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Federal State Autonomous Educational Institution of Higher Education
PEOPLES' FRIENDSHIP UNIVERSITY OF RUSSIA
RUDN University

Institute of Medicine
educational division - faculty/institute/academy

COURSE DESCRIPTION

31.05.01 General Medicine
field of studies / speciality code and title

2022-2023

Course Title	**Topical issues of integrative medicine**
Course Workload	Credits and academic hours – **2/72**
Course contents	
Course Module Title	**Brief Description of the Module Content**
Introduction to Integrative Medicine	**Topic 1.1.**The body from the perspective of modern medicine. The disease from the perspective of modern medicine.
Scientific and practical aspects of the system of integrative medicine	**Topic 2.1.** Biochemical portrait of a healthy and sick person. **Topic 2.2.** Connective tissue is the main morpho-functional link in the development of diseases in a living organism. The main proteins of connective tissue are collagen and elastin. Synthesis. Features. **Topic 2.3.** Multilevel system-cybernetic organization of connective tissue components. Multiple dysplasia is the basis for a deeper analysis of human health. **Topic 2.4**. Integrative relationship of protein, lipid and carbohydrate metabolism. **Topic 2.5.** Integrative relationship of mineral and vitamin metabolism.
Integration of the body	**Topic 3.1.** The idea of the integration of the body. General theory of systems. From the cell to the tissues, organs and the whole organism. The body is an integration of complex systems.
Strategy and tactics of the treatment process in the system of integrative medicine	**Topic 4.1.** Integrative diagnostics. Integrative schemes of treatment, medical rehabilitation and prevention of diseases. **Topic 4.2**. Integrative approach in clinical medicine. **Topic 4.3**. Principles of integrative treatment: consistency, metabolism.
Fundamentals of traditional Oriental medicine.	**Topic 5.1.**Phytotherapy in the system of integrative medicine. **Topic 5.2.** Integrative approach to reflexology. Acupuncture as a system of diagnostic and therapeutic methods. **Topic 5.3.** Ayurveda in the system of integrative medicine. Ayurveda is the art of life. Ayurveda is a holistic system of medicine.

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COURSE DESCRIPTION

31.05.01 General Medicine

field of studies / speciality code and title

Course Title	***Introduction to Nutritional science***
Course Workload	Credits and academic hours – **2/72 hours**
Course contents	
Course Module Title	**Brief Description of the Module Content**
Introduction to Nutritional science	Value nutrition in human life. Nutrition, food products and nutrients.
Energy metabolism. Energy requirements.	Energy expenditure of the body and energy requirements. Food as a source of energy. Energy balance. Change of body weight. Energy balance and obesity.
Macronutrients. Micronutrients.	Proteins. Lipids. Carbohydrates. Water. The structure, classification, properties, digestion, absorption, transportation and nutritional value of macronutrients.
	Vitamins. Chemical elements. Amino acids. The general physiological role of vitamins, chemical elements and amino acids. Prevention of loss of vitamins for cooking and storing food. Food is the source of minerals. Prevention of micronutrient deficiencies from food.
Non-nutrient bioactive substances in food.	Minor components of food. Protective components of food products. Non-nutrient and some other components of food that have an adverse effect on the body. Chemical changes in basic nutrients during cooking.
Nutritional value of food products. Nutrition and human health.	Nutritional, biological values and dietary properties of the main groups of food products (home-cooked food and catering).
	Advanced approaches, principles and recommendations. Diseases associated with malnutrition. The link between food, nutrition and non-communicable diseases**.**

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COURSE DESCRIPTION

31.05.01 General Medicine

field of studies / speciality code and title

2022-2023

Course Title	Latin language
Course Workload	Credits and academic hours 3 credits 108 academic hours
Course contents	
Course Module Title	**Brief Description of the Module Content**
Anatomical and histological terminology	T. 1 Latin Alphabet. Diphthongs and digraphs. Reading and word stress rules. T.2 The system of Latin nominal declension. The rule for determining the declension of nouns. Dictionary form of nouns. T.3 Nouns of the first declension. Non-agreed attributes. The structure of phrases consisting of nouns. T.4 Nouns of the second declensions. T.5 The first and second declension of adjectives. Dictionary form of adjectives. Agreed attributes. The structure of phrases consisting of nouns and adjectives. T.6 Degrees of comparison of adjectives. Features of their use in medical terminology. T.7 Prefixation. T.8 Nouns of the third declensions. Types of the third of declension: consonant, mixed and vowel. T.9 Nouns of the fourth declensions. T.10 Nouns of the fifth declension.
Clinical terminology	T. 1 Prefixation and suffixation as ways of word formation in Latin. T. 2 Introduction to Clinical Terminology. Classification of clinical terms. T. 3 Basics. Greco-Latin doublets. Single term elements. T. 4 Greek TE, denoting body parts, organs, and tissues. T. 5 Greek TEs for Therapeutic and Surgical Techniques T. 6 Greek TE, denoting functional and

	pathological processes, states. T. 7 Greek TE, denoting various physical properties and qualities.
Pharmaceutical terminology	T. 1 Names of medicinal substances. Frequency segments in the names of medicines. T. 2 Verbs in pharmaceutical terminology. Imperative. Conjunctive. Personal Endings of the Active and Passive Voice. Basic formulations of the prescription. T. 3 Forms of medicines. T. 4 Prepositions. Accusativus. Ablativus. Prepositions used with prescriptions. T. 5 Recipe Structure. T. 6 Chemical Terminology. Names of chemical elements. Ways of forming names of acids, salts, oxides. T. 7 Essential abbreviations used in prescriptions.

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COURSE DESCRIPTION

31.05.01 General Medicine

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2022-2023

Course Title	Law Science
Course Workload	Credits and academic hours – 2/72
Course contents	
Course Module Title	**Brief Description of the Module Content**
Section 1. Fundamentals of the theory of law and state	Topic 1.1. Concept, sources and system of law. Topic 1.2. The concept of the state. Classification (forms) of states - administrative-territorial division, form of government, political regime. Topic 1.3. Law and order and the idea of justice. Topic 1.4. Lawful and illegal behavior. Legal liability.
Section 2 National and international law	Topic 2.1. The main issues of regulation of national and international law. Topic 2.2. Subjects of international law and the relationship between private and public international law. Topic 2.3. The concept and types of international treaties. Topic 2.4. International organizations.
Section 3 Fundamentals of constitutional law	Topic 3.1. The Constitution as the basis of the national legal system. Topic 3.2. Issues of constitutional regulation - constitutional legal relations. Topic 3.3. Sources of the constitutional law of the Russian Federation. Topic 3.4. Fundamentals of the constitutional system of the Russian Federation. Topic 3.5. Rights and freedoms, as well as the constitutional duties of man and citizen.
Section 4 Fundamentals of civil law	Topic 4.1. The main issues of civil law regulation. Topic 4.2. Sources of civil law in the Russian Federation. Topic 4.3. Subjects of civil law relations. Topic 4.4. Deal and contract - types and main features. Topic 4.5. Civil liability.
Section 5 Fundamentals of criminal law	Topic 5.1. Criminal law, crime and punishment are the three main criminal law doctrines. Topic 5.2. Principles of criminal law. Topic 5.3. Criminal liability and some problems of

	execution of punishments.
Section 6 Fundamentals of legal regulation of medical activity	Topic 6.1. The main issues of regulation of medical law. Medical relations. Topic 6.2. Sources of medical law. Topic 6.3. Subjects of medical legal relations. Topic 6.4. Responsibility of medical workers. iatrogenic crimes.

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COURSE DESCRIPTION

31.05.01 General Medicine

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2022-2023

Course Title	**MATHEMATICS**
Course Workload	Credits and academic hours – 1/36
Course contents	
Course Module Title	Brief Description of the Module Content
SETS	Set notation, empty set, subset, The Real Numbers, Universal set, complement, Relationship between sets: Union, Intersection. Venn diagrams
SEQUENCES	Description of sequences, Arithmetic sequence, Geometric sequence, Convergent and divergent sequence, Limits of Special Sequences
SERIES	Partial sum, Arithmetic series, Geometrics series, Sum of an infinite sequence
SYSTEM OF EQUATIONS	Independent Equations, Dependent Equations, Inconsistent Equations, Addition method, Substitution method
MATRICES	Square matrix, diagonal matrix, identity matrix Matrix operations: Addition, Subtraction, multiplication by a number, Multiplication. The inverse matrix. Determinant. Singular matrix. Application of matrices to solving simultaneous equations.
DERIVED FUNCTION	Definition of derivative as slope or the rate of change, Rules of differentiation, Derivatives of trigonometric functions, Derivatives of inverse trigonometric functions, Derivatives of logarithmic functions, Derivatives of exponential functions
INTEGRATION	Definition of integral as area or inverse derivative, Methods of algebraic integration, Tables of integrals, Determination of areas by integration
DIFFERENTIAL EQUATIONS	Solution of differential equations By direct integration By separating the variables

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COURSE DESCRIPTION

31.05.01 General Medicine

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2022-2023

Course Title	**Medical Elementology**
Course Workload	Credits and academic hours **– 2/72**
Course contents	
Course Module Title	**Brief Description of the Module Content**
Introduction to Medical Elementology	1. Subject of medical elementology. Biological classification of chemical elements. Concept of bioelements. 2. Biogeochemistry and factors affecting the elemental status of population. 3. New paradigm of nutrition and therapy.
General elementology	4. Factors affecting the homeostasis of trace elements. Interactions between trace elements. 5. Elemental status of humans. Personalized assessment of human elemental status.
Special elementology	6. Essential trace elements (iron, zinc, copper, manganese, chromium, cobalt, molybdenum, selenium, iodine): role in the body; absorption; excretion; deficiency and toxicity; associated diseases; sources. 7. Conditionally essential trace elements (lithium, strontium, vanadium, nickel, tin, silicon, fluorine): role in the body; absorption; excretion; deficiency and toxicity; associated diseases; sources. 8. Toxic and potentially toxic trace elements (arsenic, aluminum, lead, cadmium, mercury): role in the body; absorption; excretion; toxicity; associated diseases; sources. 9. Macroelements (potassium, sodium, calcium, magnesium, phosphorus, sulfur, chlorine): role in the body; absorption; excretion; deficiency and excess; toxicity; associated diseases;

	sources. 10. Elements-organogens (carbon, oxygen, nitrogen, hydrogen): role in the body; absorption; excretion; associated diseases; sources.
Role of chemical elements in diagnostics and treatment of human diseases	11. Imbalances of chemical elements at various diseases: diseases of the skin and its appendages, diseases of the musculoskeletal, broncho-pulmonary, immune, endocrine, cardiovascular systems, childhood diseases, trace elements in oncology and hematology.

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COURSE DESCRIPTION

31.05.01 General Medicine

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Course Title	Medical rehabilitation
Course Workload	Credits and academic hours – 3/108
Course contents	
Course Module Title	**Brief Description of the Module Content**
Section 1. Organizational and methodological foundations of rehabilitation	Definition of the concept of rehabilitation. Concepts of disorders, disability, and social insufficiency. Types of rehabilitation, their goals and objectives. Medical rehabilitation. Habilitation. Rehabilitation program. Rehabilitation potential. Rehabilitation prognosis. Principles of organization of the rehabilitation process. Stages of medical rehabilitation. Organizational approaches and staffing of the rehabilitation process".
Section 2 Medical aspects of disability	Concepts of disabled person, disability. The concept of "disability". Primary, secondary, and tertiary physical disabilities. Classification of disability. Disability groups. Features (risk groups) of persons with disabilities.
Section 3 Features of medical rehabilitation of patients of different age groups	Children's rehabilitation. Current trends and assessments of children's health. Features of the child's body that must be taken into account when organizing and conducting the rehabilitation process. The main categories of vital activity of the body, which are described in the medical and social expertise of individuals, under 18 years of age.Anatomophysiological and psychological features of patients of older age groups. Problems of the elderly and senile age. Types of personality adaptation to old age. Special feature of rehabilitation of patients of older
Section 4 Means and methods of medical rehabilitation	Means of medical rehabilitation. Medical support of the rehabilitation process. Means of psychological rehabilitation. Technical means of rehabilitation. Reconstructive surgery. Physical therapy. The concept of physical therapy. External physical factors used in physical therapy. Natural and preformed healing factors. Mechanism of therapeutic action of physiotherapy. Common contraindications. Safety precautions when working in the physiotherapy

	department (office). Classification, types and forms of physical therapy. Classification of motor modes. Features and evaluation of functional examination of patients before and after exercise therapy in different motor modes. Ergotherapy Basics of medical massage. Basic techniques. Indications and contraindications. Fundamentals of reflexology. Mechanism of therapeutic action. Methods of reflexology. The technique of acupressure. Indications and contraindications. Features of reflexotherapy in the elderly, senile age and long-livers. Mechanism of therapeutic action and methods of hirudotherapy. Indications and contraindications. Technique of hirudotherapy. Possible complications. Mechanism of therapeutic action of herbal medicine. Features of the method of herbal medicine. Indications and contraindications. Mechanism of therapeutic action of apitherapy. Indications, contraindications. The mechanism of therapeutic action of aromatherapy. Methods of aromatherapy. Indications and contraindications. Climatotherapy. Factors of climate therapy. Climates. Climatic resorts. Aerotherapy. Mechanism of therapeutic action of aerotherapy. Methods. Heliotherapy. The mechanism of therapeutic action of heliotherapy. Forms of heliotherapy sessions. Indications and contraindications. Thalassotherapy. Mechanism of therapeutic action of thalassotherapy. The concept of "cold load". Indications and contraindications for thalassotherapy. Speleotherapy. Microclimatic features of natural caves and salt mines. The mechanism of therapeutic action of speleotherapy. Indications and contraindications. Peloidotherapy. Classification of peloids. The mechanism of therapeutic action of peloid therapy. Methods. Indications and contraindications. Balneotherapy. Composition and classification of the miner.mineral waters. Mechanism of action balneotherapy, Types of balneotherapy. Indications and contraindications. Rules for receiving mineral waters.

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COURSE DESCRIPTION

31.05.01 General Medicine

field of studies / speciality code and title

2022-2023

Course Title	*Methodology of teaching Russian as foreign language*
Course Workload	Credits and academic hours – 2/72
Course Contents	
Course Module Title	Brief Description of the Module Content
Teaching grammar	The role of grammar in the process of achieving the major goals of practical training trials. Selection language material. Using speech samples. Types of exercises. The noun. Gender, number, animation and case. The connection with the native language. Prepositional-case system of Russian language. Meaning cases. Principles of approach to the study and sequence of study of prepositional-case system. Difficulties in the assimilation of the case system of Russian language. Verbal system. View-time subsystem. Conjugation. Classes of verbs. Verbal notebook. Verbs of movement: a sequence of learning difficulties. Indirect meanings of verbs of motion.
Teaching vocabulary	Work on vocabulary. Lexical minimum. Types of lexical exercises. Methods of semantization of new words. Difficulties in the use of words that are similar in meaning.
Teaching phonetics	The subject and the meaning of phonetics, discrete and general phonetics, theoretical and practical phonetics. General principles of methodology of teaching pronunciation. Units of phonetics. Sounds and letters. Russian alphabet. Phonetic transcription. Work on pronunciation. Methods of producing and correction of Russian sounds. The sound system of the Russian language. Vowel sounds, articulation base reduction. Errors in pronunciation of vowels. Eliminating accent. The sound system of the Russian language. Consonants. Location and method of formation.

	Voiced / voiceless , hard / soft consonants. Methods of producing consonants. Errors in pronunciation of consonants, the elimination of an accent. The pronunciation of the word. Phonetic structure of words. Typical phonetic errors and methods to address them. Work on intonation. Characteristics of intonation structures (construction, use). Possible mistakes.
Teaching types of speech activity	Types of speech activity. Objectives and content of teaching speaking. speaking mechanisms. Teaching monologue and dialogue. Exercise for teaching speaking, examination. Types of speech activity. Teaching listening skills and mechanisms. The complexity of the exercises. Errors in teaching listening. Types of speech activity. Objectives and content of teaching reading. The requirements for academic text at an early stage. Work on the literary text. Types of speech activity. writing training: characteristics, mechanisms, exercises on writing techniques.
Organization of examinations and independent work	Functions of examination. Examinations (tests on vocabulary and grammar, by listening tests, reading tests, writing tests, oral tests. peculiarities of independent work in the training trials.
Organization of the education process	Lesson as a structural unit of the learning process. Lesson plans: the lesson step by step, the goal of learning activities, methods and means of training.

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COURSE DESCRIPTION

31.05.01 General Medicine

field of studies / speciality code and title

2022-2023

Course Title	***Molecular Genetics in practical Biology and Medicine***
Course Workload	Credits and academic hours – **2 (72)**
Course contents	
Course Module Title	**Brief Description of the Module Content**
1. Introduction into Molecular Genetics	History of Molecular Genetics. Important trends and advances in Molecular Genetics.
2. Transfer of genetic material in prokaryotes	Conjugation. Transformation. Transduction
3. Polymerase chain reaction	Polymerase chain reaction. Types of PCR. Detection of amplified products.
4. Genetic engineering. Hybridization methods	Genetic engineering. Vectors. Restriction Enzyme Digest Analysis. Hybridization methods. Types of nucleic acid hybridization.
5. DNA sequencing	History of the method. DNA sequencing techniques and their application.
6. Molecular cytogenetic techniques	Classical cytogenetics: karyotyping techniques. Fluorescence in situ hybridization (FISH). Comparative genomic hybridization (CGH)
7. Stem cells and nuclear reprogramming	Types of stem cells and their characteristics. Induced pluripotent stem cells. Nuclear reprogramming technologies.
8. Genome editing	Genome-editing technologies and their application
9. Methods of epigenetic analysis	Introduction into Epigenetics. Factors influencing the epigenotype. Methods of epigenetic analysis.

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COURSE DESCRIPTION

31.05.01 General Medicine

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Course Title	**Nervous Diseases, Medical Genetics, Neurosurgery**
Course Contents	
Course Workload	Credits and academic hours – 5/216
Course Module Title	**Brief Description of the Module Content**
1) Motor area 2) Cranial nerves 3) Sensitivity 4) Sense organs 5) Higher nervous activity 6) Cerebellum, extrapyramidal system 7) Autonomic nervous system 8) The main syndromes of damage to the brain and spinal cord 9) Somatoneurological and neurosomatic syndromes 10) Paraclinical research methods 11) Neurosurgery: introductory lesson. Methods of examination in neurosurgery 12) tumors of the central nervous system 13) Vascular diseases of the brain in	Neurology is the science of the human nervous system in normal and pathological conditions. It includes a group of disciplines that study the structure, functions of the nervous system (neuroanatomy, neurohistology, neurophysiology, etc.) and diseases of the nervous system (neuropathology). - Neurology is divided into general (propaedeutics) and private. In propaedeutics, the regularities of the structure and function of the nervous system, the basics of syndromology and topical diagnostics are considered, in private neurology - individual forms of

neurosurgery 14) Traumatic brain injury 15) Tumors of the central nervous system 16) Vascular diseases of the brain and spinal cord. Modern ideas about the classification and clinic of acute cerebrovascular accidents and chronic vascular insufficiency. 17) Vascular diseases of the brain and spinal cord. 18) Infectious and parasitic diseases of the nervous system. Treatment and prevention. 19) Diseases of the peripheral nervous system. Treatment and prevention. 20) Chronic and chronically progressive diseases: amyotrophic lateral sclerosis - ALS, myasthenia gravis, syringomyelia 16) Vascular diseases of the brain and spinal cord. Modern ideas about the classification and clinic of acute cerebrovascular accidents and chronic vascular insufficiency. 17) Vascular diseases of the brain and spinal cord. 18) Infectious and parasitic diseases of the nervous system. Treatment and	the disease of the nervous system. The discipline deals with the main diseases of the nervous system while maintaining a single plan for presenting the material: distribution, history, classification, risk factors, pathomorphology and pathogenesis, diagnosis and differential diagnosis, modern methods of treatment, prognosis, medical, social and labor rehabilitation, preventive measures. - Issues of urgent and intensive neurology, as well as neurosomatic and somato-neurological and endocrine-neurosomatic syndromes, hereditary (chromosomal and genomic), chronically progressive diseases of the nervous system, medical genetic counseling, neuroinfections, functional disorders. Within the framework of the discipline "Nervous Diseases" much attention is paid to the study of laboratory and instrumental research methods and the development of practical skills. -Neurosurgery - deals with the issues of surgical treatment of diseases of the

prevention. 19) Diseases of the peripheral nervous system. Treatment and prevention. 20) Chronic and chronically progressive diseases: amyotrophic lateral sclerosis - ALS, myasthenia gravis, syringomyelia 21) Hereditary-degenerative diseases of the nervous system. Chromosomal diseases. Genomic diseases. 22) Demyelinating diseases of the nervous system. 23) Vegetative-endocrine diseases. neuroses. 24) Epilepsy and convulsive syndromes. Fainting.	nervous system.
1) Hereditary degenerative diseases of the nervous system. Chromosomal diseases. 2) Hereditary degenerative diseases of the nervous system - genomic diseases. Diseases affecting the muscular system: extrapyramidal system, pyramidal tracts of the spinal cord and cerebellum	Medical genetics is a field of medicine, a science that studies the phenomena of heredity and variability in various human populations, the features of the manifestation and development of normal and pathological signs, the dependence of diseases on genetic predisposition and environmental conditions. The discipline deals with hereditary diseases that are common in the

	population while maintaining a single plan for presenting the material: distribution, history, classification, risk factors, pathomorphology and pathogenesis, diagnosis and differential diagnosis, modern methods of treatment, prognosis, medical, social and labor rehabilitation, preventive measures. -Issues of urgent and intensive neurology, as well as medical genetic counseling. - Within the framework of the discipline "Nervous Diseases" much attention is paid to the study of laboratory and instrumental research methods and the development of practical skills.

