COURSE SUMMARY

POLITICS IN THE MODERN WORLD

Universal elective is intended for students of all training areas and specialties of PSU. The discipline "Politics in the Modern World" aims to form students' knowledge about the world of politics in a variety of historical and cultural contexts, as well as the ability to orient in the political and politico-cultural diversity of the modern world in the context of its politico-historical development.

1. The purpose of the course: to form in students a holistic understanding of the modern world of politics and the ways of its knowledge.

2. The place of the course in the structure of the educational program: included in the part formed by participants of educational relations of the curriculum.

3. Planned learning results: The study of the discipline is aimed at forming the following general skills (GS) and their indicators:

Skill code	*Content of the skill*	*Indicators of mastered skill*	*Planned results*
GS-5 (for bachelor's degree courses)	Is able to perceive the intercultural diversity of society in socio-historical and philosophical contexts	GS-5.1 (GS-4.1) Orientates in the cultural diversity of the modern world in the context of its historical development	Has an understanding of politics as a sphere of modern social life; Knows the political, cultural, ideological, value and institutional peculiarities of the formation of politics in the modern world; Has an understanding of the conceptual and categorical apparatus of political science as a science that studies politics.
GS-4 (for specialities)	Is able to analyse and take into account the diversity of cultures in their socio-historical and philosophical dimensions in the process of social interaction		

4. Course capacity: 108 hours (3 credits).

5. Course author: Natalia Belyaeva, PhD in Political Sciences, Associate Professor at the Department of Political Science.

COURSE SUMMARY

ENGLISH FOR PUBLIC SPEAKING

This general optional course is for students of all areas of training and specialties at PSU. It involves all aspects of the English language related to public speaking.

The course comprises 3 MODULES: public speaking skills, preparation for presentation in public and presentation visualization.

The first Module is an introduction to the topic of public speaking.

The second Module examines the three stages of the presentation.

The third Module deals with a presentation development and design.

1. The purpose of the course: to develop students' communicative competence in English (with an emphasis on improving auditory skills, listening and speaking skills).

2. The place of the course in the structure of the educational program: it is included in the part developed by the parties of the educational process in the curriculum.

3. Planned learning results. The discipline is aimed at the development of the following genersl skills (GS) and their indicators:

Skill code	*Content of the skill*	*Indicators of mastered skill*	*Planned results*
GS-4 (for bachelor's degree courses) GS-3 – for specialists	Student is able to carry out business communication in Russian and a foreign language in oral and written forms	Student is able to correctly and argumentatively develop oral and written speech in Russian and English.	Student will know the basic lexical units on the topic; be able to correctly and argumentatively build oral and written speech in Russian and English, perform the basic techniques of argumentation and develop a competent speech in oral and written forms.

4. Course capacity: 108 hours (3 credits).

5. Course author - Konstantin Klochko, PhD in Philology, Associate Professor of the Department of English and Intercultural Communication

COURSE SUMMARY

ENGLISH FOR EFFECTIVE COMMUNICATION

In the modern world knowledge of English becomes an indispensable condition for a successful career in almost all spheres of professional activity and full-fledged communication with representatives of different cultures in everyday life.

The universal elective on the discipline is addressed to students of all areas of training and specialities of PSU and it is aimed at preparing students for communicating in English, both in oral and written forms in the situations of business and everyday communication. It implies the formation of skills in receptive (reading, listening) and productive (speaking, writing) types of speech activities and translation.

1. The purpose of the course: the formation of intercultural foreign language communicative competence among students.

2. The place of the course in the structure of the educational program: it is included in the part formed by the participants of the educational relations of the curriculum.

3. Planned learning results. The study of the discipline is aimed at the formation of the following general skills (GS) and their indicators:

Skill code	*Content of the skill*	*Indicators of mastered skill*	*Planned results*
GS-4 (for bachelor's degree courses) GS-3 (for specialities)	Able to carry out business communication in Russian and foreign languages in oral and written forms	GS-4.1 (3.1) Carries out business communication, makes an oral and written speech in Russian and foreign languages competently and reasonably	Knows the basic vocabulary and grammar of the English language at the level sufficient for the implementation of business communication. Knows how to make an oral and written speech competently. Possesses monologic and dialogic skills, the skills of negotiating with foreign partners.

4. Course capacity: 108 hours (3 credits).

5. Course developer - Konstantin Klochko, PhD in Philology, Associate Professor of the Department of English Language and Intercultural Communication

COURSE SUMMARY

EMOTIONAL INTELLIGENCE IN PROFESSIONAL ACTIVITY

In the conditions of constant professional communication, it is necessary to constructively manage your own and other people's emotions. The emerging communication difficulties prevent the effective solution of professional tasks. This increases the importance of mindfulness of emotions, self-management, and correct management of another people's behavior. It is required the development of emotional intelligence ("emotional coaching"), that is, empathy, emotional self-regulation, respect for one's own and others' borders, and resolution of emotionally stressful situations. Therefore, today the coefficient of emotional intelligence is one of the ways to predict effective professional activity. Emotional intelligence in professional activity should be considered, first of all, as a practical technology for turning emotions into a manageable resource that will allow you to achieve personal and professional success. The universal elective for the discipline is addressed to students of all areas of training and specialties of PSU.

