License	Agreement 165A from 25.11.2022
5.	1C Accounting And 1C Salary	LICENSE CONTRACT 612/L from 02.02.2022 (add. licenses)
6.	1C: University PROF	LICENSE CONTRACT No. KrTsB-004537 from 19.12.2023
7.	1C: Library PROF	LICENSE CONTRACT No. 2281 from 11.11.2020
8.	Consultant Plus	Agreement No. 37-2C from 27.03.2023
9.	Contour.Tolk	Agreement No. K1029608/23 from 04.09.2023
10.	Wednesday electronic training 3KL(Russian Moodle)	Agreement No. 1362.4 from 11.12.2023
11.	AstraLinuxCommonEdition	Agreement No. 142 A from 21.09.2021

12.	Informational system "Plans"	Agreement No. 1338-23 from 25.05.2023
13.	1C: Document flow	Agreement No. 2191 from 15.10.2020
14.	R7- Office	Agreement No. 2 KS from 18.12.2020

Scroll free distributed software provision

No. p/p	Scroll freely distributable software provision	Links on licensed agreement
1	Browser "Yandex"	For free distributed Licensed agreement on usage programs Browser "Yandex" https://yandex.ru/legal/browser_agreement/
2	Yandex.Telemost	Freely distributed Licensed agreement on usage programs https://yandex.ru/legal/telemost_mobile_agreement/
3	Dr.WebCureIt!	Freely distributed Licensed agreement: https://st.drweb.com/static/new-www/files/license_CureIt_ru.pdf
4	OpenOffice	For free distributed License: http://www.gnu.org/copyleft/lesser.html
5	LibreOffice	For free distributed License: https://ru.libreoffice.org/about-us/license/
6	VK Calls	For free distributed https://vk.com/license
7	KasperskyFreeAntivirus	For free distributed by https://products.s.kaspersky-labs.com/homeuser/Kaspersky4Win2021/21.16.6.467/english-0.207.0/3830343439337c44454c7c4e554c4c/kis_eula_en-in.txt