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COURSE DESCRIPTION

31.05.01 General Medicine

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2022-2023

Course Title	Normal physiology
Course Workload	Credits and academic hours - 8 credits (288 academic hours)
Course contents	
Course Modules	Modules content
Physiology of blood	Functions and composition of blood. Blood plasma. Corpuscular elements of blood, their functions. Leukocytes. Function of erythrocytes and blood hemoglobin. Blood groups. Rhesus factor. Blood clotting. Biophysical mechanisms. Clotting phases. The constancy of the internal environment (homeostasis). Blood constants.
Physiology of excitable tissues	Excitability and its parameters. Excitation. Characteristics of excitable tissues. Biophysics of membranes and muscle contraction. Properties of the nerve fiber, nerve. Physiology of the synapse. Muscle physiology. Skeletal muscle and its functions. Muscle strength. Types and mechanisms of muscle contractions. Fatigue and performance, the relationship between structure and function.
Physiology of the central nervous system. Physiology of the autonomic nervous system.	Reflex and its characteristics. The development of ideas about the reflex. Types of reflexes. Reflex regulation of visceral and somatic

	functions. General properties of the central nervous system. Coordination and integration of intracentral processes. Excitation and inhibition in the central nervous system. Basic properties of nerve centers. Private physiology of the central nervous system. Blood-brain barrier. Research methods of the central nervous system. Sympathetic, parasympathetic, metasympathetic NA and their functions. ANS synapses. The role of the ANS in the development of adaptive responses.
Physiology of higher nervous activity	Physiology of HNA. Conditioned reflex, types, mechanisms of formation. Dynamic stereotype. Excitation and inhibition in the cerebral cortex. I and II signaling systems. Memory. Sleep, its mechanisms, phases. Motivation and emotion, social role. Motivation as the basis of personality. Sphere of consciousness, subconsciousness, superconsciousness. Research methods of CNS.
Physiology of sensory systems	General properties of analyzer systems. The role of receptors and higher parts of the central nervous system in the perception of the external world. Physiology of vision. Physiology of hearing and vestibular apparatus. Skin analyzer. Taste and olfactory analyzers. Pain. The problem of pain in medicine. Pain perception mechanisms and pain relief.
Digestive physiology	General understanding of digestion. Digestive tract functions. Methods for studying digestive functions. Physiological bases of hunger and satiety. General principles of regulation of digestion processes. Motor and secretory functions of the digestive tract. Absorption of nutrients in the gastrointestinal tract. The role of the liver in digestion. Secretory function and digestion in various parts of the digestive tract.
Excretion physiology	Excretory system. Mechanisms of urine formation. Non-urinary functions of the kidneys. The kidneys as an organ of homeostasis. Bladder and urination. Methods for studying renal function. The role of the kidneys in the development of adaptive reactions of the body.
Physiology of the cardiovascular system	The cardiac cycle and its phases. Conductive system of the heart. The spread of excitement through the myocardium. Properties of the heart muscle. Phases of excitability. Extrasystole. Mechanisms of

	myocardial contractile activity. Nervous and humoral regulation of the heart. Research methods of the heart. Physiology of blood vessels. Basic laws of hemodynamics. Blood circulation in various parts of the vascular bed. Blood flow rate, blood pressure. Pulse. Microcirculation and lymph flow. Mechanisms of juxta and transcapillary blood flow. Mechanisms of lymph formation and exchange in interstitial spaces. Regulation of blood circulation. Vasomotor nerves. Hierarchy of vasomotor centers. Redistribution of blood. Blood flow research methods.
Respiratory physiology	External respiration. The role of the respiratory muscles. Change in pressure in the pleural cavity. Pulmonary volumes and capacities. Biophysics of gas exchange. Difference in partial pressures of gas in alveolar air, blood, tissues. Carriage of gases by blood. Oxygen transport mechanism. Dissociation curve of hemoglobin. Carrying out carbon dioxide. Respiration regulation. Breathing in changed environmental conditions. Features of breathing in the mountains. Deep diving breathing. Hypoxia and their manifestations.
Physiology of the endocrine glands	Hormones, mechanisms of action. General properties of hormones, the hierarchy in the activity of WBC. Private physiology of endocrine glands: thyroid and parathyroid glands, adrenal glands, pancreas, sex glands. Mechanisms for the integration of physiological functions.
Metabolism and energy. Thermoregulation	The laws of thermodynamics. Biophysics of energy exchange. Entropy law. Entropic and nonentropic effects in body. Basal metabolism and its determining factors. The exchange of proteins, fats, carbohydrates, vitamins and minerals. The arrival and consumption of substances in the body. Neurohumoral regulation of metabolism in the body. Physiological foundations of nutrition. Basic principles of the preparation of food rations. Body temperature and thermoreception .
Knowledge control	

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COURSE DESCRIPTION

31.05.01 General Medicine

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2022-2023

Course title:	**ONCOLOGY**
Course workload	Credits and academic hours – 3/108
Course contents	
Course module titles	**Brief Description of Model Content**
1. Lung cancer	1. The aspects of the modern instrumental, morphological and laboratory diagnostics of lung cancer are considered, together with its TNM staging. Indications and contraindications to planning and implementation of surgery, radiotherapy and drug therapy are discussed. Follow-up and rehabilitation after treatment are highlighted.
2. Breast cancer	2. Epidemiology and spread of breast cancer are described. Bio-genetic predisposing factors are discussed. The modern instrumental, morphological and laboratory diagnostics of breast cancer are considered, including its immune histochemistry and genetics. The modern radical operations, plastic surgery on breasts are described. Indications to radiotherapy, chemotherapy and hormonal therapy are discussed.
3. Stomach cancer	3. Diagnostics of stomach cancer is described, including X-ray, endoscopic and laboratory methods. Modern data on its morphology are given. Early detection of stomach cancer and TNM classification are discussed. The types of radical and palliative operation depending on localization of the tumor and its spread are described. Modern drug therapy and radiation

	therapy of stomach cancer are taught.
4. Esophageal cancer	4. The modern diagnostic methods in esophageal cancer are considered, which allow to define a tumor's stage and spread. The modern surgical operations, radiotherapy and drug therapy are described, as well as follow-up and rehabilitation.
5. Colon cancer	5. The data on the modern instrumental and laboratory diagnostics of colorectal cancers are given. Radical, cytoreductive and palliative surgery in colorectal cancer is described depending on its localization. Indications to chemotherapy and targeted therapy are discussed.
6. Hodgkin's lymphoma	6. Modern classification of lymphomas is given. Diagnostics and morphological features of Hodgkin's lymphoma are described. Its classification, modern chemotherapy and radiotherapy, complex treatment and rehabilitation are discussed.
7. Liver and pancreatobiliary cancers	7. The modern data on diagnostics and peculiarities of the course of pancreato-biliary and liver cancers are given. The aspects of jaundice control and preparation to surgery, combined and complex treatment are described Late treatment results are presented.
8. Skin cancer and melanoma	8. The epidemiological and statistical data on skin cancer and melanoma are given. Characteristic features of their local development and metastases are described. The modern surgery, radiotherapy and drug therapy of those tumors are discussed. A special emphasis is made on characteristic features of melanoma's local development and metastases.
9. Chemotherapy of malignant tumors	9. The principles of modern drug therapy of malignant tumors are discussed. The classification of anti-cancer drugs, mechanism of their action and significance for treatment of individual tumors are taught.
10. Radiation therapy of malignant tumors	10. The modern use of various kinds of irradiation for malignant tumors is described. Each kind if irradiation and its use for various malignant tumors are discussed, including radiation therapy on linear accelerators and intra-tissue irradiation. Systemic radiation therapy is also considered.
11. Thyroid carcinoma	11. Statistics and epidemiology of thyroid carcinoma. Its morphology and clinical course. Radical operations. Distant and intravenous radiation therapy. Hormonal supportive therapy.

12. Credit test	12. Credit exam in the testing and oral form according to Mark-rating system.

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COURSE DESCRIPTION

31.05.01 General Medicine

field of studies / speciality code and title

2022-2023

Course Title	**Ophthalmology**
Course Workload	Credits and academic hours – 3/108
Course contents	
Course Module Title	**Brief Description of the Module Content**
Module 1. Introduction	1.1. The history of ophthalmology. 1.2. The main tasks of General practitioners; the problem of ocular morbidity and blindness. 1.3. Evolution of the vision organ and the development of the human eye.
Module 2.	2.1 Three parts of the visual analyzer. Anatomy of the orbit. 2.2 Protective apparatus of the eye. Conjunctiva. 2.3 Lacrimal organs. Tear secrection and evocuation. 2.4 Tunics of the eyeball. 2.5 Structures of the eyeball.
Module 3.	3.1 examination of the eye with the side light and in transmitted light. The basics of biomicroscopy. 3.2 the technique of ophthalmoscopy.
Module 4.	4.1 Central and peripheral vision. 4.2 Changes of the vision fields. 4.3 Colour vision. Disorders of color perception. 4.4 Light perception. Light adaptation.
Module 5.	5.1 Optic system of the visual organ. 5.2 Visual acuity. 5.3 Physical and clinical refraction. 5.4 Accommodation and convergence.
Module 6.	6.1 Clinical refractive errors. Hypermetropia and

	myopia 6.2 Astigmatism, its types, principles of correction. 6.3 Presbyopia, principles of correction. 6.4 Refractive syrgery
Module 7.	7.1 Binocular vision. Disorders of binocular vision. 7.2 Strabismus, types. reasons. 7.3 Amblyopia. Classification. 7.4 Treatment of strabismus.
Module 8.	8.1 Diseases of the eyelids. Congenital anomalies of the eyelids. 8.2 Diseases of the lachrymal organs. Differential diagnosis. The methods of treatment. 8.3 Diseases of the orbit. Tumors of the orbit.
Module 9.	9.1 Acute infectious conjunctivitis. Classification. Treatment. 9.2 Chronic conjunctivitis. Classification. Treatment. 9.3 Allergic conjunctivitis. Classification. Treatment. 9.4 Degenerative changes the conjunctiva. Tumors of the conjunctiva
Module 10.	10.1 General symptomes of cornea diseases. Exogenous keratitis. 10.2 corneal ulcer. Etiology, clinical picture, treatment. 10.3 Avitaminoses of the cornea. 10.4 Outcomes of keratitis. Treatment of keratitis and their consequences. 10.5 Sclerites. The clinical symptomes.
Module 11.	11.1 Uveitis. Etiology and classification. 11.2 Iritis. Iridocyclitis. Clinical picture, diagnostics, treatment. 11.3 Chorioretinitis. Clinical picture, diagnostics, treatment. 11.4 Degenerative changes in the vascular tunic. Congenital anomalies.

	11.5 Tumors of the vascular tunic. Diagnosis. Treatment.
Module 12.	12.1 Retinal changes in the cases of systemic diseases. The clinical picture. Treatment. 12.2 Degenerative changes of the retina. The clinical picture. Treatment. 12.3 nflammatory and not inflammatory diseases of the optic nerve. Features of the clinical picture. Treatment. 12.4 Congenital anomalies and tumors of the retina and optic nerve. Features of diagnostics and treatment.
Module 13.	13.1 Definition of glaucoma. Normal and elevated IOP. 13.2 Etiology, pathogenesis and classification of glaucoma. 13.3 Acute attack of glaucoma. Features of the clinical picture. Treatment. 13.4 Methods of treatment of glaucoma.
Module 14.	14.1 Definition of cataract. Classification of cataracts. Link cataracts development with systemic diseases. 14.2 Modern principles of treatment of cataract. 14.3 Diseases of the vitreous body
Module 15.	15.1 The causes and classification of eye injuries. Damage to the eyelids. 15.2 Blunt trauma of the eye-ball. Trauma of the orbit. Diagnosis. Treatment. 15.3 Eye burns. Classification. The methods of treatment. 15.4 Organization of eye care. vision disability. 15.Eye prostetics.
Module 16.	16.1 features of ocular pathology in countries with a tropical climate. Classification of eye diseases in tropical countries.

	Trachoma. 16.2 Ophthalmohelminthiases (main types). 16.3 Ophthalmomyiasis. Treatment, prevention. 16.4 Change of the eye in general diseases. Treatment. 16.5 the eye diseases in cases of vitamins' deficiency, animals's and plants's poisons.

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COURSE DESCRIPTION

31.05.01 General Medicine

field of studies / speciality code and title

2022-2023

Course Title	**Organization of special care for patients**
Course Workload	Credits and academic hours – **2/72 hours**
Course contents	
Course Module Title	**Brief Description of the Module Content**
Specialized care	Organization of special care. Staff training. Job responsibilities. Medical-legal, medical-social, medical-psychological, pedagogical aspects. Organization of the patient's school.
Specialized care in neurology	Organization of care for patients with stroke, cerebral ischemia, mental disorders. Process, phases, planning, care assessment. Special care and rehabilitation products. Organization of specialized care for patients with Parkinson's disease
Specialized care for dementia patients	Organization of specialized care for patients with Alzheimer's disease. Organization of care for patients with Peak's disease (frontotemporal dementia). Special care and rehabilitation products
Specialized care in oncology	Organization of care at various stages of the oncological process. Process, phases, planning, care assessment. Communication problems Disease care. Recovery is faith and hope. Pain. Smell. The risk of development and formation of bedsores. Skin care in the irradiated area. Nutrition. Medical and protective regime. Special care and rehabilitation products
Specialized care for incontinence	Bedsores. Causes. Treatment. Process, phases, planning, assessment of care Incontinence. Incontinence problems. Causes. Treatment. Process, phases, planning, care assessment. Means of care and rehabilitation for incontinence, features of choice, selection, usage. Skin care, features of intimate hygiene. Depression. Patient's school.
Specialized care in endocrinology	Organization of specialized care for patients with diabetes. Causes. Process, phases, planning, assessment of care. The patient's school
Specialized care in pulmonology	Features of care for broncho-pulmonary pathology. Process, phases, planning, care assessment. The position of the patient in bed. Drainage laying. Oxygen therapy. Inhalation.

	Respiratory and therapeutic exercises, massage. Patient's diary. Observation, self-control, self-care. Care and rehabilitation products.
Specialized trauma care	Features of care for violations of the integrity of the musculoskeletal system, skeletal traction, plaster casts. Prevention of pressure sores, incl. under plaster casts, splints. Skin care. Prevention of pneumonia. Increased physical activity.
Specialized care for patients with HIV / AIDS	Features of invasive procedures. Process, phases, planning, care assessment. Examination and hygiene of the oral cavity as a marker of the manifestation of HIV / AIDS, the state of the body. Skin care, manicure, pedicure. Prevention of infection.

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COURSE DESCRIPTION

31.05.01 General Medicine

field of studies / speciality code and title

2022-2023

Course Title	**Outpatient Cardiology**
Course Workload	Credits and academic hours - 2 credits and 72 academic hours
Course contents	
Course Module Title	**Brief Description of the Module Content**
I. Characteristics of the main cardiovascular agents.	1. ACE inhibitors. General characteristics and place in therapy. Classification of ACE inhibitors. Features of use of some preparations. Complications and limitations to use. 2. Sartans. Sakibuthril / valsartan. 3. Beta-blockers. Characteristics of the group. Cautions and complications of beta-blocker therapy. 4. Nitrates. Characteristics of nitrates. Place nitrates in therapy. Complications and cautions when using. Nicorandil. 5. Calcium channel blockers (BCC). Dihydropyridine BCC. Complications with dihydropyridines. Pulse-thinning BPC. 6. Alpha-1-adrenoblockers 7. Diuretics. Loop diuretics. Thiazides and similar diuretics. Antagonists of aldosterone. Potassium-sparing diuretics. Inhibitors of carbonic anhydrase. 8. Antihypertensive drugs of central action. 9. Cardiac glycosides. Mechanism of action and effects. Place in modern therapy. Complications and contraindications for use 10. Antiarrhythmic drugs (AAP). AARP IA class. AARP IB class. AAS class IC. AARP class II. AARP class III. AARP class IV. Other AARPs. 11. Antithrombotic agents. Antiaggregants, anticoagulants. 12. Lipid-lowering drugs. Statins. Fibrates.

	Ezetimibe. A nicotinic acid. Final interview on the section.
II. Rational pharmacotherapy of cardiovascular diseases in outpatient practice.	1. Arterial hypertension (AH). General issues. Rational pharmacotherapy. AH in pregnancy and lactation. Resistant hypertension. Pulmonary hypertension. Pharmacotherapy of hypertensive crises. 2. Ischemic heart disease (CHD). Angina pectoris. General issues. Rational pharmacotherapy of angina pectoris. Variable angina pectoris (Prinzmetal angina). Microvascular angina pectoris (syndrome X). 3. Chronic heart failure (CHF). General issues. Rational pharmacotherapy. 4. Heart rhythm disturbances. Sinus tachycardia. Isolated sinus tachycardia. Extravital extrasystole. Ventricular extrasystole. Reciprocal AV-node tachycardia. Atrial fibrillation. Atrial flutter. Ventricular tachycardia. WPW-syndrome. Final interview on the section.
III. Some features of outpatient management of cardiac patients	1. Indications for consultation of a cardiologist and necessary studies before consultation. 2. AH, angina of tension, CHF. 3. Atrial fibrillation. Atrial flutter. 4. Other rhythm disturbances. 5. Postponed myocardial infarction, coronary angioplasty, aorto-coronary bypass. Final interview on the section. Final interview on discipline.

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COURSE DESCRIPTION

31.05.01 General Medicine
field of studies / speciality code and title

2022-2023

Course title	Pathological Anatomy, Clinical Pathologic Anatomy.
Course workload	Credits and academic hours – 8/288
Course contents	
Course Module Title	**Brief description of the module content**
Pathologic anatomy of cells and tissues	Necrosis. Apoptosis. Intracellular accumulation: hyaline changes. Amyloidosis. Pathologic calcification (calcifications). Disorders of the metabolism of pigments (chromoproteins). Pigmentation disorders.
Pathologic anatomy of blood and lymph circulation disorders.	Disruption of water and electrolyte balance. Circulatory disorders: Shock. Hemostasis. Thrombosis. Ischemia. Infarction.
Pathologic anatomy of inflammation, healing and tissue repair.	Acute inflammation. Chronic inflammation.
Pathologic anatomy of the immune system.	Pathological conditions of the immune system. Hypersensitivity reactions. Transplant rejection. Autoimmunity and autoimmune disease. Immune deficiency syndromes.
Pathologic anatomy of compensatory and adaptive processes.	Atrophy. Hypertrophy. Hyperplasia. Regeneration. Types of tissue healing.
Pathologic anatomy of tumors.	Epithelial tumors. Mesenchymal neoplasms. Tumors of the bronchi and lungs. Tumors of the nervous system. Melanocytic tumors. Benign epithelial tumors and malignant tumors of the epidermis. Tumors of the mammary glands. Tumors that develop from the vessels. Diseases of the cervix. Diseases of the uterus and endometrium. Diseases of the ovaries. Ovarian cysts.
Pathologic anatomy of blood cells and bone marrow.	Hematopoietic tissue tumors (leukemia). Hodgkin's disease (Hodgkin's disease), non-Hodgkin's lymphoma. Anemia.

Pathologic anatomy of diseases of the cardiovascular system.	Atherosclerosis and arteriosclerosis. Hypertension and arteriolosclerosis. Cerebrovascular disease. Infarction (ischemic stroke) in the brain. Coronary heart disease (coronary heart disease). Hypertensive (hypertensive) heart disease. Diseases of the heart valves and holes and main arteries. Congenital heart defects.
Pathologic anatomy of the urinary system diseases.	Glomerular kidney disease. Acute glomerulonephritis. Nephrotic syndrome. Chronic glomerulonephritis. Renal amyloidosis.
Pathologic anatomy of diseases of the digestive system.	Hepatitis, alcoholic liver disease. Cirrhosis of the liver. Diseases of the stomach. Peptic ulcer disease. Diseases of the appendix.
Pathologic anatomy of infectious diseases of bacterial and mycotic nature.	General characteristics of infectious diseases. Typhoid and typhus fever. Diphtheria. Scarlet fever. Bacillary dysentery. Acute and chronic bronchitis, bronchiolitis. Bronchiectasis congenital and acquired. Bronchopneumonia. Lobar pneumonia. Epidemiology, etiology, patho- and morphogenesis of tuberculosis. Classification of tuberculosis. Morphological characteristics, clinical manifestations, complications, outcomes, causes of death in tuberculosis. Acquired syphilis (primary, secondary, tertiary). Morphology of congenital syphilis. Etiology, patho- and morphogenesis, clinical and morphological characteristics of the three forms of leprosy. Classification and general characteristics of fungal infections.
Pathologic anatomy of infectious diseases of viral nature.	Influenza. Measles.
Pathologic anatomy of parasitic diseases.	Malaria. Morphological features of falciparum malaria. Amebiasis. Trypanosomiasis. Leishmaniasis. Schistosomiasis (bilharzia). Echinococcosis.
Pathologic anatomy of quarantine infections and sepsis.	Plague, clinical and anatomical forms. Smallpox natural, pathological anatomy. Cholera. Three periods of the disease. Anthrax. Clinical forms depending on the pathways and clinical manifestations of infection. Systemic inflammatory response syndrome. Sepsis. Syndrome of multiple organ failure.