1. The purpose of the course: the study of emotional intelligence as a technology for improving the efficiency of professional activity; obtaining knowledge about the mechanisms of emotional intelligence necessary for solving professional problems.

2. The place of the course in the structure of the educational program: it is included in the part formed by the participants of the educational relations of the curriculum.

3. Planned learning results. The study of the discipline is aimed at the formation of the following general skills (GS) and their indicators:

Skill code	*Content of the skill*	*Indicators of mastered skill*	*Planned results*
GS-6 (for bachelor's degree courses) GS -5 (for specialties)	To be able to manage their resources, build and implement the trajectory of self-development	GS -6.1 (GS -5.1) Assesses your own resources (temporary, personal, psychological)	To know the essence of the concept of "resources". To be able to differentiate between temporary, personal, and psychological resources. To have the skills to evaluate your own time, personal, and psychological resources.
		GS -6.2 (GS -5.2) Manages its own resources (time management, stress management, self-presentation)	To know the technologies of time management, stress management, self-presentation. to be able to analyze your own resources. To master the skills of managing your own resources with the help of time management, stress management, and self-presentation technologies to achieve the goal.
		GS-6.3 (GS-5.3) Choose the direction of professional activity depending on their own interests, resources and	To know your own interests. To be able to evaluate your own resources and accumulated experience. To have the ability to choose the direction of professional activity depending on

		accumulated experience	their own interests, resources and accumulated experience.

4. Course capacity: 108 hours (3 credits).

5. Course author: Ekaterina Ignatova, PhD in Psychology, Associate Professor of the Department of General and Clinical Psychology

ANNOTATION
program of discipline
ARCTIC: CLIMATE AND WEATHER

1. The purpose of the development of the discipline

The purpose of mastering the discipline is to prepare a graduate for solving problems in the operational and production sphere: to master the main features of the weather and climate of the Arctic region, methods of primary processing of operational hydrometeorological information, input quality control of data, to jointly analyze information and characteristics of hydrometeorological processes, to process, generalize stock hydrometeorological data using modern methods of analysis and computer technology, drawing up documentation and reporting on approved forms.

2. Place of the discipline in the structure of the specialty program

The place of the discipline in the structure of the educational program is determined by the curriculum.

The discipline «Arctic: climate and weather» refers to general professional electives.

Mastering the discipline is based on knowledge, abilities and skills formed in the process of studying Mathematics and Physics.

The discipline «Arctic: climate and weather» serves to familiarize with the main stages of the development of the network of hydrometeorological observations in the Arctic, research carried out in the Arctic, climatic and weather conditions of the Arctic region, to study the climate of the Arctic region and the peculiarities of its change, associated arising and possible consequences, learn to process primary hydrometeorological information, analyze time series and spatial information, acquire skills in the climatic description of the region, compilation and execution of reports and abstracts.

3. Competence, formed as a result of the development of the discipline of «Arctic: climate and weather»

The process of studying the discipline is aimed at forming the elements of the following competencies in accordance with the SEES:

Competency code	Content of competence in accordance with the SEES	Competence achievement indicators	Decomposition of competences (learning outcomes) in accordance with the indicators
ОПК.1	possess basic knowledge of the modern scientific picture of the world based on the provisions, laws and methods of mathematical and natural sciences	ОПК.1.1 Has an idea of the scientific picture of the world based on the provisions, laws and regularities of the natural sciences	**To know:** the main stages of the development of the hydrometeorological observation network in the Arctic, research carried out in the Arctic, climatic and weather conditions of the Arctic region, climate changes in the region and possible consequences, dangerous weather phenomena for aviation, systems that ensure navigation along the routes of the Northern Sea Route. **To be able:** process primary hydrometeorological information, analyze time series and spatial information. **To possess:** skills in the climatic description of the region, preparation and execution of reports and abstracts.

4. Total workload of the course: 108 hours (3 credit points)

5. Developers:

Kalinin Nikolay Aleksandrovich, Doctor of Geosciences, Head of the Department of Meteorology and Atmospheric Protection; Lukin Ilya Leonidovich, Senior Lecturer, Department of Meteorology and Atmosphere Protection.

ANNOTATION
program of discipline
HUMAN GENETICS

1. The purpose of the development of the discipline

The purpose of mastering the discipline is to deepen the students' knowledge system in the field of general genetics, one of the fundamental biological sciences. When studying the discipline, students get acquainted with the basic laws of heredity and human variability, gain knowledge about hereditary diseases, including mental illness and mastering the methods of genetic analysis.

2. Place of the discipline in the structure of the specialty program

The place of the discipline in the structure of the educational program is determined by the curriculum.

The discipline «Human genetics» refers to general professional electives.

Mastering the discipline is based on knowledge, abilities and skills formed in the process of studying Fundamentals of Biology and Ecology, Human Anatomy and physiology.

The discipline «Human Genetics» serves to familiarize with the human genome, its organization and implementation.

3. Competence, formed as a result of the development of the discipline of «Human Genetics»

The process of studying the discipline is aimed at forming the elements of the following competencies in accordance with the SEES:

Competency code	Content of competence in accordance with the SEES	Competence achievement indicators	Decomposition of competences (learning outcomes) in accordance with the indicators
ОПК.1	possess basic knowledge of the modern scientific picture of the world based on the provisions, laws and methods of mathematical and natural sciences	ОПК.1.1 Has an idea of the scientific picture of the world based on the provisions, laws and regularities of the natural sciences	**To know:** the main patterns of heredity and variability of a person, methods of studying human genetics. **To be able:** navigate the list of hereditary human diseases. **To possess:** the skills of some methods of genetic analysis.