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COURSE DESCRIPTION

31.05.01 General Medicine

field of studies / speciality code and title

2022-2023

Course Title	**Pathophysiology, clinical pathophysiology**
Course Workload	Credits and academic hours – 8/288
Course contents	
Course Module Title	**Brief Description of the Module Content**
Module 1 General nosology.	**Topic 1.1.** Conceptions of health and disease. Sano- и pathogenesis.
	Topic 1.2. Pathology of cellular biomembranes and organells. Types and mechanisms of cell death. Disorders of biorhythms of a cell.
Module 2 Non-specific pathological processes	**Topic 2.1.** Disorders of local blood circulation.
	Topic 2.2. Inflammation.
	Topic 2.3. Immunity. Immunopathology.
	Topic 2.4. Allergy.
	Topic 2.5. Pathophysiology of tumor growth.
Module 3 Non-specific metabolic disorders	**Topic 3.1.** Hypoxia.
	Topic 3.2. Pathology of body thermoregulation. Fever.
	Topic 3.3. Pathophysiology of carbohydrate metabolism. Diabetes mellitus.
	Topic 3.4. Pathology of a water-salt exchange.

	Edema. Pathophysiology of acid-base balance.
	Topic 3.5. Integral mechanisms of metabolic disorders.
	Topic 3.6. Pathophysiology of lipid, protein and purine metabolism.
Module 4 Extreme states	**Topic 4.1.** Pathophysiology of extreme states.
	Topic 4.2. Stress. Shock. Collapse. Coma. Dying and revival of an organism. Apparent and natural death. Principles of resuscitation.
	Topic 4.3. "Diseases of civilization". Chronopathology.
	Topic 4.4. Ecological pathophysiology
Module 5 Pathophysiology of the hematopoietic system	**Topic 5.1.** Anemias. Hemoblobonosis. Hemoglobinopathies.
	Topic 5.2. Leukocytosis. Leukopenia. Leukemias.
	Topic 5.3. Clinical tasks in the pathophysiology of the hematopoietic system.
	Topic 5.4. Hemorrhagic diatheses.
Module 6 Pathophysiology of the cardiovascular and respiratory systems.	**Topic 6.1.** Arrhythmias.
	Topic 6.2. Coronary heart disease. Coronarogenic and noncoronarogenic necrosis of the myocardium. Complications of myocardial infarction.
	Topic 6.3. Sudden cardiac death.
	Topic 6.4. Heart defects. Cardiomyopathies. Myocarditis. Endocarditis. Pericarditis.
	Topic 6.5. Heart failure. Pathophysiology of respiration.
	Topic 6.6. Pathophysiology of bronchial obstruction syndromes.
	Topic 6.7. Pathophysiology of vascular tonus.
	Topic 6.8. Pathophysiology of the vascular wall. Atherosclerosis.
Module 7 Pathophysiology of the gastrointestinal tract	**Topic 7.1.** Non-specific dysfunctions of the gastrointestinal tract.
	Topic 7.2. Acute and chronic gastritis. Peptic ulcer. Diseases of the operated GIT.
	Topic 7.3. Pathophysiology of the liver and bile ducts. Jaundice. Hepatic failure. Pathophysiology of cholecystitis. Pathophysiology of the pancreas. Intestinal obstruction.
Module 8 Pathophysiology of the excretory system	**Topic 8.1.** Non-specific disorders of the excretory function of the kidneys.
	Topic 8.2. Nephrotic syndrome. Nephritic syndrome. Acute and chronic diffuse glomerulonephritis. Pyelonephritis. Urolithiasis. Acute and chronic renal failure. Uremia. Renal coma.

Module 9 Pathophysiology of the endocrine system	**Topic 9.1.** General mechanisms of endocrine disorders. Pathophysiology of the hypothalamic, pituitary and adrenal systems.
	Topic 9.2. Pathophysiology of thyroid, parathyroid glands, thymus, epiphysis and gonads.
Module 10 Pathophysiology of the nervous system and higher nervous activity	**Topic 10.1.** Pathophysiology of functional neuroses. Pathological reflexes. Pathophysiology of drug addiciton. Pathophysiology of alcoholism. **Topic 10.2.** Pathophysiology of CNS and neuroses.

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COURSE DESCRIPTION

31.05.01 General Medicine

(field of studies/specialty code and title)

2022-2023

Course Title	**Pediatrics**
Course Workload	**10 credits (360 academic hours)**
Course contents	
Course Module Title	**Brief Description of the Module Content**
Module 1 Growth and development of children	**1.1.** Periods of childhood. Physical development. Skin and subcutaneous fat: development, anatomical and physiological features, methods of examination and semiotics of lesions.
	1.2. Development, anatomical and physiological features, methods of examination and semiotics of lesions of the nervous and endocrine systems. Evaluation of neuropsychic development
	1.3. Nutrition and nutritional disorders in children.
	1.4. Feeding.
Module 2 Propedeutics of childhood diseases	**2.1.** Musculoskeletal system: development, anatomic and physiological features, methods of examination, and semiotics of disorders. Rickets, rickets-like diseases.
	2.2 Development, anatomical and physiological features, examination methods and semiotics of disorders of the GIT and urinary system.
	2.3. Development, anatomical and physiological features, examination methods and semiotics of disorders of the blood,

	immune system and lymphatic system. Anemia..
	2.4. Development, anatomical and physiological features, examination methods and semiotics of disorders of the respiratory system. Community-acquired pneumonia. Acute bronchiolitis
	2.5. Development, anatomical and physiological features, examination methods and semiotics of disorders of the cardiovascular system. Heart failure.
	2.6. Congenital heart disease
	2.7. Myocardial diseases. Cardiomyopathies. Infectious endocarditis.
	2.8. Allergic diseases
Module 3 Somatic childhood diseases	**3.1.** The child with stridor.
	3.2. The child with chronic cough
	3.3. Acute rheumatic fever. Diseases of the joints.
	3.4. Diffuse connective tissue diseases
	3.5. Systemic vasculitis
	3.6. Diseases of the urinary system
	3.7. Gastrointestinal tract diseases
	3.8. Hemorrhagic diseases. Hemorrhagic disease of the newborn.
	3.9. Diabetes mellitus
	3.10. Endocrine diseases
	3.11. Antibacterial therapy
Module 4 Pediatric infectious diseases	**4.1.** Exanthema: measles, rubella, parvovirus infection.
	4.2.. Enterovirus infections. Poliomyelitis
	4.3. Mumps, diphtheria
	4.4. Meningeal syndrome. Bacterial and viral meningitis. Meningococcal infection..
	4.5. Streptococcal infection. Scarlet fever. Yersiniosis. Pseudotuberculosis. Multisystem inflammatory syndrome in children.
	4.6. Herpes infection.

	4.7. Acute intestinal infections. Hemolytic uremic syndrome
	4.8. Vaccination of children

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COURSE DESCRIPTION

31.05.01 General Medicine

field of studies / speciality code and title

2022-2023

Course Title	Pharmacology
Course Workload	Credits and academic hours – 7 (252)
Course contents	
Course Module Title	**Brief Description of the Module Content**
General Pharmacology	1. Recipe. Introduction to Pharmacology. Types of prescriptions. Formulation rules in the Russian Federation. Types of dosage forms. ATC classification. 2. Basic principles of pharmacodynamics Mechanisms of drug action and effects. Therapeutic index, therapeutic range. Therapeutic drug monitoring. Pharmacodynamic interaction of drugs. 3. Basic principles of pharmacokinetics. Basic pharmacokinetic parameters and their significance. Factors affecting the value of pharmacokinetic parameters.. Pharmacokinetic interaction of drugs.
Pharmacology of drugs groups. Drugs affecting afferent and efferent innervation	1. Drugs affecting afferent innervation. Local anesthetics. 2. Cholinergic agents. Anticholinergics. Cholinomimetics. 3. Adrenomimetics and sympathomimetics 4. Adrenolythics and sympatholytics. Classification. Pharmacodynamics, mechanism of action. Pharmacokinetic parameters. Indications. Contraindications Adverse reactions. Drug interactions. Use in special categories of patients.
Pharmacology of drugs groups. Drugs affecting the cardiovascular system	1. Diuretics Carbonic anhydrase inhibitors. Osmodiuretics. Loop diuretics. Diuretics acting on the cortical segment of Henle's loop. Potassium-sparing diuretics. 2. Lipid-lowering agents Statins; fibrates; derivatives of nicotinic acid; bile

	acid sequestrants; an inhibitor of intestinal cholesterol absorption (ezetimibe); PCSK9 inhibitors. 3. Antihypertensive agents 4. Antianginal drugs 5. Antiarrhythmic drugs. 6. Drugs to manage heart failure Drugs with a positive inotropic effect: Classification of inotropic agents. Pharmacodynamics, mechanism of action. Pharmacokinetic parameters. Indications. Contraindications Adverse reactions. Drug interactions.
Pharmacology of drugs groups. Drugs affecting hemostasis and hematopoiesis	1. Drugs affecting the blood coagulation system. 2. Drugs affecting the hematopoietic system. Classification. Pharmacodynamics of the drug group, mechanism of action. Pharmacokinetic parameters of the drug group. Indications. Contraindications Adverse reactions. Drug interactions. Use in special categories of patients.
Pharmacology of drugs groups. Drugs affecting the functions of the respiratory system, digestion and metabolic processes	1. Drugs affecting the functions of the respiratory system. Beta-2-adreno-agonists, M-cholinolytics. Methylxanthines. Mast cell membrane stabilizers. Antileukotriene drugs. Inhalation GCS. Systemic GCS. Antitussive drugs. Mucolytics, mucoregulators, mucokinetics. Antitussive drugs of central action. 2. Drugs affecting the functions of the digestive system. Antacids. H2-histamine receptor blockers. M-cholinolytics. Proton pump inhibitors. Prokinetics. Gastrocytoprotectors. Antibacterial (anti-Helicobacter) drugs in the treatment of peptic ulcer: amoxicillin, clarithromycin, tetracycline, metronidazole. 3. Hormones of the pituitary gland, hypothalamus, pineal gland, thyroid and pancreas, hypoglycemic drugs. 4. Steroid hormones. Sex steroids. Contraceptives. Anabolic steroids. Glucocorticoids. 5. Drugs affecting immune processes. 6. Antiallergic drugs. Classification. Pharmacodynamics of the drug group, mechanism of action. Pharmacokinetic parameters of the drug group. Indications. Contraindications Adverse reactions. Drug interaction. Use in special categories of patients.
Pharmacology of drugs groups. Drugs affecting the central nervous system. Drugs affecting the nociceptive system and the synthesis of pain and inflammation mediators	1. Drugs for anesthesia. Analgesics. 2. Sedative drugs. Hypnotic agents. Anxiolytics. Antiepileptic drugs. 3. Antipsychotics. Antidepressants. Remedies for the treatment of mania.

	4. Psychostimulants. Nootropics. Drugs for neurodegenerative diseases. Classification. Pharmacodynamics of the group of drugs, mechanism of action. Pharmacokinetic parameters. Indications. Contraindications. Adverse drug reactions. Drug-drug interactions. Use in special categories of patients.
Pharmacology of drugs groups. Antibacterial, antiviral and antifungal agents	1. Beta-lactam antibiotics Penicillins, cephalosporins, carbapenems and monobactams 2. Non-beta lactam antibiotics and synthetic antimicrobials: aminoglycosides, macrolides, tetracyclines, glycopeptides, amphenicols. New groups of antibiotics: oxazolidinediones (linezolid), lipopeptides (daptomycin), gycilcyclines (tigecycline), pleuromutilins (retapamulin). Sulfonamides, quinolone and fluoroquinolone derivatives, 5-nitrofuran, imidazole derivatives. 3.Antiviral, antifungal agents. 4. Anti-tuberculosis drugs. 1st line drugs, 2nd line drugs. Tuberculosis chemotherapy regimens. 5. Antiprotozoal, antisyphilitic, antihelminthic drugs Classification. Pharmacodynamics, spectrum of activity. Pharmacokinetics. Indications. Contraindications. Adverse drug reactions. Drug-drug interactions. Use in special categories of patients.

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COURSE DESCRIPTION

31.05.01 General Medicine

field of studies / speciality code and title

2022-2023

Course Title	**Philosophy**
Course Workload	Credits and academic hours - **3 credits (108 hours.)**
Course contents	
Course Module Title	**Brief Description of the Module Content**
WHAT IS PHILOSOPHY	**UNIT 1. The subject of philosophy, its functions, method and main divisions.** The problem of practical value of philosophy: two approaches. Philosophy as a type of worldview. Philosophy and science. Philosophy and its subject. Functions of philosophy. Divisions of philosophy. **UNIT 2. The genesis of philosophy.** How a person comes to philosophy: two approaches. “Axis time” and the genesis of philosophy. The beginning of philosophy in ancient India. The beginning of philosophy in ancient China. **UNIT 3. The beginning of philosophy in ancient Greece (from Phales to Socrates).** Main studies of the first Greek philosophy. Sophists: the problem of true knowledge. Socrates: life and teaching. Socrates’ ethical philosophy.
PHILOSOPHICAL STUDY OF SOCIETY	**UNIT 4. Axiology: philosophical study of values.** Axiology: what is value? Non-material, material and post-material values in Habermas’ philosophy. The subjective and objective elements in the process of evaluating. The system and hierarchy of values: the organizing principles. The problem of “anomia”. Morality and ethics. The purposes of morality. The four domains of ethical assessment and their evaluation terms. Utilitarian ethics: pleasure principle and teleological principle. Kantian deontological ethics: hypothetical and categorical imperatives. Religious values and the problem of reevaluation of values. **UNIT 5. Philosophy of history. The problem**

	of progress. Progress and regress. The criteria of social progress. Cyclic, linear and spiral models (patterns) of history. Historicism and "rhizomatic" model of history. **UNIT 6. Theory of civilizations.** The concepts of civilization. Linear civilization concept. The concept of local civilizations. Traditional (pre-industrial) civilization. Industrial civilization. Mass-culture: pros and cons. Post-industrial civilization. **UNIT 7. Justice, legitimation and justification of a state authority.** Justice: metaphysical and social levels. Theory of distributive justice: strict egalitarianism, resources-based principle, utilitarian principle, desert-based principle, libertarianism, differential principle. State authority: legality and legitimacy. Historical forms of legitimation of state authority and theory of social contract.
PHILOSOPHICAL WORLDVIEW AND METAPHYSICAL THEORIES	**UNIT 8. Philosophical worldview of Ancient Greece and Middle Ages.** Worldview and metaphysics. Philosophical Worldview of Ancient Greece: general principles. Metaphysical theories by Plato, Aristotle and Plotinus. Philosophical Worldview of Middle Ages: general principles. **UNIT 9. Philosophical worldview of the Renaissance, Modern Time and specifics of contemporary worldview.** Philosophical worldview of the Renaissance and Modern Time: general principles. Metaphysics and the foundation of contemporary science. Specific principles of contemporary worldview.
PHILOSOPHICAL STUDY OF KNOWLEDGE AND COGNITION	**UNIT 10. Theories of truth and true cognition.** Empirical, rational and super-rational cognition. Consciousness, knowledge and cognition. The principle of reflection. Correspondent, coherent and pragmatic theories of truth. Criterions of truth. Forms of empirical cognition: sensations, perceptions, recollections. Forms of rational cognition: concepts, judgments. Inferences: inductive, deductive and analogical. **UNIT 11. Philosophy and the limits of cognition.** Paradigms and types of scientific rationality. F.Bacon' theory of idols. Skepticism in ancient Greece. Local, global and superglobal skepticism. Kantian theory of Knowledge. The problem of "thing in itself". E. Husserl's theory of phenomenological reduction.

PHILOSOPHYCAL ANTHROPOLOGY	**UNIT 12. The study of human nature.** Natural and cultural components of human being. Mundane and divine components of human being. The problem of good and evil in human nature and its political implementations. Conscious and unconscious components in human being. **UNIT 13. The problem of freedom: philosophical approach.** Determinism and indeterminism in philosophy. Freedom and responsibility. Escape from freedom and its main mechanisms) by Erich Fromm. **UNIT 14. The purpose of life: philosophical approach.** The problem of the meaning of life. The main vectors of the search for the purpose of life: individualism and collectivism, pragmatism and idealism, mundanism and transcendentalism.
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COURSE DESCRIPTION

31.05.01 General Medicine

field of studies / speciality code and title

2022-2023

Course Title	Phthisiology
Course Workload	Credits and academic hours - 5 credits and 180 academic hours
Course contents	
Course Module Title	**Brief Description of the Module Content**
Module 1 Introduction to the speciality	**1.1.** History of tuberculosis studies. Current epidemiological situation worldwide and in the Russian Federation. TB etiology, species properties of mycobacteria
	1.2. TB pathogenesis. Idea of active TB and latent TB infection. Pathological anatomy of tuberculosis
Module 2 TB prevention.	**2.1.** Social prevention of TB
	2.2. Immunization for TB. Anti-TB immunity properties.
	2.3. Contact tracing. Treatment of latent TB infection.
	2.4. Anti-TB infection control
Module 3 Early TB detection	**3.1** Measures for early TB detection in adults.
	3.2 Measures for early TB detection in children and adolescents.
Module 4 TB diagnostics	**4.1** Clinical manifestation of TB, peculiarities of respiratory and intoxication syndromes. Microbiological diagnostics of TB.
	4.2 Radiological diagnostics of pulmonary TB. Laboratory and instrumental methods for TB diagnostics. Diagnostic algorithm. Immunological tests (tuberculin skin test, IGRA-tests).
Module 5 TB healthcare. Treatment of TB	**5.1** Outpatient TB department: aims and functions.

	5.2 Contact tracing. Epidemiological measures for prevention of TB spreading.
	5.3 TB treatment: ani-TB drugs, treatment regimens.
Module 6 TB classification. Primary TB in children and adolescents. Post-primary pulmonary TB .	**6.1** TB classification (Russian, WHO, ICD-10). Primary TB in children: clinical forms, peculiarities of diagnostics and manifestation.
	6.2 Clinical-radiological features of small forms of TB.
	6.3 Clinical-radiological features of infiltrative TB.
	6.4 Clinical-radiological features of disseminated TB.
	6.5 Clinical-radiological features of big forms of TB.
	6.6 Clinical-radiological features of chronic forms of TB.
Module 7 Extrapulmonary TB	**7.1** Pathogenesis of extrapulmonary TB. TB meningoencephalitis.
	7.2 TB of urogenitary tract. TB of bones and joints.
	7.3 Abdominal TB. TB of peripheral lymph nodes.
Module 8 TB in special groups of patients	**8.1** Clinical and radiological peculiarities of TB in HIV-positive patients depending on the degree of immunosuppression. Specific features of TB diagnostics in HIV-positive patients
	8.2 TB in pregnant women: peculiarities of manifestation, diagnostics and treatment.
	8.3 TB and diabetes mellitus
	8.4 TB in patients receiving immunosuppressive treatment.

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COURSE DESCRIPTION

31.05.01 General Medicine

field of studies / speciality code and title

2022-2023

Course Title	Physics
Course Workload	Credits and academic hours – 2/72
Course contents	
Course Module Title	**Brief Description of the Module Content**
Section 1 Introduction.	Topic 1.1. Method for processing measurement results. Direct and indirect measurements. The theory of errors. Types of errors. Rules for the design of laboratory work. Abstract writing procedure.
Section 2 Vibrations and waves.	Topic 2.1. Harmonic vibrations. Gravitational interaction. Topic 2.2. Acceleration of gravity. Weightlessness. Types and types of waves.
Section 3 Surface phenomena in liquids.	Topic 3.1. Internal pressure and surface tension in a liquid. Diffusion. Osmosis. Wetting. capillary phenomena.
Section 4 Fundamentals of thermodynamics.	Topic 4.1. The specific heat capacity of a substance and the molar heat capacity of a gas. Internal energy of a gas and the concept of the number of degrees of freedom. Work gas in various isoprocesses. Topic 4.2. The first law of thermodynamics and its form for isoprocesses. Mayer's equation. adiabatic process.
Section 5 Application of electric currents and el.mag. fields in medicine. Bioelectric potential.	Topic 5.1. Electrical conductivity of biological tissues. The use of direct current in medicine (therapy, electrophoresis). The use of alternating current in medicine (therapy, rheography, electrical stimulation). Topic 5.2. Application of static electric and magnetic fields in medicine. The use of h.h. electromagnetic fields in medicine. Mechanisms of ion transport through biocell membranes. Topic 5.3. Membrane potential difference. Resting potential. action potential. Propagation of a nerve impulse along the axon.