4. Total workload of the course: 108 hours (3 credit points)

5. Developer:

Shibanova Natalya Vyacheslavovna, Candidate of Biological Sciences, Associate Professor of the Department of Botany and Plant Genetics

ANNOTATION
program of discipline
MOLECLAR BASIS OF LIFE

1. The purpose of the development of the discipline

The goal of mastering the discipline is to form a more complete understanding of the scientific picture of the world in students, an understanding of the principles of the molecular organization of living things: initial simplicity, molecular economy and molecular expediency, functionality and special purpose of biomecules, to master basic knowledge of the molecular mechanisms of life, to understand the main properties of living things (self-regulation, self-reproduction, the ability to extract and transform energy).

2. Place of the discipline in the structure of the specialty program

The place of the discipline in the structure of the educational program is determined by the curriculum.

The discipline «Molecular basis of life» refers to general professional electives.

Mastering the discipline is based on knowledge, abilities and skills formed in the process of studying Fundamentals of Biology and Ecology, Human Anatomy and physiology, Organic Chemistry.

The discipline «Molecular Basis of Life» serves as a deepening and supplement to the courses «Fundamentals of Biology and Ecology» and «Biochemistry».

3. Competence, formed as a result of the development of the discipline of «Molecular Basis of Life»

The process of studying the discipline is aimed at forming the elements of the following competencies in accordance with the SEES:

Competency code	Content of competence in accordance with the SEES	Competence achievement indicators	Decomposition of competences (learning outcomes) in accordance with the indicators
ОПК.1	possess basic knowledge of the modern scientific picture of the world based on the provisions, laws and methods of mathematical and natural sciences	ОПК.1.1 Has an idea of the scientific picture of the world based on the provisions, laws and regularities of the natural sciences	**To know:** the principles of the molecular organization of living things, the structure and function of the main cellular compounds (proteins, carbohydrates, lipids), the main provisions and methods of molecular biology. **To be able:** apply the principle of structural expediency.

4. Total workload of the course: 108 hours (3 credit points)

5. Developer:

Chudinova Larisa Alekseevna, Candidate of Biological Sciences, Associate Professor of the Department of Plant Physiology and Soil Ecology

ANNOTATION
program of discipline
WATER CHEMISTRY

1. The purpose of the development of the discipline

The purpose of mastering the discipline is to familiarize students with modern methods of calculating the composition and properties of water and industrial methods of water analysis, water purification and water treatment.

2. Place of the discipline in the structure of the specialty program

The place of the discipline in the structure of the educational program is determined by the curriculum.

The discipline «Water chemistry» refers to general professional electives.

Mastering the discipline is based on knowledge, abilities and skills formed in the process of studying Organic Chemistry, General Chemistry, Physical and Colloid Chemistry.

The discipline «Water Chemistry» introduces students to modern methods of industrial analysis of water and water treatment.

3. Competence, formed as a result of the development of the discipline of «Water Chemistry»

The process of studying the discipline is aimed at forming the elements of the following competencies in accordance with the SEES:

Competency code	Content of competence in accordance with the SEES	Competence achievement indicators	Decomposition of competences (learning outcomes) in accordance with the indicators
ОПК.1	possess basic knowledge of the modern scientific picture of the world based on the provisions, laws and methods of mathematical and natural sciences	ОПК.1.1 Has an idea of the scientific picture of the world based on the provisions, laws and regularities of the natural sciences	**To know:** classification of natural waters, ionic equilibria that form the composition of natural waters, the main methods of water treatment. **To be able:** to apply this knowledge in practice when calculating and interpreting the balance of the ionic composition of water. **To possess:** skills in calculating the ionic composition of waters.

4. Total workload of the course: 108 hours (3 credit points)

5. Developer:

Vasyanin A.N., Ph.D., Associate Professor of the Department of Analytical Chemistry and Expertise

ANNOTATION
program of discipline
PHARMACEUTICAL INFORMATICS

1. The purpose of the development of the discipline

The purpose of mastering the discipline is to master and master the necessary knowledge, skills and abilities in the field of theoretical and practical aspects of the use of modern information technologies in the pharmaceutical industry.

2. Place of the discipline in the structure of the specialty program

The place of the discipline in the structure of the educational program is determined by the curriculum.

The discipline «Pharmaceutical Informatics» refers to professional electives.

Development of discipline based on the knowledge and skills generated in the process of studying Informatics, Mathematics.

The discipline «Pharmaceutical Informatics» serves to develop the ability to solve problems of professional activity based on information culture using information and communication technologies and computing tools, taking into account the basic requirements of information security.

3. Competence, formed as a result of the development of the discipline of «Pharmaceutical Informatics»

The process of studying the discipline is aimed at forming the elements of the following competencies in accordance with the SEES:

Competency code	Content of competence in accordance with the SEES	Competence achievement indicators	Decomposition of competences (learning outcomes) in accordance with the indicators
ПК.3	ready to sell medicines in accordance with the rules of wholesale trade, the procedure for retail sale and the procedure for the transfer of medicines established by law	ПК.3.2 Applies information and communication technologies and computerized systems used in the dispensing of medicines and pharmaceutical products, modern methods of searching and evaluating pharmaceutical information	**To know:** principles of organization of pharmaceutical industry enterprises, methods and programs of documentation in the pharmaceutical field of activity, methods of monitoring the circulation of medicines using computer communications. **To be able:** organize logistics and redistribution of orders, taking into account the specifics of the enterprise and personnel, process data obtained using a personal computer. **To possess:** methods of practical use of modern computers for information processing, skills of searching and transforming information in the pharmaceutical field.

4. Total workload of the course: 108 hours (3 credit points)

5. Developer:

Baybarodskikh Daniil Vladimirovich, Senior Lecturer of the Department of Inorganic Chemistry, Chemical Technology and Technosphere Safety

ANNOTATION
program of discipline
LABOR PROTECTION AND SAFETY OF CHEMICAL PRODUCTION

1. The purpose of the development of the discipline

The purpose of mastering the discipline is to familiarize future specialists with the main aspects of labor protection and technological safety. The systematic knowledge gained in this area will allow students to more consciously relate to the observance of the rules and norms of labor protection in laboratory classes in older courses, consciously observe these rules and norms in work after graduation from the university, and demand their observance from employers.

2. Place of the discipline in the structure of the specialty program

The place of the discipline in the structure of the educational program is determined by the curriculum.

The discipline «Labor protection and safety of chemical production» refers to professional electives.

Mastering the discipline is based on the general scientific outlook formed at the previous levels of education.

The discipline «Labor protection and safety of chemical production» serves as the basis for the conscious observance of the rules of safe work in chemical and pharmaceutical industries, in laboratories and educational institutions, allows you to know your basic labor rights and require employers to comply with them.

3. Competence, formed as a result of the development of the discipline of «Labor protection and safety of chemical production»

The process of studying the discipline is aimed at forming the elements of the following competencies in accordance with the SEES:

Competency code	Content of competence in accordance with the SEES	Competence achievement indicators	Decomposition of competences (learning outcomes) in accordance with the indicators
ПК.8	Capable of carrying out technological processes in the industrial production and manufacture of medicines	ПК 8.1 carries out and accompanies the process in the industrial production of medicines	**To know:** general scheme of the technological process in the industrial production of medicines, the main stages of the formation of its safe conduct based on statistics of emergency situations, general safety principles and requirements of technological regulations. **To be able**: use basic personal protective equipment and comply with safety signs. **Владеть:** general principles of safe conduct of a technological process in the industrial production of medicines and an algorithm for actions in an emergency.
		ПК 8.2 controls the maintenance of premises, the process of operation and maintenance of equipment	**To know:** principles of safe operation and maintenance of equipment for the production of medicines. **To be able:** organize control over the safety of premises for the production of medicines. **To possess:** general principles of safe operation of equipment for the production of medicines.

4. Total workload of the course: 108 hours (3 credit points)

5. Developer:

Pavlov Petr Timofeevich, Candidate of Chemical Sciences, Associate Professor of the Department of Organic Chemistry

ANNOTATION
program of discipline
Cosmetic medicines with the basics of medical cosmetics

1. The purpose of the development of the discipline

The purpose of mastering the discipline is to form an idea of modern methods of cosmetological effects on the skin, cosmetological procedures, the effects of different groups of biologically active substances on the functions of the skin in terms of maintaining and strengthening its health.

2. Place of the discipline in the structure of the specialty program

The place of the discipline in the structure of the educational program is determined by the curriculum.

The discipline «Cosmetic medicines with the basics of medical cosmetics» refers to professional electives.

Development of discipline based on the knowledge and skills generated in the process of studying, General Hygiene, Pathology.

The discipline «Cosmetic medicines with the basics of medical cosmetics» serves to form an understanding of modern methods of treatment of skin diseases and correction of skin imperfections based on the fundamental theories of the epidermal barrier, stress (general adaptation syndrome), concepts of photoaging, oxidative stress, neuroendocrine aging, methods of cosmetology effects on the skin, cosmetic procedures, the effects of different groups of biologically active substances on the functions of the skin in terms of maintaining and strengthening its health, the skill of providing advice to the population on the choice of medical and cosmetic skin care products.

3. Competence, formed as a result of the development of the discipline of «Cosmetic medicines with the basics of medical cosmetics»

The process of studying the discipline is aimed at forming the elements of the following competencies in accordance with the SEES:

Competency code	Content of competence in accordance with the SEES	Competence achievement indicators	Decomposition of competences (learning outcomes) in accordance with the indicators
ПК.5	is capable of informing and advising the public and medical professionals about medicines and other pharmaceutical products	ПК.5.1 Provides advice on the choice of medicines by visitors to pharmacies and medical workers on the range of medicines, medical indications, method of administration, side effects, interaction with other groups of medicines	**To know:** classification of skin diseases and cosmetic defects of the skin, their clinical manifestations and the basic principles of treatment of these diseases, clinical recommendations for the use of the main groups of drugs for the treatment of skin diseases and cosmetics for skin care; the classification of substances that make up cosmetics, the main groups of biologically active substances that make up skin care products, the main groups of excipients that determine the technological, aesthetic characteristics of cosmetic compositions. **To be able:** justify the possibility of using drugs to treat skin diseases, cosmetics to correct skin imperfections or functional disorders; determine the possible effects of the effects of cosmetics on the skin, depending on their composition. **To possess:** the skill of predicting the effect of exposure to skin medicines, cosmetic care products based on the latest scientific advances in cosmetology; to provide advice on the validity of the inclusion of various components in the composition of cosmetic compositions.