	Topic 5.4. Electric fields of human organs. Fundamentals of electrocardiography and encelography.
Section 6 Electromagnetic radiation of the optical range.	opic 6.1. Scale of electromagnetic waves and sources of these waves. Light and its perception by the human eye. Fiber-optic light guides and their application in medicine. Topic 6.2. Infrared (thermal) radiation and its application in medicine. Luminescence. Luminescent microscope. forced emission. Lasers and their application in medicine.
Section 7 Ionizing radiation.	Topic 7.1. Ultraviolet radiation and its application in medicine. X-ray radiation and its application in medicine. Topic 7.2. Radioactive radiation and their application in medicine. Radionuclide diagnostic methods in medicine. Radiation therapy. Detection and dosimetry of ionizing radiation
Section 8 The structure of the atom. EPR. NMR.	Topic 8.1. The structure of the atom. Nuclear forces. Isotopes. Free radicals in the human body. Electronic paramagnetic resonance. Topic 8.2. Nuclear magnetic resonance. Principles of magnetic resonance imaging. Electron-positron tomography.

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COURSE DESCRIPTION

31.05.01 General Medicine

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2022-2023

Course Title	**Polyclinic Therapy**
Course Workload	Credits and academic hours - 8 credits and 288 academic hours
Course contents	
Course Module Title	**Brief Description of the Module Content**
Module 1 Organization of the work of outpatient clinics. Organization of the local therapist and general practitioner work.	1.1. The general principles of the organization of the outpatient clinics. Organization and content of work of therapeutic department clinics.
	1.2. Organization of the local therapist and general practitioner.
	1.3. The concept of standards (protocols) the management of patients in outpatient conditions. Standards (protocols) of patients with the most common diseases in the practice of the therapist.
	1.4. General and specific issues of examination of temporary disability. The procedure for referral to medical and social expertise. Disability.
Module 2 Diseases and syndromes common in outpatient therapist and general practitioner. Primary and differential diagnosis, patient management tactics. Urgent Care. Indications for hospitalization. Treatment. Examination of disability. Clinical supervision. Rehabilitation. Spa treatment.	2.1. Fever and low-grade fever in outpatient practice. Differential diagnosis. Management of patients.
	2.2. Interpretation of blood count in outpatient practice, highlighting the main syndromes and initial diagnosis. Anemic syndrome.
	2.3. The interpretation of urinalysis. Urinary Syndrome. Urogenital diseases in general practice.
	2.4. Respiratory diseases in outpatient practice.
	2.5. Diseases of the circulatory system in the outpatient practice.
	2.6. Diseases of the digestive system in the outpatient practice.

	2.7. Endocrine, nutritional and metabolic disorders in outpatient practice.
	2.8. Articular syndrome in outpatient practice.
	2.9. Somatoform disorders in general practice.
	2.10. Headache syndrome in general practice.
	2.11. The role of the doctor's clinic in detecting cancer. Keeping cancer patients at different stages of the disease.
	2.12. Alcohol poisoning and alcoholic disease in the practice of the local therapist.
	2.13. Iatrogenic illness in outpatient practice. Drug-induced diseases.
Module 3 Features of the course and treatment of somatic diseases in people of different age and gender groups in outpatient practice.	3.1. Features of the course and treatment of somatic diseases in people of different age groups in outpatient practice.
	3.2. Features of the course and treatment of somatic diseases during pregnancy and problem therapist clinics in the conduct of normal pregnancy.
	3.3. Requirements for the organization of outpatient reception and recording and reporting of different age and social groups.
Module 4 Methods of drug and non-drug therapy in outpatient practice. Preventative work at polyclinics.	4.1. Rational antibiotic therapy in outpatient practice.
	4.2. Diet therapy in GP.
	4.3. Diseases prevention at the stage of polyclinics.

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COURSE DESCRIPTION

31.05.01 General Medicine

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2022-2023

Course Title	Professional diseases
Course Workload	Credits and academic hours – 2/72
Course contents	
Course Module Title	**Brief Description of the Module Content**
Module 1 Occupational diseases of respiratory system. Pneumoconiosis.	**1.1** Introduction to the clinic of occupational diseases and its tasks. Issues of diagnostics and medical prevention. Principles of organization and conduct of medical examinations of workers of industrial enterprises, issues of examination of working capacity, medical examination. Pneumoconiosis, classification. Silicatoses, anthracosis, pneumoconiosis of electric welders, aluminosis, pneumoconiosis from exposure to plant dust. Berylliosis. Dust bronchitis. Professional bronchial asthma. Bronchoallergoses.
Module 2 Vibration disease. Noise sickness (chronic occupational sensorineural hearing loss).	**2.1.** Definition, etiology, pathogenesis. Clinical picture of diseases associated with exposure to local vibration and whole-body vibration. Stage of disease, diagnosis, treatment, prevention, prognosis.
Module 3 Occupational diseases of the musculoskeletal system	Occupational diseases of the musculoskeletal system caused by physical overexertion and micro-traumas, workers of industrial enterprises and agricultural industry. Arthralgia, arthritis, polyarthritis, aseptic necrosis of bone, bursitis, tenosynovitis, dyskinesia, periarthritis of the shoulder joint, shoulder epicondylitis, professional polyneuritis and radiculitis.
Module 4 Domestic poisoning	Classification. Methods of diagnosis. Basic clinical syndromes. General principles of emergency treatment: prevention of further

	contact with the poison, its absorption, excretion of the poison from the body, antidotes, treatment of syndromes associated with intoxication. Acute carbon monoxide poisoning, amido and nitro compounds, alcohol, hypnotics and tranquilizers, acids and alkalis. Clinic, diagnosis, treatment, prevention. Intoxication by chemical substances used in the agricultural sector. Classification of pesticide due to the purposes of use, the chemical structure, ways of exposure. Acute and chronic chlorine and organophosphorus compounds poisoning, mercury organic compounds, arsenic-containing substances.

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COURSE DESCRIPTION

31.05.01 General Medicine

field of studies/ speciality code and title

2022-2023

Course Title	Psychiatry, Medical Psychology
Course Workload	Credits and academic hours – 5/180
Course contents	
Course Module Title	**Brief Description of the Module Content**
Introduction to the discipline. General Psychiatry	Psychiatry: definition, branches of psychiatry, types of psychiatric care. Methods of treatment of mental illness. Classification of mental illnesses. Disorders of sensations, perception Disorders of perception. Classification, clinical manifestations. Violations of the associative process. Violations of thinking in terms of content. Delusions, groups of delusions. Overvalued ideas. Obsessions, classification. Group of delusions of persecution. Group of delusions of grandeur. Group of depressive delirium. Symptoms of emotional (affective) disorders. Symptoms of memory disorders. Asthenic syndrome: symptoms, stages. Delusional syndromes: varieties. paranoid syndrome. Hallucinatory-paranoid syndrome. Kandinsky-Clerambault syndrome. Delusional syndromes: varieties. paraphrenic syndrome. Delusional syndromes: varieties. Cotard's syndrome. Syndrome of dysmorphophobia-dysmorphomania. Emotional (affective) syndromes: varieties. Manic syndrome. Depressive syndrome. Depressive syndrome. Types of depression. Varieties of emotional syndromes. apathetic syndrome. Catatonic syndrome. Amnestic syndrome. Korsakov's syndrome. Catatonic hebephrenic syndrome. Psychoorganic syndrome. Dementia: varieties. Disorders of drives: varieties.

	Phobic syndrome. Types of obsessions.
Psychiatric nosology	Oligophrenia: definition, classification, methods of treatment and rehabilitation. Oligophrenia: definition, clinical variants. Mental disorders in neurosyphilis: varieties, methods of diagnosis, treatment and rehabilitation. Syphilis of the brain: definition, clinical forms, methods of diagnosis and treatment. Progressive paralysis: definition, clinical forms, methods of diagnosis and treatment. Epilepsy: definition, clinical manifestations, methods of diagnosis and treatment. Paroxysmal disorders in epilepsy: classification. Non-paroxysmal disorders in epilepsy. Mental disorders in cerebral vascular lesions: varieties, clinical manifestations, methods of treatment. Mental disorders in cerebral atherosclerosis, clinical manifestations, methods of treatment. Mental disorders in hypertension: clinical manifestations, methods of treatment. Presenile (involutional) psychoses: definition, clinical varieties, methods of diagnosis and treatment. Alzheimer's disease: definition, clinical forms, methods of diagnosis and treatment. Mental disorders in atrophic diseases of the brain: varieties, methods of diagnosis and treatment. Alcoholism: definition, stages, varieties, methods of treatment. Alcoholic psychoses: classification, clinical manifestations. Alcoholic delirium: definition, classification, clinical manifestations. Alcoholic hallucinosis, alcoholic paranoid: definition, classification, clinical manifestations. Alcoholism: definition, stages, methods of treatment. pathological intoxication. Drug addiction: definition, classification, clinical manifestations, methods of treatment and rehabilitation. Substance abuse, drug addiction: definition, classification, clinical manifestations, methods of treatment. Mental disorders in infectious diseases: classification, varieties, clinical manifestations, methods of treatment. Mental disorders in AIDS: clinical manifestations, methods of treatment and rehabilitation. Mental disorders in somatic diseases: main clinical manifestations, methods of treatment. Somatopsychiatry. The main symptoms and syndromes of mental disorders in somatic diseases. Psychosomatics: definition. Varieties of psychosomatic pathology. Mental disorders in traumatic brain injury: varieties, clinical characteristics, methods of treatment. Schizophrenia: definition, main symptoms and syndromes of mental disorders in schizophrenia. Schizophrenia: definition. Types of the course of

	schizophrenia. forms of schizophrenia. Bipolar affective disorder (manic-depressive psychosis): definition, clinical varieties, methods of treatment. Psychogeny: definition, clinical varieties, methods of treatment. Reactive psychoses: definition, clinical varieties, methods of treatment. Hysterionic (hysterical) reactive psychoses: definition, clinical varieties, methods of treatment. Reactive depression: definition, clinical manifestations, differential diagnosis. Suicide prevention. Reactive (psychogenic) delusional psychoses: varieties, clinical manifestations, methods of treatment. Reactive psychoses: definition, clinical varieties. The concept of iatrogenic. Neuroses: definition, clinical varieties, methods of treatment. Hysterical neurosis: definition, clinical manifestations, methods of treatment. Post-traumatic stress disorder: definition, clinical manifestations, methods of treatment. Personality disorders (psychopathy): definition, criteria, classification, clinical varieties. Personality disorders (psychopathy): definition, criteria. Psychopathies of the excitable circle. Personality disorders (psychopathy): definition, criteria. Psychopathies of the inhibited circle. Anorexia nervosa and bulimia nervosa: definition, stages, clinical manifestations, methods of treatment.
Treatment of mental disorders	Methods of treatment of mental illness. Psychotropic drugs: definition, classification. Psychotherapy: definition, basic methods of psychotherapy. Antipsychotics: definition, classification, spectrum of psychotropic action of neuroleptics. Antipsychotics: definition, classification, side effects and complications in the treatment of neuroleptics. Main groups of antipsychotics, side effects. Varieties of psychomotor agitation. Methods of relief of psychomotor agitation. Tranquilizers. Definition, classification, spectrum of psychotropic action, side effects. Basic tranquilizers. Complications and side effects in the treatment of tranquilizers. Antidepressants: Definition, classification. Complications and side effects of antidepressant treatment. The main groups of antidepressants. The spectrum of action of antidepressants. Nootropics: definition, spectrum of action, main nootropic drugs, side effects of nootropics. Psychostimulants, normotimics: definitions, action spectra, side effects and complications. Main groups of anticonvulsants. Side effects and complications in the treatment of anticonvulsants. Status epilepticus: definition,

	clinical manifestations, main methods of treatment.Treatment of epilepsy: principles, main anticonvulsants. Diagnosis, types of treatment and rehabilitation of patients with mental disorders.
Medical psychology	Tasks and goals of the work of a medical psychologist in the clinic of internal diseases, in a psychiatric clinic. Methods of pathopsychological research. Methods and types of psychological psychotherapy. Features of mental activity in organic diseases of the brain. Features of memory in organic diseases of the brain. Features of thinking in schizophrenia. Features of the emotional sphere and thinking in personality disorders. Features of the work of a psychologist with cancer patients. Features of mental performance in patients with eating disorders. Features of thinking, emotions and memory in patients with epilepsy. Experiments in clinical psychology.

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COURSE DESCRIPTION

31.05.01 General Medicine

field of studies / speciality code and title

2022-2023

Course title:	**RADIOLOGY**
Course workload	Credits and academic hours – 2/72
Course contents	
Course module titles	**Brief Description of Model Content**
Physical and technical basics of Diagnostic Radiology	1. Types of radiation, their physical nature, diagnostic methods based on different types of radiation.
	2. Properties of various types of radiation, the possibilities of radiological methods in the assessment of various organs, systems, tissues.
	3. Properties of X-rays used for image acquisition in radiation diagnostics
Pulmonary Radiology	1. Diagnostic capabilities of various techniques. How to evaluate the X-ray image of the lungs by syndromes reflecting the morphological structures of the lungs.
	2. Assessment of the pulmonary field size using the signs: the position of the diaphragm, the dimension of the intercostal spaces, the position of the mediastinal organs.
	3. Assessment of lung parenchyma and its changes on X-ray image in the form of translucencies and shadows. Characteristics of shadows using the criteria: quantity, shape, size, localization, contours, structure, intensity, mobility.
Cardiovascular Radiology	1. Lung pattern changes as a possible sign of heart disease. Decreased lung translucency in hemosiderosis.
	2. Changes of the cardiac arches on chest radiographs in various changes of hemodynamics, leading to hemodynamic of the shape, position, and size of the heart.
	3. Implementation of radiographic analysis for acquired heart defects, in particular mitral and aortic ones, isolated or combined/ complex ones. Analysis of the detected changes in radiological

	descriptions and conclusions.
Gastrointestinal Radiology	1. When analyzing the X-ray image, determine the phase of the study. In the relief phase, assess the condition of the mucosa in the norm of each part of the digestive tube.
	2. To identify signs of various parts of a healthy digestive canal in the phase of tight filling. To evaluate the functional symptoms (secretion, peristalsis, tone, evacuation) of the digestive tube.
Skeletal Radiology	1. Diagnostic capabilities the techniques used to evaluate various components of the musculoskeletal system. Recognizing features of norm and pathology in the X-ray imaging.
	2. When analyzing the X–ray image - to assess the condition of the soft tissues surrounding the bones and joints, to evaluate the joints presented on diagnostic images.
Basics of Radiotherapy	1. Types of radiation used in radiotherapy, their physical nature, therapeutic methods based on different types of radiation
	2. Principles of planning and conduct of radiation therapy.

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COURSE DESCRIPTION

31.05.01 General Medicine

field of studies / speciality code and title

2022-2023

Course Title	**Rhetoric**
	Credits and academic hours – 2/72
Course contents	
Course Module Title	**Brief Description of the Module Content**
Rhetoric as a science	Rhetoric as a scientific discipline and as the art of eloquence. A brief history of the development of oratory. Speakers Ancient Greece and Ancient Rome: Cicero, Aristotle, Quintilian, Plato, Socrates, etc. Famous Russian speakers. Rhetorical canon of classical and modern eloquence. Stages of rhetorical canon of rhetoric in the professional sphere and public life of the person the information age. General and private rhetoric. The laws and principles of modern general rhetoric. Neorhetoric.
Types of eloquence	Classification of oratorical speeches on their field of application: academic, social and political eloquence social amenities, spiritual, legal. Their specificity, outstanding speakers. Types of oratorical speeches on the target installation: epideykticheskaya speech, it argues (and persuasive campaigning) informing it, entertaining speech.
Speech influence and persuasion techniques	The methods, strategies and tactics of speech influence. Factors speech influence. Communicative position and its amplification techniques. Speech influence and manipulation. Ways of overcoming hate speech. Classification of methods of persuasion on the nature of the audience: the universal and non-universal (contextual). Methods universal arguments: an empirical reasoning, the theoretical argument. of persuasion: Homer rules, Socrates, Pascal and others.
The Art of the dispute. Reason–why speech.	Classification disputes (discussion, controversy, debate) and the types of issues the discussion (debates, discussions). Functions and species speech argues. Proof argue in speech: thesis, argument, demonstration. to the thesis requirements. Specificity of rhetorical argumentation. Typology of arguments. Working with arguments and their

	location. correct system (loyal) incorrect (disloyal) techniques for handling disputes. "Tricks" to the dispute. Counter–holds against the improper conduct of the dispute. Art to answer questions. Verbal behavior in a dispute.
Harangue	Features of public speaking. Main types of public performances (on purpose, in the form). Their purpose, general characteristic features. Classification audiences in terms of uniformity. The specifics of the speaker in the lecture halls of different types. Audience management techniques. The main stages of preparation and public speaking (IDEMA). Performance composition. Entry role. The structure of the main part of the speech. Closing remarks. Condensed fixation speech: abstract, abstracts, background. Technology. Nonverbal communication (tone, gestures, facial expressions, gaze, posture).
Dialogic form of verbal communication	SUMMARY question and logical structure. Classification issues. General rules for asking questions and specifics of their use. Answers their views. Terms of formulating a response. Principles speaker answer questions during public speaking. Techniques responses to "tough questions." Question-answer form. Questions as a means of manipulating the interlocutor.
Communication in the structure of everyday and professional activities of doctor	The rhetoric of the conversation. The structure of the conversation. Two types of interlocutors (closed and open). Forms of dialogic communication in a professional medical environment. Professional conversation in a medical environment, its types, content and structure of different types of situations and intraprofessional interprofessional communication. The principles of conflict-free communication. Communication barriers and overcome them. Ability to listen and hear. Styles of hearing. Principles of active listening.

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COURSE DESCRIPTION

31.05.01 General Medicine

field of studies / speciality code and title

2022-2023

Course Title	**Russian language and culture of speech**
Course Workload	Credits and academic hours – 2/72
Course contents	
Course Module Title	**Brief Description of the Module Content**
CULTURE OF ACADEMIC AND SCIENTIFIC COMMUNICATION	Russian language and speech. A culture of speech. Types of communication: academic, scientific etc. The basic concepts of the course. Literary language, literary and linguistic norm. Types of norms. Speech and its characteristics. Speech influence. The methods of persuasion. The basic norms and rules of non-verbal and verbal etiquette.
CULTURE OF PROFESSIONAL COMMUNICATION	Professional communication: the essence, features, innovative technology tools. Communicative portrait of a specialist. Oral professional communication: general concept, the basic communication forms and signs. Written speech of a doctor. Innovative informational and communicative technologies of a professional interaction. Tolerant intercultural professional communication: the basic principles and strategies.

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COURSE DESCRIPTION

31.05.01 General Medicine

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2022-2023

Course Title	Telemedicine
Course Workload	Credits and academic hours – 2/72
Course contents	
Course Module Title	**Brief Description of the Module Content**
Section 1 Introduction to telemedicine	**Topic 1.1** Basic term. the goals of telemedicine today **Topic 1.2** The telemedicine as a new form of healthcare organization
Section 2 technological equipment of telemedicine activities.	**Topic 2.1** Practical experience of leading telemedicine centers. **Topic 2.2** An encoding and decoding information standards
Section 3 scenarios of telemedicine activities	**Topic 3.1** Ethical and deontological aspects of telemedicine **Topic 3.2** Hardware and software of telemedicine

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COURSE DESCRIPTION

31.05.01 General Medicine

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2022-2023

Course Title	**TOPICAL ISSUES IN NEONATOLOGY**
Course Workload	Credits and academic hours **- 2 credits (72 academic hours)**
Course contents	
Course Module Title	**Brief Description of the Module Content**
Module 1 Introduction to neonatology	**1.1.** Basic concepts of neonatology. Perinatal history. Neonatal risk groups. Anatomical and physiological features and methods of medical examination of the newborn.
	1.2. Adaptation of the newborn (borderline, transient states).
	1.3. Neonatal screening.
	1.4. The premature newborn.
Module 2 Perinatal pathology of the nervous system and birth trauma	**2.1.** Perinatal asphyxia, hypoxic-ischemic encephalopathy and its consequences.
	2.2 Birth trauma.
Module 3 Diseases associated with metabolic disorders	**3.1.** Neonatal jaundice (hyperbilirubinemia).
	3.2. Hemorrhagic disease of the newborn.
Module 4 Neonatal pulmonology	**4.1.** Neonatal respiratory distress syndrome.
	4.2. Bronchopulmonary dysplasia (BPD).
	4.3. Congenital pneumonia.
Module 5 Perinatal infections.	**5.1.** Neonatal infections of the skin and subcutaneous fat, omphalitis, conjunctivitis.
	5.2. Neonatal sepsis.
	5.3. Congenital (intrauterine) infections.