4. Total workload of the course: 108 hours (3 credit points)

5. Developer:

Lutkova Tatyana Aleksandrovna, Ph.D., Associate Professor of the Department of Pharmacology and Pharmacy

ANNOTATION
program of discipline
STATISTICS IN PHARMACY

1. The purpose of the development of the discipline

The purpose of mastering the discipline is to teach students the skills to develop, collect, systematize, use statistical methods in scientific research in pharmacy and obtain statistical conclusions about the object of research.

2. Place of the discipline in the structure of the specialty program

The place of the discipline in the structure of the educational program is determined by the curriculum.

The discipline «Statistics in pharmacy» refers to professional electives.

Development of discipline based on the knowledge and skills generated in the process of studying Mathematics, Informatics.

The discipline «Statistics in pharmacy» serves to form students' knowledge and skills in the field of statistics, and promotes the study of such disciplines as economic theory, economic informatics, and organization economics in higher education. The discipline lays the foundation for further study of almost many natural science and economic disciplines using statistical methods of analysis (chemical experiments, biological processes, foundations of management and marketing, analysis and diagnostics of the financial and economic activities of an enterprise).

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3. Competence, formed as a result of the development of the discipline of «Statistics in pharmacy»

The process of studying the discipline is aimed at forming the elements of the following competencies in accordance with the SEES:

Competency code	Content of competence in accordance with the SEES	Competence achievement indicators	Decomposition of competences (learning outcomes) in accordance with the indicators
ПК.3	ready to sell medicines in accordance with the rules of wholesale trade, the procedure for retail sale and the procedure for the transfer of medicines established by law	ПК.3.1 Carries out accounting and dispensing of medicines and other goods of the pharmacy assortment in pharmacy organizations in accordance with the established requirements	**To know:** basic concepts in the field of fundamental sections of mathematics in the amount necessary for mastering the mathematical apparatus in the professional field, for processing and analyzing observational data; general principles of constructing statistical inference. **To be able:** solve typical tasks of data analysis; use statistics and tools to optimize drug development and promotion. **To possess:** terminological apparatus and software tools for data processing; algorithmic and software tools for making informed management decisions in pharmaceutical organizations and their structural units.

4. Total workload of the course: 108 hours (3 credit points)

5. Developer:

Kiseleva Larisa Georgievna, Ph.D., Associate Professor of the Department of Pharmacology and Pharmacy

ANNOTATION
program of discipline
VETERINARY PHARMACOLOGY

1. The purpose of the development of the discipline

The purpose of mastering the discipline is to form a system of knowledge among students about medicinal products used in veterinary medicine; on the principles of their production; about their properties and mechanism of action; on methods of diagnosis, prevention and treatment of diseases resulting from the toxic effects of drugs.

2. Place of the discipline in the structure of the specialty program

The place of the discipline in the structure of the educational program is determined by the curriculum.

The discipline «Veterinary Pharmacology» refers to professional electives.

Development of discipline based on the knowledge and skills generated in the process of studying Human Anatomy and physiology, Pathology.

The discipline «Veterinary Pharmacology» serves to form students' knowledge of veterinary drugs, their composition and properties; dosage rates for different types of farm animals, principles of production of medicinal products used in veterinary medicine; the basics of their pharmacokinetics and pharmacodynamics.

3. Competence, formed as a result of the development of the discipline of «Veterinary Pharmacology»

The process of studying the discipline is aimed at forming the elements of the following competencies in accordance with the SEES:

Competency code	Content of competence in accordance with the SEES	Competence achievement indicators	Decomposition of competences (learning outcomes) in accordance with the indicators
ПК.5	capable of informing and consulting the population and medical workers about medicines and other goods of the pharmacy range	ПК.5.1 Provides advice on the choice of medicines by visitors to pharmacies and medical workers on the range of medicines, medical indications, method of administration, side effects, interaction with other groups of medicines	**To know:** veterinary medicinal products, their composition and properties; dosage rates for different types of farm animals; principles of drug production; fundamentals of pharmacokinetics and pharmacodynamics; poisonous, toxic and harmful substances, the potential danger of their impact on organisms and ecosystems; mechanisms of toxic action; methods of diagnosis, prevention and treatment of diseases developing as a result of toxic effects. **To be able:** apply pharmacological agents for the treatment of animals in accordance with the rules for their use and storage; calculate dosage for different animals. **To possess:** a method of preventing undesirable actions of medicinal substances and helping animals in case of poisoning with these substances; methods of diagnosis, prevention and treatment of diseases resulting from the toxic effects of drugs.

4. Total workload of the course: 108 hours (3 credit points)

5. Developer:

Makhmudov Ramiz Ragibovich, Ph.D., Associate Professor of the Department of Inorganic Chemistry, Chemical Technology and Technosphere Safety

ANNOTATION
program of discipline
PHYTOTHERAPY

1. The purpose of the development of the discipline

The purpose of mastering the discipline is to teach students to solve a range of problems related to the study of pharmacopoeial medicinal plants, including medicinal plants of the region; the issues of collection, storage and rational use of resources of medicinal plants are considered.

2. Place of the discipline in the structure of the specialty program

The place of the discipline in the structure of the educational program is determined by the curriculum.

The discipline «Phytotherapy» refers to professional electives.

Development of discipline based on the knowledge and skills generated in the process of studying Botany, Latin language, Pathology.

The discipline «Phytotherapy» serves to teach students the methodology of choosing medicinal plants for phytotherapy based on a clinical and pharmacological approach: the dependence of the choice of a medicinal plant on the characteristics of a particular patient's organism, age, nature of concomitant pathology, allergological history, drug therapy received by him, pregnancy and lactation and other factors; to compose medicinal fees from medicinal plants officially approved for use in medical practice for various pathological conditions, taking into account the peculiarities of the interaction of the components of the collection between themselves and pharmaceuticals.

3. Competence, formed as a result of the development of the discipline of «Phytotherapy»

The process of studying the discipline is aimed at forming the elements of the following competencies in accordance with the SEES:

Competency code	Content of competence in accordance with the SEES	Competence achievement indicators	Decomposition of competences (learning outcomes) in accordance with the indicators
ПК.5	capable of informing and consulting the population and medical workers about medicines and other goods of the pharmacy range	ПК.5.2 Carries out information and educational work to promote a healthy lifestyle, rational use of drugs	**To know:** modern methods of search and evaluation of pharmaceutical information; Modern methods and approaches to quality assurance of pharmaceutical care, regulatory legal acts regulating the circulation of medicines and pharmacy products. **To be able:** to interpret the provisions of regulatory legal acts regulating the circulation of medicines and pharmacy products, to carry out information and educational work to promote a healthy lifestyle, rational use of medicines. **To possess:** skills of search, transformation and dissemination of new knowledge in the field of pharmaceutical activities by means of information and educational activities.

4. Total workload of the course: 108 hours (3 credit points)

5. Developer:

Kasyanov Zakhar Vyacheslavovich, Ph.D., Associate Professor of the Department of Pharmacology and Pharmacy

ANNOTATION
program of discipline
BIOTECHNOLOGY

1. The purpose of the development of the discipline

The purpose of mastering the discipline is to give students an idea of the purpose of modern biotechnology and its future. The course examines issues related to the basics of biotechnological processes, the possibility of their improvement based on the use of highly active producers, the principles of cell and enzyme immobilization, the use of methods of cell and genetic engineering. It was emphasized that biotechnology creates a scientific basis for the industry, which solves such significant problems as human health, economical use of material resources, energy supply and environmental protection.

2. Place of the discipline in the structure of the specialty program

The place of the discipline in the structure of the educational program is determined by the curriculum.

The discipline «Biotechnology» refers to professional electives.

Development of discipline based on the knowledge and skills generated in the process of studying Fundamentals of Biology and Ecology, Biochemistry.

The discipline «Biotechnology» serves to study the basic theoretical provisions of biotechnology, which includes acquaintance with industrial microbiology, genetic and cellular engineering, engineering enzymology and related fields of knowledge; the formation of concepts about the most important biotechnological processes and methods of managing them on a laboratory and industrial scale; study of the stages of various biotechnological processes. The program provides for the acquisition of knowledge about the devices used in biotechnology, about the methods of isolation and purification of biotechnology products, understanding the features and advantages of biotechnological processes in comparison with chemical industries.

3. Competence, formed as a result of the development of the discipline of «Biotechnology»

The process of studying the discipline is aimed at forming the elements of the following competencies in accordance with the SEES:

Competency code	Content of competence in accordance with the SEES	Competence achievement indicators	Decomposition of competences (learning outcomes) in accordance with the indicators
ОПК.1	possesses basic knowledge of the modern scientific picture of the world based on the provisions, laws and methods of mathematical and natural sciences	ОПК.1.1 Has an idea of the scientific picture of the world based on the provisions, laws and patterns of natural sciences	**To know:** the basic concepts of inorganic, organic, analytical, physical, quantum chemistry, chemistry of high molecular compounds and chemical technology and the laws of chemical processes involving inorganic, as well as low and high molecular weight organic substances; know the basic basic methods of biotechnology - selection, genetic and cellular engineering, the stages of cultivation of biological objects including the preparation of nutrient substrates, technological design of the process (bioreactor designs and modes of operation), separation and purification of the target product, w the basic methods of immobilizing enzymes (chemical and physical methods of immobilization), the concepts of stability of immobilized enzymes, the basics of the technology of the most important substances, primarily substrates for the biosynthesis of microbial protein, the principles of the technology for the production of biologically active preparations of microbial origin by the