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COURSE DESCRIPTION

31.05.01 General Medicine
Field of studies/ speciality code and title

2022-2023

Course title	Topographic anatomy and operative surgery
Course Workload	Credits and academic hours - 6 credits (216 Hours)
Course contents	
Course Module Title	**Brief Description of the Module Content**
Topographic anatomy of the extremities	Topographic anatomy of the shoulder girdle areas, of the axillary region. Topographic anatomy of the arm, ulnar area, forearm, hand. Surgical anatomy of the shoulder joint, elbow joint, wrist joint. Topographic anatomy of the gluteal region, thigh, knee region, leg, calcaneal region, ankle joint region, foot. Surgical anatomy of the hip joint, knee joint, ankle joint.
Topographic anatomy of the head, neck, thorax	Topographic anatomy of the head. Cranial vault. Meninges and intermembranous space. Face.Superficial and deep lateral face regions. Topographic anatomy of the neck. Fascias and cellular spaces of the neck. Submandibular triangle. Sternoclavicular-mastoid region. Carotid triangle. Scaleno-vertebral triangle. Lateral region of a neck. Surgical anatomy of the neck organs: esophagus, trachea, thyroid gland. Topographic anatomy thorax. The mammary gland. Topography of intercostal spaces. Thoracic cavity. Surgical anatomy of the lungs. Mediastinum. Surgical anatomy of organs of the anterior and posterior mediastinum. Surgical anatomy of the diaphragm.
Topographic anatomy of the abdomen, pelvis, perineum.	Anterolateral wall of the abdomen. Weak points of the anterior abdominal wall. Surgical anatomy of the inguinal canal. Surgical anatomy of the inguinal, umbilical and femoral hernias. Abdominal cavity. Peritoneum. Ligaments, burses, canals, sinuses, large and small epiploons. Surgical anatomy of organs of the upper abdomen: the stomach, duodenum, liver, gallbladder and

	extrahepatic bile ducts, spleen, pancreas. Surgical anatomy of organs of the lower floor of the abdominal cavity: the small intestine, large intestine. The back wall of the abdomen. Retroperitoneal space. Fascias and cellular spaces. Surgical anatomy of organs and neurovascular structures: the kidney, ureters, adrenal glands, abdominal aorta, inferior vena cava, thoracic duct. Fascias, cellular spaces. Surgical anatomy of organs of the male and female pelvis. Topographic anatomy of the perineum. Fascias, cellular spaces. Surgical anatomy of organs of the perineum in males and females.
Operative surgery of the extremities	Surgical instruments. Basic operational techniques: separation of tissues, stop bleeding, put on and removal of skin nodes sutures, tying surgical knots. Primary surgical treatment of wounds of the body and limbs. Stop bleeding and restore blood flow. Vascular suture. Tendon suture. Nerve suture.
Operative surgery of the head, neck, thorax	Primary surgical treatment of head wounds. Trepanation of the skull. Operations on the thyroid gland. Tracheostomy. Operations in phlegmons and abscesses of the neck. Topographic-anatomic substantiation of incisions.Operations on the thyroid gland. Breast surgery. Principles of surgical interventions on lungs, heart, esophagus.
Operative surgery of the abdomen, pelvis, perineum	Topographic and anatomical aspects of surgical interventions on the anterior abdominal wall and abdominal organs. Operations on the abdominal organs. Revision of the abdominal cavity in penetrating wounds. Appendectomy. Operations on the stomach. Intestinal suture. Intestinal anastomoses. Suturing wounds of the stomach, small intestine and colon. Resection of the small intestine. Endoscopic surgery on the abdominal organs. Cholecystectomy. Appendectomy. Herniorrhaphy. Topographic anatomy and operative surgery of the pelvis. Operations on the pelvic organs.

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COURSE DESCRIPTION

31.05.01 General Medicine

field of studies/ speciality code and title

2022-2023

Course Title	Psychology, Pedagogy
Course Workload	Credits and academic hours – 3/108
Course contents	
Course Module Title	**Brief Description of the Module Content**
Introduction to Psychology	History of Psychology. The subject and methods of psychology. Branches of psychology. Categories of psychology. Functions of the psyche. Basic mental processes
Development of the psyche. Zoo psychology	Zoo psychology from ancient times to the creation of the first evolutionary doctrine. The main methods of zoo psychological research. The importance of zoo psychology in medicine
Sensation. Perception. Attention	Cognitive mental processes in the cognition of reality. Perception of objects, time of relations between objects of space, a person. Attention. Types of attention
Memory	Memory and its significance. Types of memory Basic memory processes and mechanisms. Individual features of memory. Typological features of memory. The importance of memory for human life
Thought process. Speech. Imagination	Development of thinking in ontogeny. Laws of logic and thinking. Thinking disorders. Pathopsychological and clinical classification of thinking disorders. Kinds of imagination. Pathological forms of imagination. Types and functions of speech. The ratio of thinking and speech. Speech disorders
Will	Will. The concept of the will. Volitional acts. Functions of the will. The development of the will in a person. Strong-willed personality traits
Emotions	The concept and classification of emotions. The James-Lange Theory. Emotions generated by the social environment. The role of emotions in the mental organization of a person
Personality. Motivation	The concept of personality in various psychological approaches. Personality structure. Levels, rules and ways of constructing psychological characteristics of personality.

	Analysis of general concepts about the orientation of the personality. Classification of needs in the orientation of the individual. Classification of motives in the orientation of the personality. Determination of the forms of orientation of the personality
Temperament. Character. Abilities. Intelligence	Types of temperament and their psychological characteristics. The role of temperament in activity. Character Classification of character traits. Character types. Accentuation of character. Determination of abilities. Types of abilities. Structure of abilities. Ability levels. Talent. Inclinations and abilities. Inclination
Communication. Ethics. Deontology in Medicine. Clinical aspects of communication	Relationship levels: doctor - patient; doctor - nurse; doctor - doctor; nurse - patient; nurse - nurse; doctor - administration; doctor - junior medical staff

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COURSE DESCRIPTION

31.05.01 General Medicine

field of studies / speciality code and title

2022-2023

Course Title	Outpatient Cardiology
Course Workload	Credits and academic hours – 7/252
Course contents	
Course Module Title	**Brief Description of the Module Content**
Module 1	1. ACE inhibitors. General characteristics and place in therapy. Classification of ACE inhibitors. Features of use ofsome preparations. Complications and limitations to use. 2. Sartans. Sakibuthril / valsartan. 4. Beta-blockers. Characteristics of the group. Cautions andcomplications of beta-blocker therapy. Nitrates. Characteristics of nitrates. Place nitrates intherapy. Complications and cautions when using. Nicorandil. 5. Calcium channel blockers (BCC). Dihydropyridine BCC.Complications with dihydropyridines. Pulse-thinning BPC. 6. Alpha-1-adrenoblockers 7. Diuretics. Loop diuretics. Thiazides and similar diuretics.Antagonists of aldosterone. Potassium-sparing diuretics. Inhibitors of carbonic anhydrase. 8. Antihypertensive drugs of central action. 9. Cardiac glycosides. Mechanism of action and effects.Place in modern therapy. Complications and contraindications for use 10. Antiarrhythmic drugs (AAP). AARP IA class. AARP IB class. AAS class IC. AARP class II. AARP class III. AARPclass IV. Other AARPs. 11. Antithrombotic agents. Antiaggregants, anticoagulants.

	Lipid-lowering drugs. Statins. Fibrates. Ezetimibe. Anicotinic acid. Final interview on the section.
Module 2	1. Arterial hypertension (AH). General issues. Rational pharmacotherapy. AH in pregnancy and lactation. Resistanthypertension. Pulmonary hypertension. Pharmacotherapy of hypertensive crises. 2. Ischemic heart disease (CHD). Angina pectoris. General issues. Rational pharmacotherapy of angina pectoris. Variable angina pectoris (Prinzmetal angina). Microvascularangina pectoris (syndrome X). 3. Chronic heart failure (CHF). General issues. Rationalpharmacotherapy. 4. Heart rhythm disturbances. Sinus tachycardia. Isolatedsinus tachycardia. Extravital extrasystole. Ventricular extrasystole. Reciprocal AV-node tachycardia. Atrial fibrillation. Atrial flutter. Ventricular tachycardia. WPW-syndrome. Final interview on the section.

Module 3	1. Indications for consultation of a cardiologist andnecessary studies before consultation. 2. AH, angina of tension, CHF. 3. Atrial fibrillation. Atrial flutter. 4. Other rhythm disturbances. . Postponed myocardial infarction, coronary angioplasty, aorto-coronary bypass. Final interview on the section. Finalinterview on discipline. . Arterial hypertension (AH). General issues. Rational pharmacotherapy. AH in pregnancy and lactation. Resistanthypertension. Pulmonary hypertension. Pharmacotherapy of hypertensive crises. 7. Ischemic heart disease (CHD). Angina pectoris. General issues. Rational pharmacotherapy of angina pectoris. Variable angina pectoris (Prinzmetal angina). Microvascularangina pectoris (syndrome X). 8. Chronic heart failure (CHF). General issues. Rationalpharmacotherapy. . Heart rhythm disturbances. Sinus tachycardia. Isolatedsinus tachycardia. Extravital extrasystole. Ventricular extrasystole. Reciprocal AV-node tachycardia. Atrial fibrillation. Atrial flutter. Ventricular tachycardia. WPW-syndrome. Final interview on the section. 10. Indications for consultation of a cardiologist andnecessary studies before consultation. 11. AH, angina of tension, CHF. 12. Atrial fibrillation. Atrial flutter. 13. Other rhythm disturbances. 14. Postponed myocardial infarction, coronary angioplasty, aorto-coronary bypass. Final interview on the section. Finalinterview on discipline.

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COURSE DESCRIPTION

31.05.01 General medicine

field of studies / speciality code and title

2022-2023

Course Title	Basics of Psychophysiology
Course Workload	Credits and academic hours - 2/72
	Course contents
Course Module Title	**Brief Description of the Module Content**
Module 1. **Basic approaches to the study of psychophysiological mechanisms**	Hierarchy of physiological processes in the CNS. System approach in psychophysiology. Behavior. Factors that shape human behavior. Memory. Types of memory. Modern ideas about the formation of memory. Functional and morphological changes in the structures of the nervous system during short-term and long-term memorization. Motivation. functional system. The purpose of the action. Leading reflection. Action acceptor. Action programming. Reinforcement. Reverse afferentation. Systemogenesis. System specialization of neurons. Interaction of cognitive systems in purposeful behavior. The concept of the psyche. Origin and development of the psyche in phylogenesis. The problem of qualitative originality of the human psyche. The structure of the human psyche.

Module 2. Psychophysiology of emotions	Theories of emotions. Neuroanatomy of emotions. Biologically and socially significant stimuli as a source of emotions. Need-informational factors of the emergence of emotions. Cognitive processes in the genesis of emotions. Expression of emotions in animals and humans. Means of non-verbal, emotional communication. Correlation of facial muscle activity and emotions. Functional asymmetry and emotions. individual differences and emotions. Influence of extraversion, introversion, anxiety. Sex differences in emotions. Centers of positive and negative emotions. Self-irritation. Limbic system. Central vegetative network.
Module 3. Psychophysiology of thinking and speech	Signaling systems according to I.P. Pavlov. Interaction of the first and second signal systems. Symbolic display of the stimulus. The development of speech. Perception of speech signals. Wernicke center. Oral speech. Generation of reactions of the second signaling system with the participation of command neurons: articulation, gestures, written signs. Broca's area. Readiness potential. Motor potential. Semantic evoked potential. Inner speech. Thinking as externally unexpressed operations with traces of memory. Areas of brain activity and thinking. Functional asymmetry of the brain and features of intellectual activity. Verbal and non-verbal intelligence. The main provisions of the theory of activity of A.N. Leontiev. Needs, motives, emotions, personal meaning. The structure of human consciousness according to A.N. Leontiev. Concepts of individuality, temperament, character and personality.

Module 4. **Methods of psychophysiological research**	Non-electrophysiological methods in psychophysiology. Pneumography. Plethysmography. X-ray computed tomography. Structural magnetic resonance imaging (MRI). Positron emission tomography (PET). Functional magnetic resonance imaging (fMRI). Eye tracking. Electrophysiological techniques: GSR, electrooculography, Electromyography. Electrocardiography. Electroencephalography (EEG). Schemes of setting electrodes (standard installations). Basic EEG rhythms, age norms and differences. EEG in states: active, relaxed wakefulness, drowsiness, non-REM and REM sleep. Spectral analysis of the EEG and its application in psychophysiology. Interhemispheric asymmetry on the EEG. Evoked potentials of the brain, recorded by the encephalograph. Averaging technique. Differences between visual, auditory and somatosensory evoked potentials. Computer mapping of the brain. Polygraphy.
Module 5. **Principles of polygraphic examination (instrumental lie detection)**	Theoretical foundations of instrumental «lie detection». The main methodological difficulties and errors that arise during polygraph tests. Ways to counter the polygraph. General requirements for compiling a questionnaire for printing. Classical methods and tests of polygraph checks, advantages and disadvantages. Methodical methods of technique of control questions. Using the phenomenon of set in the practice of instrumental lie detection. Using the features of cognitive processes (sensation, perception, attention, memory) in the practice of polygraph tests.

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COURSE DESCRIPTION

31.05.01 General Medicine

field of studies / speciality code and title

2022-2023

Course Title	**Modern methods of Medical statistics**
Course Workload	Credits and academic hours – 2/72
Course contents	
Course Module Title	**Brief Description of the Module Content**
Module 1 STATISTICAL BASICS	**Topic 1.1.** SAMPLING METHODS AND EXPERIMENTAL DESIGN
	Topic 1.2. GRAPHICAL DESCRIPTIONS OF DATA (QUALITATIVE DATA; QUANTITATIVE DATA; OTHER GRAPHICAL REPRESENTATIONS OF DATA)
Module 2 DESCRIPTIVE STATISTIC	**Topic 2.1.** MEASURES OF CENTER, MEASURES OF SPREAD, RANKING
	Topic 2.2. ESTIMATES OF DISTRIBUTION PARAMETERS
Module 3 **STATISTICAL ANALYSIS**	**Topic 3.1** ONE-SAMPLE INFERENCE AND ESTIMATION
	Topic 3.2 TWO-SAMPLE INTERFERENCE
	Topic 3.3 REGRESSION AND CORRELATION
	Topic 3.4 ANALYSIS OF CONTINGENCY TABLES. CHI-SQUARE AND ANOVA TESTS
	Topic 3.5 STATISTICS WHICH TEST DIFFERENCE
	Topic 3.6 STATISTICS WHICH COMPARE RISK
	Topic 3.7 SURVIVAL ANALYSIS
	Topic 3.8 STATISTICS WHICH ANALYSE CLINICAL INVESTIGATIONS AND SCREENING

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COURSE DESCRIPTION

31.05.01 General Medicine
field of studies / speciality code and title

Course Title	**Endoscopic Urology**
Course Workload	Credits and academic hours- **3 credits (108 hours)**
Course contents	
Course Module Title	**Brief Description of the Module Content**
The history of endoscopic urology, current state and prospects. Organization of endosurgical operation.	The history of the development of endoscopic diagnostic methods in urology. Instrumental and endoscopic methods for the study of the urological patient. Endoscopic surgery as a method of surgical treatment of diseases, with the implementation of radical interventions through pinhole tissue punctures or natural physiological holes. Requirements for the complex endoscopic operating room
General technique of endourological procedures: Urethrocystoscopy Ureteroscopy, ureteral catheterization Contact lithotripsy	Urethrocystoscopy. Indications, contraindications, technique of performance, evaluation of results. Urethroscopy: dry and irrigation. Indications, contraindications, technique of performance, assessment of results Contact lithotripsy. Indications, contraindications, technique of performance, assessment of results
General technique of endourological procedures: Nephroscopy Lapaxia Percutaneous nephrostomy	Nephroscopy Indications, contraindications, technique of performance, evaluation of results. Lapaxia. Indications, contraindications, technique of performance, assessment of results PNS. Indications, contraindications, technique of performance, assessment of results

Transurethral Prostate Surgery	The choice of method of anesthesia for TURP. The organization is operating. Variants of TURP: pseudo- TURP, partial TURP, total TURP, radical (sub-radical) TURP. Indications, contraindications, technique of performance, assessment of results
General technique of endosurgical procedures. Laparoscopic operations on the pelvic organs	Equipment and instruments for laparoscopic operations. Preparation of laparoscopic operating. The main stages of laparoscopic surgery in urology. Laparoscopic adenomectomy, radical prostatectomy, cystectomy. Indications, contraindications, technique of performance, assessment of results
Laparoscopic kidney surgery	Laparoscopic nephrectomy, kidney resection, nephropexy, kidney cyst removal, retroperitoneoscopic ureterolithotomy Indications, contraindications, technique, evaluation of results
Test	Full-time test

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COURSE DESCRIPTION

31.05.01 General Medicine

field of studies / speciality code and title

2022-2023

Course Title	Medical Enzymology
Course Workload	Credits and academic hours – 4/144
Course contents	
Course Module Title	**Brief Description of the Module Content**
Module 1 The main aspects of the use of enzymes in medicine.	**1.1.** Medical enzymology. Targets and goals. History of development and success of medical enzymology in Russia Mechanisms of enzymatic catalysis and regulation of enzyme activity
	1.2. Engineering Enzymology
Module 2 Enzyme diagnostics	**2.1.** Enzymes, isoenzymes and their role in the diagnostics of internal organs pathologies.
	2.2. Laboratory tests for determination of enzyme activity in the clinical practice.
Module 3 Enzyme pathology.	**3.1.** Congenital metabolic disorders. General principles of diagnosis and treatment of inborn enzymopathy. The concept of orphan diseases Disorders of ornithine cycle enzymes: clinical and biochemical correlations
	3.2. Inborn disorders of carbohydrate metabolism. Glycogenoses. Disorders of the metabolism of fructose and galactose. Hemolytic anemia (deficiency of glucose-6-phosphate dehydrogenase, pyruvate kinase)
	3.3. Lysosomal accumulation diseases
	3.4. Congenital disorders of amino acid metabolism
Module 4 Enzyme therapy	**3.5.** Inborn disorders of the metabolism of steroid compounds and heme breakdown products.
	4.1. Enzymes used for replacement therapy in patients with pancreatic insufficiency
	4.2. Thrombolytic enzymes and blood coagulation factors

	4.3 Enzymes used in the treatment of cancer
Module 5 Enzymes as targets for therapeutical correction	**5.1.** Target enzymes for the treatment of cancer
	5.2. Enzymes of Human Immunodeficiency Virus and Hepatitis C Virus as targets for antitumor therapy

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COURSE DESCRIPTION

31.05.01 General Medicine

field of studies / speciality code and title

2022-2023

Course Title	Physical Training
Course Workload	Credits and academic hours – 0/328
Course contents	
Course Module Title	**Brief Description of the Module Content**
Module 1 Methodical and practical	**1.1.** Self control in physical exerciseing and sports **1.2.** Human physical development indicators **1.3.** Human functional statement indicators **1.4.** Physical fitness indicators **1.5.** Physical indurance indicators **1.6.** Human Psycho-phisiological statement indicators **1.7.**Physical culture in production activities of bechelor and specialist

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COURSE DESCRIPTION

31.05.01 General Medicine

field of studies / speciality code and title

2023-2023

Course Title	**Urology**
Course Workload	Credits and academic hours – **2/72**
Course contents	
Course Module Title	**Brief Description of the Module Content**
Methods of research of the urological patients	Symptoms of urological disorders of urination disorders. Qualitative and quantitative changes in urine. General clinical and laboratory research methods. Instrumental and endoscopic methods for the study of the urological patient. X-ray methods of examination: review and / in urography, cystography, urethrography, retrograde and antegrade pyelography-ultrasound of the kidneys, bladder, prostate, genitals. Multispiral computed tomography of the kidneys, retroperitoneal space of the bladder, pelvis, prostate. Magnetic resonance imaging of the kidneys, bladder, prostate, renal angiography, venokavagrafiya. Radioisotope methods for the study of the kidneys, parathyroid glands, testicles.
Anomalies of the genitourinary system	Fundamentals of embryology of the urinary and reproductive systems. Classification of kidney abnormalities. Ultrasound and X-ray diagnostic methods. Anomalies of the ureters, bladder and urethra. Classification, treatment. Anomalies of the reproductive system, classification, diagnosis, treatment.
Nonspecific inflammatory diseases of the genitourinary system	Pyelonephritis, etiology, pathogenesis, clinic, diagnostics, classification, treatment principles, perinephritis, nephrosclerosis, pyonephrosis, cystitis, urethritis, prostatitis, epididymoorchitis, etiology, pathogenesis, clinic, diagnosis,

	treatment.
Urolithiasis disease	Etiology, pathogenesis, clinic, diagnosis of urolithiasis. Theories of stone formation. Differential diagnosis of coral stones, bilateral stones of the kidneys. Contact and remote methods of crushing stones. Surgical treatment of urolithiasis. Prevention
Genitourinary trauma	Kidnay injuries: open, closed, clinic, diagnosis, treatment. Injuries to the ureters. Mechanism, diagnosis, treatment. Damage to the bladder and urethra. Etiology diagnosis, clinic and treatment. Damage to the external genital organs, diagnosis and treatment
Tumors of the genitourinary system	Tumors of the kidneys. Classification, diagnosis, clinic and treatment. Wilms tumor. Features of treatment. Tumors of the pelvis and ureter, urinary bladder. TNM classification. Diagnosis and treatment of testicular tumors. classification, clinic, diagnosis and treatment. Prostate cancer, diagnosis and treatment.
Acute and chronic renal failure	Etiology, pathogenesis, clinic and diagnosis of acute renal failure. Causes of CRF, classification, treatment principles. Hemodialysis. principles of device "artificial kidney". Kidney transplantation. Indications operation technique