			example of the biosynthesis of amino acids (primary metabolites) and antibiotics (secondary metabolites), the concept of mutagenesis and isolation of mutants, genetic exchange pathways, general principles and approaches of in vivo genetic engineering, the basics of genetic engineering, in vitro genome reorganization methods using modern approaches, the application of genetic engineering methods to crop and livestock production to produce transgenic organisms. **To be able:** perform simple operations (analysis and classification of substances, formulas, process diagrams, initial analysis of results, etc.), reproduce the basic concepts of inorganic, organic, analytical, physical, quantum chemistry, chemistry of high molecular weight compounds and chemical technology and regularities of chemical processes involving inorganic, as well as low and high molecular weight organic substances, to carry out simple operations (analysis and classification of substances, formulas, process diagrams, initial analysis of results, etc.). **To possess:** to work with educational literature in inorganic, organic, analytical, physical, quantum chemistry, high molecular chemistry and chemical technology.
ПК.8	capable of carrying out technological processes in the industrial production and manufacture of medicines	ПК.8.1 Carries out and accompanies the process in the industrial production of medicines	**To know:** the modern methods of theoretical and experimental research in various fields of chemistry and pharmacy, methods for determining the composition, structure of substances, the mechanism of processes, their theoretical foundations, possibilities and limits of applicability, in particular for the technological design of the process (bioreactor designs and modes of operation), the basic principles of the methodology of industrial organic and inorganic synthesis, the scale of the modern chemical and pharmaceutical industries and compare the practical importance of individual products, in particular, substrates for the biosynthesis of microbial protein. **To be able:** to evaluate industrial pharmaceutical production methods in the presence of alternative synthesis routes and make rational technological decisions. **To possess:** to formulate a solution to the problem by integrating knowledge from related disciplines to understand the processes occurring at the stages of synthesis in the chemical and pharmaceutical industries, taking into account raw materials and energy costs, synthesis technologies for complex organic substances, the basics of spectral

			experiment techniques and techniques, theory and skills practical work, the ability to analyze the results to explain processes and phenomena, deriving patterns, making tehnological decisions establishing the boundaries of their application to industrial processes.

4. Total workload of the course: 108 hours (3 credit points)

5. Developer:

Tolmacheva Irina Anatolyevna, Candidate of Chemical Sciences, Associate Professor of the Department of Pharmacology and Pharmacy

ANNOTATION
program of discipline
ANTI-INFECTIOUS IMMUNITY BASICS

1. The purpose of the development of the discipline

The purpose of mastering the discipline is to form students' understanding of the basic mechanisms of the body's defense against viral, bacterial, fungal and parasitic infections.

2. Place of the discipline in the structure of the specialty program

The place of the discipline in the structure of the educational program is determined by the curriculum.

The discipline «Anti-infectious immunity basics» refers to professional electives.

Development of discipline based on the knowledge and skills generated in the process of studying Human anatomy, Pathology.

The discipline «Anti-infectious immunity basics» serves to form students' knowledge about the structure and functions of the systems of innate and adaptive immunity, the ability to critically analyze current provisions and new ideas regarding bacterial, viral, fungal, parasitic, protozoal and helminth infections.

3. Competence, formed as a result of the development of the discipline of «Anti-infectious immunity basics»

The process of studying the discipline is aimed at forming the elements of the following competencies in accordance with the SEES:

Competency code	Content of competence in accordance with the SEES	Competence achievement indicators	Decomposition of competences (learning outcomes) in accordance with the indicators
ПК.5	capable of informing and consulting the population and medical workers about medicines and other goods of the pharmacy range	ПК.5.2 Carries out information and educational work to promote a healthy lifestyle, rational use of drugs	**To know:** structure and functions of innate and adaptive immunity systems. **To be able:** critically analyze current provisions and new ideas regarding bacterial, viral, fungal, parasitic, protozoal and helminth infections. **To possess:** skills in processing and presentation of scientific information about anti-infectious immunity.

4. Total workload of the course: 108 hours (3 credit points)

5. Developer:

Saidakova Evgeniya Vladimirovna, Candidate of Biological Sciences, Associate Professor of the Department of Microbiology and Immunology

ANNOTATION
program of discipline
ANALYSIS OF ORGANIC COMPOUNDS

1. The purpose of the development of the discipline

The purpose of mastering the discipline is to generalize and systematize knowledge of the structure and reactivity of the main classes of organic compounds; formation of an understanding of chemical, physical and physicochemical methods of functional analysis; to work out the most common chemical tests for the most important functional groups, methods for obtaining derivatives for identification and some quantitative methods for the determination of organic compounds of various classes used as medicines.

2. Place of the discipline in the structure of the specialty program

The place of the discipline in the structure of the educational program is determined by the curriculum.

The discipline «Analysis of organic compounds» refers to professional electives.

Development of discipline based on the knowledge and skills generated in the process of studying Analytical chemistry, Organic chemistry.

The discipline «Analysis of organic compounds» serves to acquire practical skills in the qualitative and quantitative analysis of organic compounds, identification and physicochemical methods for the determination of organic substances used as medicines.

3. Competence, formed as a result of the development of the discipline of «Analysis of organic compounds»

The process of studying the discipline is aimed at forming the elements of the following competencies in accordance with the SEES:

Competency code	Content of competence in accordance with the SEES	Competence achievement indicators	Decomposition of competences (learning outcomes) in accordance with the indicators
ПК.1	able to provide and conduct quality control of medicines in conditions pharmaceutical organizations	ПК.1.2 Analyzes pharmaceutical substances and medicinal products in accordance with the established requirements, assesses medicinal products in appearance, packaging, labeling, identifies falsified and counterfeit medicinal products	**To know:** basic methods of work in the analysis of medicinal products. **To be able:** work with the necessary methods and standards, keep a laboratory journal, analyze the drug according to the standard method, obtaining reproducible and reliable results. **To possess:** the skill of finding the necessary standards and methods for quality control.