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COURSE DESCRIPTION

31.05.01 General Medicine

field of studies / speciality code and title

Course Title	Faculty Therapy
Course Workload	Credits and academic hours – 8/288
Course contents	
Course Module Title	**Brief Description of the Module Content**
Module 1 **The respiratorysystem**	Acute and chronic bronchitis. Ethiology, pathogenesis, classification, clinical findings, complications. Defense mechanisms of the respiratory system. The role of smoking in the development of lung and heart diseases. The meaning of spirometry in the diagnosis ofrespiratory failure. Acute pneumonia. Ethiology, pathogenesis, classification. Atypical pneumonia. Microorganisms. Particularity in progression. Lung abscess. Bronchiectasis. Pleuritis. Ethiology. Diagnosis. The significance of pleural tapping. Treatment. Bronchial asthma. Classification, particularity in progression, treatment of different types of bronchial asthma. Status asthmaticus. Chronic obstructive pulmonary diseases. Pulmonary hypertension. Causes, clinicals, treatment. Chronic cor pulmonale. Ethiology, pathogenesis, clinical findings, diagnosis, complications, treatment. Rheumatism. Ethiology, pathogenesis, Particularity in haemodynamics in various malformations. The meaning of streptococcal infections.
Module 2 **Cardiovascular system**	Diagnosis of heart malformations. Particularities of heart sounds and murmurs in malformations. Treatment and prophylaxis of rheumatism. Acquired heart malformations. Diagnosis. Treatment. Infective endocarditis. Classifications. Ethiology, pathogenesis, clinical findings. Particularities of cardiac lesions .Particularities in the progression of infective endocarditis. Treatment, the use of antibacterial therapy and surgical methods in treatment. Cardiomyopathy. Ethiology. Classification. Clinical findings in dilated, hyperthrophic, restrictive cardiomyopathy. Medical treatment. Role of heart transplantation. Hypertension. Ethiology, pathogenesis, clinical findings. Understanding of

	different types of clinical features of hypertension. Risk factors. Classification. Prophylaxis. Treatment. Atherosclerosis Ethiology and pathogenesis. The role of atherosclerosis in ischaemic heart disease. Ischaemic heart disease. Risk factors. Clinical findings. Angina pectoris. Classification. The role of coronarography in diagnosis. Medical treatment of angina. Role of surgical methods of treatment. Aortocoronary shunts, balloon angioplasty, stenting. Myocardial infarction. Pathogenesis. Clinical findings, complications. Treatment. The understanding of acute coronary syndrome. Indicationsand contraindications in the use of the drugs and their side effects. ECG. Their role in the diagnosis of cardiovascular diseases. Arrhythmias and conduction defects. Diagnosis. Clinical importance. Treatment. Main groups of antiarrhythmic drugs. Indications and contraindications in the use of the drugs in different types of arrhythmias. Indications for cardiostimulation.
Module 3 Liver diseases	Main clinical findings. Cytolysis (hepatocyte damage), cholestasis, jaundice, liver synthetic dysfunction, portal hypertension, hypersplenism. Acute and chronic hepatitis. Ethiology, pathogenesis. Clinical findings. The role of viral hepatitis. Antiviral therapy. Indications and contraindications, complications. Liver cirrhosis. Classification. Ethiology, pathogenesis. Clinical findings. Treatment, liver synthetic dysfunction. Pathogenesis, clinical findings. Medicated and non-medicated treatments. Alcoholic disease. Visceral manifestations. Pathogenesis. Clinical findings, diagnosis, complications, treatment. Stigmata of chronic alcoholic intoxication.. Primary biliary cirrhosis. Ethiology, pathogenesis. Clinical findings, treatment. Haemochromatosis, Wilson`s disease. Ethiology, pathogenesis. Clinical findings, diagnosis, treatment. Portal hypertension. Clinical findings, complications, treatment.
Module 4 Renal medicine	Main clinical findings.: acute nephritis, urinary, hypertonic, nephrotic, urinary infections, acute renal failure. Acute and chronic glomerulonephritis. Ethiology , pathogenesis. Clinical findings. Clinical and morphological classification of chronic glomerulonephritis. Treatment. Proliferative glomerulonephritis. Clinical findings, treatment. Amyloidosis. Ethiology. Pathogenesis. Classification. Clinical findings. Visceral manifestation of amyloidosis. The role of biopsy in the diagnosis of amyloidosis. Chronic renal failure. Ethiology pathogenesis, clinical and laboratory findings, diagnosis, complications, treatment. Understanding of haemodialysis. Indications and contraindications in their use. The role of kidney transplantation in the treatment of renal failure.
Module 5 Haematology	Anaemia. Classification. Microcytic, macrocytic, normocytic, anaemia. Normochromic, hyper-and

	hypochromic anaemia. Ethiology, clinical findings. Treatment. Megaloblastic anaemia. Ethiology, diagnosis, treatment. Haemolytic anaemia. Ethiology, principles of diagnosis, treatment. Aplastic anaemia. Ethiology. Diagnosis, treatment. Acute and chronic leukemia Ethiology, pathogenesis,clinical findings, diagnosis, complications, treatment. The role of bone marrow transplantation. Schema of cytotoxic(cytostatic) drugs. Myeloma. Pathogenesis clinical and laboratory findings. Principles of treatment. Hodgkin`s disease. Clinical findings. Principle of treatment.
Module 6 Endocrinology	Toxic multinodular goitre. Hypothyroidism. Ethiology, pathogenesis. Clinical findings. Laboratory findings. Medical treatment. Indication for surgical treatment. Diabetes mellitus. Ethiology, pathogenesis. Classification. Clinical findings, diagnosis, complication, treatment. Hyperglycaemic, hypoglycaemic,hyperosmolar coma. Differential diagnosis. Clinical findings. Treatment. The main complaints. Physical research methods (examination, palpation, percussion, auscultation). Instrumental research methods, laboratory research methods. The main clinical syndromes. Fundamentals of private pathology (thyroid disease, diabetes).
Module 7 Rheumatology	Rheumatoid arthritis. Ethiology, pathogenesis,. Clinical findings. Articular and extra-articular findings. Classification. Laboratory findings. Treatment. Drug treatment in rheumatoid arthritis.NSAID. Groups. Side effects and their prophylaxis. Osteoarthritis. Ankylosing spondylitis. Reiter`s syndrome. Ethiology, pathogenesis, clinical findings, diagnosis, complications, treatment.
Module 8 Metabolic dysfunction	Gout. Classification. Clinical findings, laboratory diagnosis. Alcoholism. Ethiology, pathogenesis, clinicals, complications,treatment.

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PEOPLES' FRIENDSHIP UNIVERSITY OF RUSSIA
RUDN University
Institute of Medicine

educational division - faculty/institute/academy

COURSE DESCRIPTION

31.05.01 General Medicine

field of studies / speciality code and title

2022-2023

Course Title	Traumatology and orthopedics
Course Workload	Credits and academic hours – 6/216
Course contents	
Course Module Title	**Brief Description of the Module Content**
Module 1	History of traumatology and orthopedy deleopment. Types of trauma and trauma care organization. Methods of evaluation. Basic principles of treatment in traumatology and orthopedy. Bone tissue regeneration.
Module 2	Proximal and diaphyseal femural fractures. Classification, clinical findings and treatment.
Module 3	Posttraumatic sinovitis, hemarthrosis. Meniscal impairment, knee ligaments disorders. Patella dislocations. Patella fractures. Intraarticular fractures of femoral and tibial condyles. Clinical findings, diagnostics. Treatment. Arhthroscopy in treatment injuries of the knee. Injuries of the scapula. Injuries of the clavicle. Dislocation of the clavicle. Fractures of the humeral bone. Infuries of the elbow joint. Fractures, fractures-dislocation of the forearm bones. Fractures of the distal metaphys of the radius.

	Fractures and dislocations bones of the hand. Clinical findings, diagnostics, treatment.
Module 4	Features of the medical care on pre-hospital and hospital stages. Traumatic shock. Thromboembolism. Fat embolism. Clinical findinigs. Prophylaxis.
Module 5	Polytrauma.. Classificatioin. Treatment on the evacuationstage. Cuncussion, contusion of the brain. Craniocerebral hematomas. Clinical findings, diagnostics, treatment
Module 6	Dislocations and fractures of the vertebral bodies. Compression fractures. Complicated fractures Clinical findings, diagnostics, treatment.
Module 7	Marginal fractures. Fractures of the pelvic ring. Fractures of the acetabulum. Complicated fractures of the pelvis. Clinicalfindings, diagnostics, treatment.
Module 8	Fractures of the sternum (breast bone). Fractures of the ribs.Hemo-, pneumothorax. Clinical findings, diagnostics, treatment.
Module 9	Primary, secondary deforming arthrosis of large joints. Rheumatoid, gout, psoriatic arthritis. Clinical findings, diagnostics, treatment.
Module 10	Modern types of implants of large joints. Friction pair. Cement cementless endoprosthesis. Indication,contraindication, complication
Module 11	Clinical findings, diagnostics, treatment, prophylaxis. .

	Spondylolisthesis. Spondilodesis
Module 12	Deformity of the foot. Valgus deformity of the 1st toe. Plano-valgus foot. Varus, valgus deformity of the shin. Treatment ofposttraumatic deformities of the long bones.
Module 13	Tumors of the cartilage. Tumors of the bone tissue. Soft tissue tumors. Clinical findings, treatment.
Module 14	Legg-Calve-Perthes disease, Konig disease, Osgood-Schlatter disease, Kienböck's disease, Calvet disease, Scheuermann- Mau disease, Keller osteochondropathy 1,2. Clinical findings, diagnostics, treatment.
Module 15	Congenital muscular torticollis. Clubfoot. Clubhand.Osteogenesis treatment.
Module 16	Tuberculosis of the joints, tuberculous spondylitis. Clinical findings, diagnostics, treatment. Treatment of paralytic foot.
Module 17	Violation of mineral metabolism of bone tissue. Clinicalfindings, treatment.Осложнения остеопороза Complications of the osteoporosis. Actual treatment of the osteoporosis. Complications of ostroporosis.

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COURSE DESCRIPTION

31.05.01 General Medicine

field of studies / speciality code and title

2022-2023

Course Title	**Topical issues of integrative medicine**
Course Workload	Credits and academic hours – **2/72**
Course contents	
Course Module Title	**Brief Description of the Module Content**
Introduction to Integrative Medicine	**Topic 1.1.**The body from the perspective of modern medicine. The disease from the perspective of modern medicine.
Scientific and practical aspects of the system of integrative medicine	**Topic 2.1.** Biochemical portrait of a healthy and sick person. **Topic 2.2.** Connective tissue is the main morpho-functional link in the development of diseases in a living organism. The main proteins of connective tissue are collagen and elastin. Synthesis. Features. **Topic 2.3.** Multilevel system-cybernetic organization of connective tissue components. Multiple dysplasia is the basis for a deeper analysis of human health. **Topic 2.4**. Integrative relationship of protein, lipid and carbohydrate metabolism. **Topic 2.5.** Integrative relationship of mineral and vitamin metabolism.
Integration of the body	**Topic 3.1.** The idea of the integration of the body. General theory of systems. From the cell to the tissues, organs and the whole organism. The body is an integration of complex systems.
Strategy and tactics of the treatment process in the system of integrative medicine	**Topic 4.1.** Integrative diagnostics. Integrative schemes of treatment, medical rehabilitation and prevention of diseases. **Topic 4.2**. Integrative approach in clinical medicine. **Topic 4.3**. Principles of integrative treatment: consistency, metabolism.
Fundamentals of traditional Oriental medicine.	**Topic 5.1.**Phytotherapy in the system of integrative medicine. **Topic 5.2.** Integrative approach to reflexology. Acupuncture as a system of diagnostic and therapeutic methods.

	Topic 5.3. Ayurveda in the system of integrative medicine. Ayurveda is the art of life. Ayurveda is a holistic system of medicine.

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COURSE DESCRIPTION

31.05.01 General Medicine

field of studies / speciality code and title

Course Title	Bioethics
Course Workload	Credits and academic hours – 2/72
Course contents	
Course Module Title	**Brief Description of the Module Content**
Module 1 Ethics is philosophyscience	Concept of morality and structure of moral thinking.Ethics is philosophy science. Ethics' types. Main categorical concepts of Morality. Applied ethics: its concept and structure.
Module 2 Bioethics: its status,range of problems	Concept of bioethics, its place in philosophy and science.Main models of medical ethics throughout the History. Main principles of bioethics.
Module 3 Modern biomedicalethics.	Main models of medical ethics throughout the History.Main principles of bioethics. Historical development of biomedical ethics. Medical ethics. General Issues. Hippocratic Oath andmodern biomedical ethics. Rights and moral responsibility of medical personnel.Patients' rights. Ethics and epidemiology.
Module 4 Abortion. Ethical aspectsof reproductive technology.	Moral problems of reproductive technologies.Genetic engineering. Medical ethics. General Issues. Hippocratic Oath andmodern biomedical ethics. Rights and moral responsibility of medical personnel.Patients' rights.
Module 5 Ethical issues of biotechnology (cell studies, gene therapy,gene engineering, cloning).	Rights and moral responsibility of medical personnel. Patients' rights. Defining death. Dying, dementia, aging.Main principles of bioethics.
Module 6 Death and Dying. End ofHuman Life.	Defining death. Dying, dementia, aging. Main principles of bioethics. Medical ethics.

	General Issues. Hippocratic Oath and modern biomedical ethics. Rights and moral responsibility of medical personnel. Patients' rights
Module 8 Moral problems of phisical and mentalintegrity of patient	Main models of medical ethics throughout the History. Medical ethics. General Issues. Hippocratic Oath and modern biomedical ethics. Rights and moral responsibilityof medical personnel. Patients' rights. Defining death. Dying, dementia, aging. Defining death. Dying, dementia, aging. Mental medicine and antipsychiatry.
Module 9 Experiments involving Human being and animals: legislative and moral background	Research ethics. Animals' rights. Main principles of bioethics. Historical development of biomedical ethics. International documents protecting humans and animal involved in the research.

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COURSE DESCRIPTION

31.05.01General Medicine
field of studies / speciality code and title

2022-2023

Course Title	Evidence Based Medicine
Course Workload	Credits and academic hours – 2/72
Course contents	
Course Module Title	**Brief Description of the Module Content**
Module 1 An introduction to evidence-based medicine. Evidence levels.	Evidence-based medicine as the main way to improve the quality of medical care to the population. The history of thedevelopment of evidence-based medicine. Basic concepts and methods. Objectives of evidence-based medicine,role in the training of a doctor. evels of evidence (A, B, C) and grades of ecommendation (I, IIa, IIb, III). Systematic eview. Meta-analysis.
Module 2 Statistics in Evidence-Based Medicine. Analysis of publications from the standpointof evidence-based medicine.	Basic statistical knowledge required tointerpret evidence-based medicine data. Graphic presentation of statistical data. Sources of professional information. Analysis of publications from the standpoint of evidence-based medicine.Conflict of interest.
Module 3 Pharmacoepidemiology. Pharmacoeconomics.	Definition. Types of pharmacoepidemiological studies Basic methods of pharmacoepidemiological analysis andmodeling. Analysis of drug consumption.
Module 4 Clinical research. Formular system. Adversedrug reactions.	Clinical trials of medicines: phases,GCP, ethical and legal norms. Formular system: principles of construction, methods of choosing medicines. The system for the rationaluse of medicines in Russia. Classification of ADR. Monitoringmethods. Pharmacovigilance.
Module 5 Application of the principles and methods ofevidence-based medicine in the health care system.	Uniform standards for the presentationof the results of randomized controlled trials The concept of GLP. Development and implementation ofclinical guidelines, standards and protocols. Clinical thinking and logic of diagnosis, specific patient managementtactics in

	the era of evidence-based medicine.

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COURSE DESCRIPTION

31.05.01 General Medicine
field of studies / speciality code and title

Course Title	Examination of temporary disability
Course Workload	Credits and academic hours – 2/72
Course contents	
Course Module Title	**Brief Description of the Module Content**
Module 1 The normative base of examination of temporary disability (ETD).	The main legislative and regulatory instruments for theexamination of disability.
Module 2 ETD in variousdiseases and conditions.	ETD in diseases of the cardiovascular system, nervous system, respiratory system, obstetric practice, medicine,surgery, traumatology and orthopedics, pediatrics. Estimated time of disability.
Module 3 The methodology ofthe organization of ETD in a medical organization.	Practical aspects of registration and issuance of sick leavesin the outpatient and inpatient facility. Mandatory accounting and operational documentation for ETD in a medical organization.
Module 4 The role of the Medical Commission at ETD.	The technology of carrying out examination of temporary disability by self-employed physician and in medical organizations: issues of temporary disability in the work of the Medical Commission. Controversial and complex cases of ETD.
Module 5 Criteria and technologyof direction on MSE (medico- social examination).	The selection criteria for medico-social examination, technology of directions for the MSE and the registration ofmedical certificate during the disability.
Module 6 Legal liability under ETD	Medical error at ETD. Classification and analysis. Legalliability of medical institution, it's head and a doctor.

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COURSE DESCRIPTION

31.05.01 General Medicine

field of studies / speciality code and title

Course Title	History of medicine
Course Workload	Credits and academic hours – 3/108
Course contents	
Course Module Title	**Brief Description of the Module Content**
Module 1 Introduction. Early kinds ofhealing	Formation of human society, and early kinds of healing Healing during the maturity of prehistoric society Healing during the decline of prehistoric society Folk medicine
Module 2 Healing and Medicine in Ancient Eastcivilizations	Common characteristics of healing and Medicine inAncient civilizations aling and Medicine in Ancient Mesopotamia mer,Babylonia, Assyria) Healing and Medicine in Ancient Egypt Healing and Medicine in Ancient India Healing and Medicine in Ancient China
Module 3 Healing and Medicine in Ancient Mediterranean countries	Healing and Medicine in Ancient Greece Healing and Medicine in Ancient Rome
Module 4 Medieval Medicine(V–XV centuries)	Medicine in the Byzantine Empire Medicine in the Caliphates (VII–X centuries) Medicine in Middle and Central Asia (X–XV centuries Medicine in Medieval Western Europe (V–XV centuries) Medicine in Medieval Rus (IX–XV centuries)
Module 5 Medicine in Early ModernTime (XV – early XVII century)	Renaissance Medicine in Western Europe Medicine in the Americas before and after the conquest (Mayas, Aztecs, Incas) Medicine in the Russia State (XV–XVII centuries)
Module 6 Bio-medical Sciences in Modern Time(mid XVII–XIX century)	10. The greatest discoveries in natural sciences Biology and Genetics Anatomy Histology and Embryology Pathology

	Microbiology Physiology and Experimental Medicine
Module 7 Clinical Medicine in Modern Time(mid XVII– XIX century)	Internal Medicine. The first physical methods forclinical examination. Medical education The Russian medicine and education in XVIII–XIXcenturies Infectious diseases and Epidemics Problems and progress of Surgery in Modern Time. History of Nursing
Module 8 Medicine andPublic Healthin the XX century. History of Medical Ethics	History of Nobel Prizes. The Nobel prizes in Physiologyor Medicine Medicine and Public Health in Russia in the late XIX –XX century International co-operation in Public Health and Medicine (International Red Cross; World Health Organization; World Physicians against the Nuclear War)

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COURSE DESCRIPTION

31.05.01 General Medicine

field of studies / speciality code and title

Course Title	Maxillofacial Surgery
Course Workload	Credits and academic hours -2/72
Course contents	
Course Module Title	**Brief Description of the Module Content**
Module 1	Anatomy and topographical anatomy of cellular spaces of themaxillofacial region. Clinical characteristics of inflammation. Pathoanatomic and pathophysiological pictureof inflammation. Definition of abscess and phlegmon. Ways of spreading purulent infection. Method of treatment of purulent wounds of the maxillofacial region. Principles of drug treatment of acute inflammatory diseases of themaxillofacial region.
Module 2	Classification of facial skull fractures. Etiology, pathogenesis, assessment of the severity of damage, general posttraumatic disorders, taking into account age and concomitant pathologies. Features of emergency care for fractures of the upper jaw, zygomatic bone, nasal bones. Prevention, diagnosis and prognosis of post-traumatic complications, the choice of therapeutic tactics, interaction with doctors of related specialties.
Module 3	Classification of fractures of the lower jaw, the mechanisms of their occurrence. Clinic, diagnosis and treatment of patients.
Module 4	Classification of tumors of the maxillofacial

	region. Diagnosis, features of the course and treatment of benign and malignant tumors of the maxillofacial area. Emergency and planned care for patients with tumors of the maxillofacial region. Differential diagnosis of tumors with similar pathological processes. A treatment plan for various tumor processes.
Module 5	Methods of research of salivary glands, methods of its assessment. Classification, clinical picture and treatment of sialoadenitis, salivary stone disease, tumor lesions of the salivary glands. The technique of diagnostic puncture of the glands, removal of stones from the ducts of the salivary glands, extirpation of the submandibular and parotid salivary glands, analgorithm for treating diseases depending on etiopathogenesis.
Module 6	Causes and types of defects of the maxillofacial region. Principles of planning and conducting reconstructive operations in the maxillofacial region. Indications for various types of reconstructive operations. Deontological methods of behavior with patients with defects and deformities of the tissues of the maxillofacial region. Features of the structure of the maxillofacial region and the basic principles of planning restorative treatment, the main components of restorative treatment, types of reconstructive operations and features of their implementation in the maxillofacial region, features of medical rehabilitation of patients with defects and deformities of the maxillofacial region.

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COURSE DESCRIPTION

31.05.01 General Medicine

field of studies / speciality code and title

2022-2023

Course Title	Medical Enzymology
Course Workload	Credits and academic hours – 2/72
Course contents	
Course Module Title	**Brief Description of the Module Content**
Module 1 Medical enzymology. Targets and goals. History of development and success of medical enzymology in Russia.	Discovery of enzymes: Louis Pasteur, V. Kühne, Y. Liebig, M. Berthelot, E. Buchner, M.M. Manaseina. The history of the development of national enzymology. Establishment of leading research centers and areas of focus: Bach A.N., Kizel A.R., Gulevich V.S., Parnas Ya.O., Engelhardt VA, Braunstein, A.E., Oparin, A.I., Belozersky, A.N., Severin S.E., Ashmarin I.P.Development of Enzymology at Moscow State University Mv Lomonosov, First MGMU them. THEM. Sechenov, Institute of Biomedical Chemistry. V.N. Orekhovich, Institute of PCB them. A.N. Belozersky MSU, FIT Biotechnology RAS. The main areas of medical enzymology: enzymopathology, enzymodiagnostics, enzyme therapy, engineering enzymology. Basic concepts. Classification of enzymopathies: primary (hereditary), secondary (acquired: alimentary and toxic). Goals of enzymatic diagnostics: early diagnosis, differential diagnosis, assessment of the dynamics of the disease, assessment of the effectiveness of treatment, assessment of the effectiveness of recovery, assessment of the prognosis of the disease. Enzymotherapy:

	replacement therapy and comprehensive. Engineering Enzymology. The use of immobilized enzymes in the food, chemical, pharmaceutical industry and medicine.
Module 2 Mechanisms of enzymatic catalysis and regulation of enzyme activity	Biocatalysts. Enzymes and ribozymes. Chemical and biological catalysis (common aspects and differences). Mechanism of action. Kinetics of chemical reactions. Michaelis constant. The structure and properties of enzymes as protein molecules. Coenzymes and their relationship with vitamins. Principles of regulation of enzyme activity. Inhibitors and activators of enzymes. Isozymes. Classification and nomenclature of enzymes.
Module 3 Engineering Enzymology	Fundamental and applied aspects of engineering enzymology. The main directions of development. Enzyme engineering. Rational design and directed enzyme evolution. Rational design of industrial enzymes. Site-specific mutagenesis. Ways to obtain enzymes with a stable conformation and activity: a hydrophobic core stabilization, reduction of the polypeptide chain mobility, substitution of amino acid residues in the active center. Directed evolution of enzymes: creation of a library of mutated enzyme genes, gene expression in a microbial host, recombination of genes encoding enzymes with improved properties. Method of computer molecular design (molecular docking technology): successes and prospects. The creation of heterogeneous catalysts based on immobilized enzymes and cells. Immobilization of enzymes. Microencapsulation and inclusion of enzymes in liposomes. The use of immobilized enzymes in the food and pharmaceutical industries. Production of medicines (antibiotics: penicillins, cephalosporins, tetracyclines, erythromycins). Production of 6-aminopenicillanic acid using penicillin amidase. Immobilized enzymes for

	medicine: streptokinase, trypsin, chymotrypsin, subtilisin, collagenase. Creating Smart Biocatalysts - enzymes associated with polymers, the structure of which reversibly changes in response to the action of certain factors (temperature, pressure, pH, ionic strength, magnetic field).
Module 4 Enzymes, isoenzymes and their role in the diagnostics of internal organs pathologies.	Factors underlying enzymodiagnostics: uneven distribution of enzymes in tissues, the presence of organ-specific enzymes. Myocardial infarction: an increase in serum creatine kinase (CK), lactate dehydrogenase (LDH), aspartate aminotransferase (AST) and alanine aminotransferase (ALT). The dynamics of changes in the activity of these enzymes. Definition of isoenzymes LDH1, LDH2 and CK (MM and MB), inherent in the cardiac muscle, as a more informative analysis compared to the measurement of enzymatic activity. Enzymodiagnostics of liver diseases. Relationship of the elevation on activity of organ-specific hepatic enzymes with the metabolic processes in the liver. Dynamics of changes in the activity of ALT and AST in the serum in liver diseases. The diagnostic value of the determination of isoenzymes LDH4, LDH5 and hepatic alkaline phosphatase. Changes in the activity of diagnostically significant enzymes in the blood serum in diseases of the pancreas, bone tissue, muscles, prostate. Methods for obtaining purified enzyme preparations. Ultracentrifugation. Chromatography: ion- exchange, adsorption, gel filtration, affinity (biospecific), high-performance liquid. Electrophoretic methods. Membrane methods, ultrafiltration.
Module 5 Laboratory tests for determination of enzyme activity in the clinical practice.	Determination of enzyme activity for use in clinical practice for the purpose of establishing a diagnosis; differential diagnosis; assessment of the dynamics of the disease; monitoring of ongoing therapy. Methods for determining the activity of enzymes: single-point and multipoint kinetics, etc. Methods for

	determining the concentration of product or substrate (direct photometry, staining ofthe substrate or product with a dye, Warburg Test). Methods for determining the activity of individual enzymes used in clinical practice (AST, ALT, LDH, CK, ALKP, ASP, CHE, amylase). ELISA (classification and principle of the method). Enzymes used in ELISA as labels.
Module 6 Enzymes used for replacement therapy in patients with pancreatic insufficiency.	Compounds secreted by the pancreas. Classification of pancreatic enzymes. Characteristics of individual enzymes: composition, activation mechanism, mechanism of action, substrate specificity. Possible causes of pancreatic insufficiency. Classification of enzymes used in pancreatic insufficiency: enzymes of animal and plant origin, mono- and multienzyme preparations. Characteristics of individual multienzyme preparations: composition, dosage forms, aspects of production and action, degree of purification; comparison of composition and enzymatic activity of components.
Module 7 Enzymes used in cosmetology and dermatology	The history of the use of enzymes in cosmetology and dermatology. Classification of enzymes used in cosmetology and dermatology. Proteolytic enzymes of animal origin - trypsin, chymotrypsin, pancreatic ribonuclease, collagenase and deoxyribonuclease, hyaluronidase; bacterial origin - collagenase, α-amylase, streptokinase, deoxyribonuclease, subtilisin, keratinase; of plant origin - ficin (from the juice of figs), bromelain (from bromeliad family plants, including pineapple), papain (from papaya fruit and melon tree leaves). The concept of cosmetic enzymology. Enzyme-based hair removal, correction of local fat deposits with the help of enzymes. Enzymes in clinical practice: nucleases, lyases, immobilized enzyme preparations, combined enzyme preparations.
Module 8 Thrombolytic enzymes and blood coagulation factors.	The concept of thrombolysis. The mechanism of thrombolysis. Thrombolytic enzymes: plasminogen, plasmin, tissue plasminogen activator. Thrombolytic drugs: urokinase,

	streptokinase, alteplase, reteplase, monteplase, lanoteplaza, palmyplaza, thrombovazim. Blood coagulation factors: structure, functions, mechanism of action, methods of activity regulation.
Module 9 Hereditary deficiencies of enzymes.	The concept of orphan diseases and orphan drugs. General principles of diagnosis and treatment ofhereditary tyrosinemia, alkaptonuria, albinism, maple syrup disease, homocystinuria (biochemical pathogenesis, clinical presentation, diagnosis,treatment). Lysosomal storage disorders: Niemann-Pick disease, Gaucher disease, Fabry disease,Tay-Sachs disease (biochemical pathogenesis, clinical presentation, diagnosis, treatment). Disfunction of the ornithine cycle. Disorders of bile acids metabolism. Porphyrin metabolism disorders: acute intermittent porphyria. Disorders of purine and pyrimidine metabolism: Lesch-Nyhan syndrome. Disorders of steroid metabolism: congenital adrenal hyperplasia
Module 10 Enzymes used in the treatment of cancer	Classification of enzymes with antitumor activity, as shown in clinical and experimental research. L- asparaginase: sources, mechanism of action, products on the market, features of clinical use, side effects. The role of glutaminase activity in the realization of the therapeutic effect and toxic action of L-asparaginase. The effect of pegylation on the effectiveness of L-asparaginase. The role of asparagine synthetase in tumor sensitivity determination to L- asparaginase.

Module 11 Enzymes of purine and pyrimidine metabolism as targets for antitumor therapy.	Dihydrofolate reductase and its inhibitors: methotrexate, pemetrexed, raltitrexed (mechanism of action, indications for use, features of clinical use). Thymidylate synthase and its inhibitors: fluorouracil, capecitabine, tegafur (mechanism of action, indications for use, features of clinical use). DNA polymerase and its inhibitors: cytarabine (mechanism of action, indications for use, features of clinical use). Ribonucleotide reductase and its inhibitors: gemcitabine (mechanism of action, indications for use, features of clinical use). Ribonucleotide reductase and its inhibitors: cladribine, fludarabine (mechanism of action, indications for use, features of clinical use). Topoisomerases and their inhibitors: irinotecan, topotecan, etoposide, doxorubicin (mechanism of action, indications for use, clinical features).
Module 12 Enzymes of Human Immunodeficiency Virus and Hepatitis C Virus as targets for antitumor therapy.	HIV reverse transcriptase and its inhibitors: nucleoside / nucleotide analogues: abacavir, emtricitabine, lamivudine, zidovudine, tenofovir; non-nucleotide inhibitors: efavirenz, nevirapine, etravirine, rilpivirin (mechanism of action, indications for use, clinical features). HIV protease and its inhibitors: atazanavir, darunavir, fosamprenavir, lopinavir, ritonavir, saquinavir, tipranavir (mechanism of action, indications for use, features of clinical use). HIV integrase and its inhibitors: raltegravir, dolutegravir, elvitegravir (mechanism of action, indications for use, features of clinical use). Hepatitis C virus NS 3/4 A protease and its inhibitors: asunaprevir, boceprevir, paritaprevir, simeprevir, telaprevir (mechanism of action, indications for use, features of clinical use). RNA polymerase NS 5 B of the hepatitis C virus and its inhibitors: dasabuvir, sofosbuvir (mechanism of action, indications for use, features of clinical use)
Module 13 Target Enzymes for the Treatment of Cardiovascular Diseases	HMG-CoA reductase inhibitors (statins). Angiotensin-converting enzyme (ACE) inhibitors. Effect of ACE inhibitors on

	endothelial function and oxidative stress. Endothelial NO synthase. Drugs that reduce the formation of pro-oxidant factors by acting on the sources of their formation (lipoxygenase blockers); Drugs that increase the activity and power of antioxidant enzymes (superoxide dismutase). Cytoprotectors used in cardiology: inhibitors of carnitine- palmitoyltransferase (perhexylin, etomoxir, oxfenicin, aminocarnitine); fatty acid β-oxidation inhibitors (trimetazidine, ranolazine); pyruvate dehydrogenase stimulants (dichloroacetate, left carnitine); drugs with other mechanisms of action (cocarboxylase)).
Module 14 Target Enzymes for Anti-Inflammatory Drugs	Mechanisms of development and forms of inflammation. Cycloxygeneses and their inhibitors:salicylates, pyrazolidines, derivatives of indole acetic acid, derivatives of phenylacetic acid, oxicam, alkanones, derivatives of sulfonamide (mechanism of action, indications for use, features of clinical use). The role of mTOR kinase in the development of inflammation. Inhibitors of mTOR.
Module 15 Tyrosine kinases that regulate tumor progression as targets for chemotherapy of malignant tumors.	The concept of a molecular target with which the drug interacts. Tyrosine kinases are enzymes that transfer phosphate group to the tyrosine residues of proteins. Effective target drugs that reduce the activity of tyrosine kinases in tumors. Biochemical mechanisms of tyrosine kinase activity regulation by small molecules - prototypes of new drugs. Experimental approaches to demonstrate targeting.

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COURSE DESCRIPTION

31.05.01 General Medicine

field of studies / speciality code and title

Course Title	Microbiology
Course Workload	Credits and academic hours – 8/288
Course contents	
Course Module Title	**Brief Description of the Module Content**
Module 1 The subject and objectives of Microbiology and Virology, their importancein medical practice.	Microbe as a living system. Morphology and Structure of microorganisms. Principles of classification. Microscopic techniques.
Module 2 Physiology of microorganisms.	Growth and reproduction. Aerobic and anaerobic bacteria. An enzymatic activity of the microorganisms.
Module 3 Genetics of microorganisms	Types of variability, exchange of genetic information in microbes.
Module 4 General Virology	The structure of viruses, the interaction of viruses with cells, thereproduction of viruses. Bacteriophages.
Module 5 The relationship of microbial populations in thebody.	Synergy and antagonism. Antibiotics. The main groups of antibiotics, the mechanism of their action. Antibiotic resistance andways to overcome it.
Module 6 The doctrine of infection.	Dynamics of the infectious process, types of infections.
Module 7 Pathogenic and residentcocci.	Staphylococci, streptococci. Causative agents of gonorrhea andmeningococcal infection.
Module 8 Causative agents of respiratory infections.	Causative agent of diphtheria. The causative agents of whoopingcough and parapertussis.
Module 9 Pathogenic mycobacteria.	The causative agents of tuberculosis and leprosy.
Module 10 Pathogenic and residentanaerobic bacteria.	Causative agents of gas gangrene, tetanus and botulism. Do not spores forming anaerobes that are involved in the pathology of theoral cavity.
Module 11 The causative agents ofzoonotic diseases	The causative agents of zoonotic diseases: plague, tularemia,anthrax and brucellosis.

Module 12 The causative agents ofintestinal infections.	Typhoid fever, dysentery, salmonellosis, cholera, escherichiosis.Compylobacter and helicobacter.
Module 13 Agents of spirochetosis.	Syphilis. Borreliosis and Lyme diseases, Leptospirosis,
Module 14 Pathogenic Rickettsia andchlamydia.	Causative Agents of epidemic typhoid fever, Q- fever and otherrickettsioses. Causative agents of chlamydia.
Module 15 Protozoal infection	The causative agents of amoebiasis, balantidiasis, trypanosomiasis,leishmania and malaria Classification of mycoses. Dermatomycosis. Candidiasis,pneumocytosis Polio, influenza, herpes, HIV and AIDS. Hepatitis. Viruses of hemorrhagic fevers
Module 16 Mycotic infection	Causative Agents of epidemic typhoid fever, Q- fever and otherrickettsioses. Causative agents of chlamydia.
Module 17 Viral infections	The causative agents of amoebiasis, balantidiasis, trypanosomiasis,leishmania and malaria

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COURSE DESCRIPTION

31.05.01 General medicine

field of studies / speciality code and title

2022-2023

Course Title	Modern Methods of medical statistics
Course Workload	Credits and academic hours 2/72
Course contents	
Course Module Title	**Brief Description of the Module Content**
Module 1 STATISTICAL BASICS	**Topic 1.1.** SAMPLING METHODS AND EXPERIMENTAL DESIGN
	Topic 1.2. GRAPHICAL DESCRIPTIONS OF DATA (QUALITATIVE DATA; QUANTITATIVE DATA; OTHER GRAPHICAL REPRESENTATIONS OF DATA)
Module 2 DESCRIPTIVE STATISTIC	**Topic 2.1.** MEASURES OF CENTER, MEASURES OF SPREAD, RANKING **Topic 2.2.** ESTIMATES OF DISTRIBUTION PARAMETERS
Module 3 **STATISTICAL ANALYSIS**	**Topic 3.1** ONE-SAMPLE INFERENCE AND ESTIMATION
	Topic 3.2 TWO-SAMPLE INTERFERENCE
	Topic 3.3 REGRESSION AND CORRELATION
	Topic 3.4 ANALYSIS OF CONTINGENCY TABLES. CHI-SQUARE AND ANOVA TESTS
	Topic 3.5 STATISTICS WHICH TEST DIFFERENCE

	Topic 3.6 STATISTICS WHICH COMPARE RISK
	Topic 3.7 SURVIVAL ANALYSIS
	Topic 3.8 STATISTICS WHICH ANALYSE CLINICAL INVESTIGATIONS AND SCREENING

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COURSE DESCRIPTION

31.05.01 General Medicine

field of studies / speciality code and title

2022-2023

Course Title	Polyclinic Therapy
Course Workload	Credits and academic hours – 12/233
Course contents	
Course Module Title	**Brief Description of the Module Content**
Module 1 Organization of the work of outpatient clinics. Organization of the localtherapist and general practitioner work.	1.1. The general principles of the organization of the outpatient clinics. Organization and content of work of therapeutic department clinics. 1.2. Organization of the local therapist and generalpractitioner. 1.3. The concept of standards (protocols) the management of patients in outpatient conditions. Standards (protocols) of patients with the most commondiseases in the practice of the therapist. General and specific issues of examination oftemporary disability. The procedure for referral tomedical and social expertise. Disability.
Module 2	2.1. Fever and low-grade fever in outpatient practice.Differential diagnosis. Management of patients. 2.2. Interpretation of blood count in outpatient practice,highlighting the main syndromes and initial diagnosis. Anemic syndrome. 2.3. The interpretation of urinalysis. Urinary Syndrome.Urogenital diseases in general practice. 2.4. Respiratory diseases in outpatient practice. Diseases of the circulatory system in the
Module 3	
Module 4	4.1. Rational antibiotic therapy in outpatient practice.

	4.2. Diet therapy in GP. 4.3 Diseases prevention at the stage of polyclinics.

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COURSE DESCRIPTION

31.05.01 General Medicine

field of studies / speciality code and title

2022-2023

Course Title	"**Propedeutics of internal diseases**"
Course Workload	Credits and academic hours – 8/233
Course contents	
Course Module Title	**Brief Description of the Module Content**
Module 1	Acute and chronic bronchitis. Ethiology, pathogenesis, classification, clinical findings, complications. Defense mechanisms of the respiratory system. The role of smoking in the development of lung and heart diseases. The meaning of spirometry in the diagnosis of respiratory failure. Acute pneumonia. Ethiology, pathogenesis, classification. Atypical pneumonia. Microorganisms. Particularity in progression. Lung abscess. Bronchiectasis. Pleuritis. Ethiology. Diagnosis. The significance of pleural tapping. Treatment. Bronchial asthma. Classification, particularity in progression, treatment of different types of bronchial asthma. Status asthmaticus. Chronic obstructive pulmonary diseases. Pulmonary hypertension. Causes, clinicals, treatment. Chronic cor pulmonale. Ethiology, pathogenesis, clinical findings, diagnosis, complications, treatment. Rheumatism. Ethiology, pathogenesis, Particularity in haemodynamics in various malformations. The meaning of streptococcal infections.
Module 2	Diagnosis of heart malformations. Particularities of heartsounds and murmurs in malformations. Treatment and

	prophylaxisof rheumatism. Acquired Particularities in the progression of infective endocarditis.Treatment, the use of antibacterial therapy and surgical methods intreatment. Cardiomyopathy. Ethiology. Classification. Clinical findings in dilated, hyperthrophic, restrictive cardiomyopathy. Medical treatment. Role of heart transplantation. Hypertension. Ethiology, pathogenesis,clinical findings. Understanding of different types of clinical features of hypertension. Risk factors. Classification. Prophylaxis. Treatment. Atherosclerosis. Ethiology and pathogenesis. The role of atherosclerosis in ischaemic heart disease. Ischaemic heart disease. Risk factors. Clinical findings. Angina pectoris. Classification. The role of coronarography in diagnosis. Medical treatment of angina. Role of surgical methods of treatment. Aortocoronary shunts, balloon angioplasty, stenting. Myocardial infarction. Pathogenesis. Clinical findings, complications. Treatment. The understanding of acute coronary syndrome. Indications and contraindications in the use of the drugs and their side effects. ECG. Their role in the diagnosis of cardiovascular diseases. Arrhythmias and conduction defects. Diagnosis. Clinical importance. Treatment. Main groups of antiarrhythmic drugs. Indications and contraindications in the use of the drugs in different types of arrhythmias. Indications for cardiostimulation.
Module 3 Liver diseases	Main clinical findings. Cytolysis (hepatocyte damage), cholestasis, jaundice, liver synthetic dysfunction, portal hypertension, hypersplenism. Acute and chronic hepatitis. Ethiology, pathogenesis. Clinical findings. The role of viral hepatitis. Antiviral therapy. Indications and contraindications, complications. Liver cirrhosis. Classification. Ethiology, pathogenesis. Clinical findings. Treatment,

	liver synthetic dysfunction. Pathogenesis, clinical findings. Medicated and non-medicated treatments. Alcoholic disease. Visceral manifestations. Pathogenesis. Clinical findings, diagnosis, complications, treatment. Stigmata of chronic alcoholic intoxication.. Primary biliary cirrhosis. Ethiology, pathogenesis. Clinical findings, treatment. Haemochromatosis, Wilson`s disease. Ethiology, pathogenesis. Clinical findings, diagnosis, treatment. Portal hypertension. Clinical findings, complications, treatment.
Module 4 Renal medicine	Main clinical findings.: acute nephritis, urinary, hypertonic, nephrotic, urinary infections, acute renal failure. Acute and chronic glomerulonephritis. Ethiology , pathogenesis. Clinical findings. Clinical and morphological classification of chronic glomerulonephritis. Treatment. Proliferative glomerulonephritis. Clinical findings, treatment. Amyloidosis. Ethiology. Pathogenesis. Classification. Clinical findings. Visceral manifestation of amyloidosis. The role of biopsy in the diagnosis of amyloidosis. Chronic renal failure. Ethiology pathogenesis, clinical and laboratory findings, diagnosis, complications, treatment. Understanding of haemodialysis. Indications and contraindications in their use. The role of kidney transplantation in the treatment of renal failure.
Module 5 Haematology	Anaemia. Classification. Microcytic, macrocytic, normocytic, anaemia. Normochromic, hyper-and hypochromic anaemia. Ethiology, clinical findings. Treatment. Megaloblastic anaemia. Ethiology, diagnosis, treatment. Haemolytic anaemia. Ethiology, principles of diagnosis, treatment. Aplastic anaemia. Ethiology. Diagnosis, treatment. Acute and chronic leukemia Ethiology, pathogenesis, clinical findings, diagnosis, complications, treatment. The role of bone marrow transplantation. Schema of cytotoxic(cytostatic) drugs. Myeloma. Pathogenesis clinical and

	laboratory findings. Principles of treatment. Hodgkin`s disease. Clinical findings. Principle of treatment.
Module 6 Endocrinology	Toxic multinodular goitre. Hypothyroidism. Ethiology, pathogenesis. Clinical findings. Laboratory findings. Medical treatment. Indication for surgical treatment. Diabetes mellitus. Ethiology, pathogenesis. Classification. Clinical findings, diagnosis, complication, treatment. Hyperglycaemic, hypoglycaemic, hyperosmolar coma. Differential diagnosis. Clinical findings. Treatment. The main complaints. Physical research methods (examination, palpation, percussion, auscultation). Instrumental research methods, laboratory research methods. The main clinical syndromes. Fundamentals of private pathology (thyroid disease, diabetes).
Module 7 Rheumatology	Rheumatoid arthritis. Ethiology, pathogenesis. Clinical findings. Articular and extra-articular findings. Classification. Laboratory findings. Treatment. Drug treatment in rheumatoid arthritis. NSAID. Groups. Side effects and their prophylaxis. Osteoarthritis. Ankylosing spondylitis. Reiter`s syndrome. Ethiology, pathogenesis, clinical findings, diagnosis, complications,treatment.
Module 8 Metabolic dysfunction	Gout. Classification. Clinical findings, laboratory diagnosis. Alcoholism. Ethiology, pathogenesis, clinicals, complications, treatment.

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COURSE DESCRIPTION

31.05.01 General Medicine

field of studies / speciality code and title

2022-2023

Course Title	Reproductive health
Course Workload	Credits and academic hours – 2/72
Course contents	
Course Module Title	**Brief Description of the Module Content**
Module 1 Urgent conditions in gynecology: "Acute stomach".Sepsis.	Urgent conditions in gynecology. The conceptof "acute stomach". Perforation of the uterus. Disturbed ectopic pregnancy. Ovarianapoplexy. Twist the legs of the ovarian tumor. Violation of nutrition of the myomatous node. Rupture of the wall of the purulent focus of thepelvic organs. Pelvioperitonitis. Peritonitis Sepsis: etiology, pathogenesis, clinical picture,diagnosis, treatment, prevention.
Module 2 Methods of birth control in the modern world. Abortion is dangerous and safe. Post- abortion	Family planning. tasks and methods. Abortion: dangerous and safe. Classification, indications, and methods. Medical abortion scheme. Methods of late-term termination of pregnancy. Pre-gravidar training. Classification of methods of contraception. Emergency contraception. Infertile marriage: classification, diagnosis,methods of overcoming. Assisted reproductive technologies.
Module 3 Peri – and postmenopausaldisorders	Pathology of the perimenopausal period. Early, medium-term and late manifestations of menopausal syndrome. The STRAW+10 scale. A window of therapeutic opportunities.

	Features of menopausal hormone therapy: classification, regimens, indications, contraindications.
Module 4 Benign diseases of the mammary glands. Classification, clinic of various forms of DMC,diagnosis, treatment. Prevention of cancer. Screening methods of examination.	Benign breast dysplasia: definition, etiology, pathogenesis, risk factors, classification, clinical anddiagnostic criteria, treatment, prevention. Key risk factors, etiological factors, and cancer prevention measures. Pathogenesis, stages of endometrial, cervical, ovarian, breast cancer, early and late clinical symptoms of endometrial, cervical, ovarian, and breast cancer; diagnostic methods, metastasis pathways.
Module 5 Pelvic pain. Differential diagnosis of gynecological and extragenitaldiseases associated with pelvic pain syndrome.	Chronic pelvic pain syndrome.Differential diagnosis. Endometriosis. Definition of the concept, etiology,pathogenesis, classification, features of the clinical picture, conservative treatment, indications for surgical treatment.

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COURSE DESCRIPTION

31.05.01 General Medicine

field of studies / speciality code and title

2022-2023

Course Title	**Topical issues of integrative medicine**
Course Workload	Credits and academic hours – **2/72**
Course contents	
Course Module Title	**Brief Description of the Module Content**
Introduction to Integrative Medicine	**Topic 1.1.**The body from the perspective of modern medicine. The disease from the perspective of modern medicine.
Scientific and practical aspects of the system of integrative medicine	**Topic 2.1.** Biochemical portrait of a healthy and sick person. **Topic 2.2.** Connective tissue is the main morpho-functional link in the development of diseases in a living organism. The main proteins of connective tissue are collagen and elastin. Synthesis. Features. **Topic 2.3.** Multilevel system-cybernetic organization of connective tissue components. Multiple dysplasia is the basis for a deeper analysis of human health. **Topic 2.4**. Integrative relationship of protein, lipid and carbohydrate metabolism. **Topic 2.5.** Integrative relationship of mineral and vitamin metabolism.
Integration of the body	**Topic 3.1.** The idea of the integration of the body. General theory of systems. From the cell to the tissues, organs and the whole organism. The body is an integration of complex systems.
Strategy and tactics of the treatment process in the system of integrative medicine	**Topic 4.1.** Integrative diagnostics. Integrative schemes of treatment, medical rehabilitation and prevention of diseases. **Topic 4.2**. Integrative approach in clinical medicine. **Topic 4.3**. Principles of integrative treatment: consistency, metabolism.
Fundamentals of traditional Oriental medicine.	**Topic 5.1.**Phytotherapy in the system of integrative medicine. **Topic 5.2.** Integrative approach to reflexology. Acupuncture as a system of diagnostic and therapeutic methods.

	Topic 5.3. Ayurveda in the system of integrative medicine. Ayurveda is the art of life. Ayurveda is a holistic system of medicine.

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COURSE DESCRIPTION

31.05.01 General Medicine
field of studies / speciality code and title

Course Title	Bioethics
Course Workload	Credits and academic hours – 2/72
Course contents	
Course Module Title	**Brief Description of the Module Content**
Module 1 Ethics is philosophyscience	Concept of morality and structure of moral thinking.Ethics is philosophy science. Ethics' types. Main categorical concepts of Morality. Applied ethics: its concept and structure.
Module 2 Bioethics: its status,range of problems	Concept of bioethics, its place in philosophy and science.Main models of medical ethics throughout the History. Main principles of bioethics.
Module 3 Modern biomedicalethics.	Main models of medical ethics throughout the History.Main principles of bioethics. Historical development of biomedical ethics. Medical ethics. General Issues. Hippocratic Oath andmodern biomedical ethics. Rights and moral responsibility of medical personnel.Patients' rights. Ethics and epidemiology.
Module 4 Abortion. Ethical aspectsof reproductive technology.	Moral problems of reproductive technologies.Genetic engineering. Medical ethics. General Issues. Hippocratic Oath andmodern biomedical ethics. Rights and moral responsibility of medical personnel.Patients' rights.
Module 5 Ethical issues of biotechnology (cell studies, gene therapy,gene engineering, cloning).	Rights and moral responsibility of medical personnel. Patients' rights. Defining death. Dying, dementia, aging.Main principles of bioethics.
Module 6 Death and Dying. End ofHuman Life.	Defining death. Dying, dementia, aging. Main principles of bioethics. Medical ethics.

	General Issues. Hippocratic Oath and modern biomedical ethics. Rights and moral responsibility of medical personnel. Patients' rights
Module 8 Moral problems of phisical and mentalintegrity of patient	Main models of medical ethics throughout the History. Medical ethics. General Issues. Hippocratic Oath and modern biomedical ethics. Rights and moral responsibilityof medical personnel. Patients' rights. Defining death. Dying, dementia, aging. Defining death. Dying, dementia, aging. Mental medicine and antipsychiatry.
Module 9 Experiments involving Human being and animals: legislative and moral background	Research ethics. Animals' rights. Main principles of bioethics. Historical development of biomedical ethics. International documents protecting humans and animal involved in the research.

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COURSE DESCRIPTION

31.05.01 General Medicine

field of studies / speciality code and title

Course Title	Faculty Therapy
Course Workload	Credits and academic hours – 8/288
Course contents	
Course Module Title	**Brief Description of the Module Content**
Module 1 **The respiratorysystem**	Acute and chronic bronchitis. Ethiology, pathogenesis, classification, clinical findings, complications. Defense mechanisms of the respiratory system. The role of smoking in the development of lung and heart diseases. The meaning of spirometry in the diagnosis ofrespiratory failure. Acute pneumonia. Ethiology, pathogenesis, classification. Atypical pneumonia. Microorganisms. Particularity in progression. Lung abscess. Bronchiectasis. Pleuritis. Ethiology. Diagnosis. The significance of pleural tapping. Treatment. Bronchial asthma. Classification, particularity in progression, treatment of different types of bronchial asthma. Status asthmaticus. Chronic obstructive pulmonary diseases. Pulmonary hypertension. Causes, clinicals, treatment. Chronic cor pulmonale. Ethiology, pathogenesis, clinical findings, diagnosis, complications, treatment. Rheumatism. Ethiology, pathogenesis, Particularity inhaemodynamics in various malformations. The meaning of streptococcal infections.
Module 2 **Cardiovascular system**	Diagnosis of heart malformations. Particularities of heart sounds and murmurs in malformations. Treatment and prophylaxis of rheumatism. Acquired heart malformations. Diagnosis. Treatment. Infective endocarditis. Classifications. Ethiology, pathogenesis, clinical findings. Particularities of cardiac lesions .Particularities in the progression of infective endocarditis. Treatment, the use of antibacterial therapy and surgical methods in treatment. Cardiomyopathy. Ethiology. Classification. Clinical findings in dilated, hyperthrophic, restrictive cardiomyopathy. Medical treatment. Role of heart transplantation. Hypertension. Ethiology, pathogenesis, clinical findings. Understanding of

	different types of clinical features of hypertension. Risk factors. Classification. Prophylaxis. Treatment. Atherosclerosis Ethiology and pathogenesis. The role of atherosclerosis in ischaemic heart disease. Ischaemic heart disease. Risk factors. Clinical findings. Angina pectoris. Classification. The role of coronarography in diagnosis. Medical treatment of angina. Role of surgical methods of treatment. Aortocoronary shunts, balloon angioplasty, stenting. Myocardial infarction. Pathogenesis. Clinical findings, complications. Treatment. The understanding of acute coronary syndrome. Indicationsand contraindications in the use of the drugs and their side effects. ECG. Their role in the diagnosis of cardiovascular diseases. Arrhythmias and conduction defects. Diagnosis. Clinical importance. Treatment. Main groups of antiarrhythmic drugs. Indications and contraindications in the use of the drugs in different types of arrhythmias. Indications for cardiostimulation.
Module 3 Liver diseases	Main clinical findings. Cytolysis (hepatocyte damage), cholestasis, jaundice, liver synthetic dysfunction, portal hypertension, hypersplenism. Acute and chronic hepatitis. Ethiology, pathogenesis. Clinical findings. The role of viral hepatitis. Antiviral therapy. Indications and contraindications, complications. Liver cirrhosis. Classification. Ethiology, pathogenesis. Clinical findings. Treatment, liver synthetic dysfunction. Pathogenesis, clinical findings. Medicated and non-medicated treatments. Alcoholic disease. Visceral manifestations. Pathogenesis. Clinical findings, diagnosis, complications, treatment. Stigmata of chronic alcoholic intoxication.. Primary biliary cirrhosis. Ethiology, pathogenesis. Clinical findings, treatment. Haemochromatosis, Wilson`s disease. Ethiology, pathogenesis. Clinical findings, diagnosis, treatment. Portal hypertension. Clinical findings, complications, treatment.
Module 4 Renal medicine	Main clinical findings.: acute nephritis, urinary, hypertonic, nephrotic, urinary infections, acute renal failure. Acute and chronic glomerulonephritis. Ethiology , pathogenesis. Clinical findings. Clinical and morphological classification of chronic glomerulonephritis. Treatment. Proliferative glomerulonephritis. Clinical findings, treatment. Amyloidosis. Ethiology. Pathogenesis. Classification. Clinical findings. Visceral manifestation of amyloidosis. The role of biopsy in the diagnosis of amyloidosis. Chronic renal failure. Ethiology pathogenesis, clinical and laboratory findings, diagnosis, complications, treatment. Understanding of haemodialysis. Indications and contraindications in their use. The role of kidney transplantation in the treatment of renal failure.
Module 5 Haematology	Anaemia. Classification. Microcytic, macrocytic, normocytic, anaemia. Normochromic, hyper-and

	hypochromic anaemia. Ethiology, clinical findings. Treatment. Megaloblastic anaemia. Ethiology, diagnosis, treatment. Haemolytic anaemia. Ethiology, principles of diagnosis, treatment. Aplastic anaemia. Ethiology. Diagnosis, treatment. Acute and chronic leukemia Ethiology, pathogenesis,clinical findings, diagnosis, complications, treatment. The role of bone marrow transplantation. Schema of cytotoxic(cytostatic) drugs. Myeloma. Pathogenesis clinical and laboratory findings. Principles of treatment. Hodgkin`s disease. Clinical findings. Principle of treatment.
Module 6 Endocrinology	Toxic multinodular goitre. Hypothyroidism. Ethiology, pathogenesis. Clinical findings. Laboratory findings. Medical treatment. Indication for surgical treatment. Diabetes mellitus. Ethiology, pathogenesis. Classification. Clinical findings, diagnosis, complication, treatment. Hyperglycaemic, hypoglycaemic,hyperosmolar coma. Differential diagnosis. Clinical findings. Treatment. The main complaints. Physical research methods (examination, palpation, percussion, auscultation). Instrumental research methods, laboratory research methods. The main clinical syndromes. Fundamentals of private pathology (thyroid disease, diabetes).
Module 7 Rheumatology	Rheumatoid arthritis. Ethiology, pathogenesis,. Clinical findings. Articular and extra-articular findings. Classification. Laboratory findings. Treatment. Drug treatment in rheumatoid arthritis.NSAID. Groups. Side effects and their prophylaxis. Osteoarthritis. Ankylosing spondylitis. Reiter`s syndrome. Ethiology, pathogenesis, clinical findings, diagnosis, complications, treatment.
Module 8 Metabolic dysfunction	Gout. Classification. Clinical findings, laboratory diagnosis. Alcoholism. Ethiology, pathogenesis, clinicals, complications,treatment.

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COURSE DESCRIPTION

31.05.01 General Medicine

field of studies / speciality code and title

2022-2023

Course Title	Traumatology and orthopedics
Course Workload	Credits and academic hours – 6/216
Course contents	
Course Module Title	**Brief Description of the Module Content**
Module 1	History of traumatology and orthopedy deleopment. Types of trauma and trauma care organization. Methods of evaluation. Basic principles of treatment in traumatology and orthopedy. Bone tissue regeneration.
Module 2	Proximal and diaphyseal femural fractures. Classification, clinical findings and treatment.
Module 3	Posttraumatic sinovitis, hemarthrosis. Meniscal impairment, knee ligaments disorders. Patella dislocations. Patella fractures. Intraarticular fractures of femoral and tibial condyles. Clinical findings, diagnostics. Treatment. Arhthroscopy in treatment injuries of the knee. Injuries of the scapula. Injuries of the clavicle. Dislocation of the clavicle. Fractures of the humeral bone. Infuries of the elbow joint. Fractures, fractures-dislocation of the forearm bones. Fractures of the distal metaphys of the radius.

	Fractures and dislocations bones of the hand. Clinical findings, diagnostics, treatment.
Module 4	Features of the medical care on pre-hospital and hospital stages. Traumatic shock. Thromboembolism. Fat embolism. Clinical findinigs. Prophylaxis.
Module 5	Polytrauma.. Classificatioin. Treatment on the evacuationstage. Cuncussion, contusion of the brain. Craniocerebral hematomas. Clinical findings, diagnostics, treatment
Module 6	Dislocations and fractures of the vertebral bodies. Compression fractures. Complicated fractures Clinical findings, diagnostics, treatment.
Module 7	Marginal fractures. Fractures of the pelvic ring. Fractures of the acetabulum. Complicated fractures of the pelvis. Clinicalfindings, diagnostics, treatment.
Module 8	Fractures of the sternum (breast bone). Fractures of the ribs.Hemo-, pneumothorax. Clinical findings, diagnostics, treatment.
Module 9	Primary, secondary deforming arthrosis of large joints. Rheumatoid, gout, psoriatic arthritis. Clinical findings, diagnostics, treatment.
Module 10	Modern types of implants of large joints. Friction pair. Cement cementless endoprosthesis. Indication,contraindication, complication
Module 11	Clinical findings, diagnostics, treatment, prophylaxis. .

	Spondylolisthesis. Spondilodesis
Module 12	Deformity of the foot. Valgus deformity of the 1st toe. Plano-valgus foot. Varus, valgus deformity of the shin. Treatment ofposttraumatic deformities of the long bones.
Module 13	Tumors of the cartilage. Tumors of the bone tissue. Soft tissue tumors. Clinical findings, treatment.
Module 14	Legg-Calve-Perthes disease, Konig disease, Osgood-Schlatter disease, Kienböck's disease, Calvet disease, Scheuermann- Mau disease, Keller osteochondropathy 1,2. Clinical findings, diagnostics, treatment.
Module 15	Congenital muscular torticollis. Clubfoot. Clubhand.Osteogenesis treatment.
Module 16	Tuberculosis of the joints, tuberculous spondylitis. Clinical findings, diagnostics, treatment. Treatment of paralytic foot.
Module 17	Violation of mineral metabolism of bone tissue. Clinicalfindings, treatment.Осложнения остеопороза Complications of the osteoporosis. Actual treatment of the osteoporosis. Complications of ostroporosis.

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COURSE DESCRIPTION

31.05.01 General Medicine

field of studies / speciality code and title

2022-2023

Course Title	Medical Enzymology
Course Workload	Credits and academic hours – 4/144
Course contents	
Course Module Title	**Brief Description of the Module Content**
Module 1 The main aspects of the use of enzymes in medicine.	**1.1.** Medical enzymology. Targets and goals. History of development and success of medical enzymology in Russia Mechanisms of enzymatic catalysis and regulation of enzyme activity
	1.2. Engineering Enzymology
Module 2 Enzyme diagnostics	**2.1.** Enzymes, isoenzymes and their role in the diagnostics of internal organs pathologies.
	2.2. Laboratory tests for determination of enzyme activity in the clinical practice.
Module 3 Enzyme pathology.	**3.1.** Congenital metabolic disorders. General principles of diagnosis and treatment of inborn enzymopathy. The concept of orphan diseases Disorders of ornithine cycle enzymes: clinical and biochemical correlations
	3.2. Inborn disorders of carbohydrate metabolism. Glycogenoses. Disorders of the metabolism of fructose and galactose. Hemolytic anemia (deficiency of glucose-6-phosphate dehydrogenase, pyruvate kinase)
	3.3. Lysosomal accumulation diseases
	3.4. Congenital disorders of amino acid metabolism
Module 4 Enzyme therapy	**3.5.** Inborn disorders of the metabolism of steroid compounds and heme breakdown products.
	4.1. Enzymes used for replacement therapy in patients with pancreatic insufficiency
	4.2. Thrombolytic enzymes and blood coagulation factors

	4.3 Enzymes used in the treatment of cancer
Module 5 Enzymes as targets for therapeutical correction	**5.1.** Target enzymes for the treatment of cancer
	5.2. Enzymes of Human Immunodeficiency Virus and Hepatitis C Virus as targets for antitumor therapy

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COURSE DESCRIPTION

31.05.01 General Medicine

field of studies / speciality code and title

2022-2023

Course Title	Physical Training
Course Workload	Credits and academic hours – 0/328
Course contents	
Course Module Title	**Brief Description of the Module Content**
Module 1 Methodical and practical	**1.1.** Self control in physical exerciseing and sports **1.2.** Human physical development indicators **1.3.** Human functional statement indicators **1.4.** Physical fitness indicators **1.5.** Physical indurance indicators **1.6.** Human Psycho-phisiological statement indicators **1.7.**Physical culture in production activities of bechelor and specialist

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