4. Total workload of the course: 108 hours (3 credit points)

5. Developer:

Nikiforova Elena Aleksandrovna, Candidate of Chemical Sciences, Associate Professor of the Department of Organic Chemistry

ANNOTATION
program of discipline
NORMATIVE DOCUMENTATION IN PHARMACY

1. The purpose of the development of the discipline

The purpose of mastering the discipline is to study regulatory documents in the organization of pharmaceutical care and the formation of knowledge and practical skills that will allow students to independently resolve issues in the field of organizing the provision of high-quality pharmaceutical care.

2. Place of the discipline in the structure of the specialty program

The place of the discipline in the structure of the educational program is determined by the curriculum.

The discipline «Normative documentation in pharmacy» refers to professional electives.

Development of discipline based on the knowledge and skills generated in the process of studying Law.

The discipline «Normative documentation in pharmacy» serves to study normative documents in the organization of pharmaceutical care and the formation of knowledge and practical skills that will allow students to independently resolve issues in the field of organizing the provision of high-quality pharmaceutical care.

3. Competence, formed as a result of the development of the discipline of «Normative documentation in pharmacy»

The process of studying the discipline is aimed at forming the elements of the following competencies in accordance with the SEES:

Competency code	Content of competence in accordance with the SEES	Competence achievement indicators	Decomposition of competences (learning outcomes) in accordance with the indicators
ПК.1	capable of ensuring and conducting quality control of medicines in the conditions of pharmaceutical organizations	ПК.1.3 Draws up documentation of the established sample for the acceptance control of medicines, medical devices, biologically active additives and other goods of the pharmacy range, as well as for the withdrawal of products from circulation	**To know:** the main regulatory and legal documents in the field of drug circulation, the basic principles of internal and external reporting of a pharmaceutical organization, regulatory documents regulating procedures for the withdrawal from civil circulation of counterfeit, substandard and counterfeit drugs and their destruction **To be able to:** form internal and external reporting of a pharmaceutical organization, cash documents, carry out the withdrawal from civil circulation of falsified, substandard and counterfeit medicines in accordance with the current legislation. **To possess:** skills in the formation of internal and external reporting of a pharmaceutical organization, cash documents, in the design and implementation of procedures for the withdrawal from civil circulation of counterfeit, substandard and counterfeit medicines and their destruction.
ПК.4	ready to provide storage of medicines and other goods of the pharmacy range	ПК.4.2 Maintains subject-quantitative accounting and reporting documentation of medicines in accordance with the established requirements	**To know:** the main regulatory and legal documents in the field of drug circulation, the basic principles of accounting for inventories, cash and settlements. **To be able to:** draw up organizational and administrative documentation in accordance with state standards, select accounting methods and draw up documents on accounting policies. **To possess:** skills in dispensing medicines and other pharmaceutical products to the population in accordance with regulatory documents governing the operation of a pharmacy

4. Total workload of the course: 108 hours (3 credit points)

5. Developer:

Kiseleva Larisa Georgievna, Ph.D., Associate Professor of the Department of Pharmacology and Pharmacy

ANNOTATION
program of discipline
QUALITY CONTROL IN A CHEMICAL LABORATORY

1. The purpose of the development of the discipline

The purpose of mastering the discipline is to master the theoretical and applied aspects of ensuring the quality of the results of chemical analysis, validating methods, determining metrological characteristics, and conducting intralaboratory and interlaboratory control.

2. Place of the discipline in the structure of the specialty program

The place of the discipline in the structure of the educational program is determined by the curriculum.

The discipline «Quality control in a chemical laboratory» refers to professional electives.

Development of discipline based on the knowledge and skills generated in the process of studying Analytical chemistry, Organic Chemistry, General Chemistry.

The discipline «Quality control in a chemical laboratory» serves to teach students the concepts and principles of good laboratory practice, regulatory documents that provide quality control in a chemical laboratory, stages of method validation, metrological characteristics determined during method validation, concepts and essence of intralaboratory and interlaboratory control. When mastering the discipline, students carry out separate stages of the methodology validation, process the analysis results according to the received analytical signals, use the normative documentation on the methods of analysis and quality control in the chemical laboratory.

3. Competence, formed as a result of the development of the discipline of «Quality control in a chemical laboratory»

The process of studying the discipline is aimed at forming the elements of the following competencies in accordance with the SEES:

Competency code	Content of competence in accordance with the SEES	Competence achievement indicators	Decomposition of competences (learning outcomes) in accordance with the indicators
ПК.2	capable of carrying out technological processes in the manufacture of medicines in the conditions of pharmacy organizations	ПК.2.2 Controls the quality of manufactured drugs	**To know:** the concept and principles of good laboratory practice, regulatory documents that ensure quality control in a drug quality control laboratory, stages of method validation, metrological characteristics determined during method validation, concepts and essence of intralaboratory and interlaboratory control. **To be able:** process the results of the analysis according to the received analytical signals, use the normative documentation on the methods of analysis and quality control in the chemical laboratory. **To possess:** skills in conducting separate stages of method validation.

4. Total workload of the course: 108 hours (3 credit points)

5. Developer:

Alikina Ekaterina Nikolaevna, Candidate of Chemical Sciences, Associate Professor of the Department of Analytical Chemistry and Expertise

ANNOTATION
program of discipline
MEDICAL AND PHARMACEUTICAL COMMODITY SCIENCE

1. The purpose of the development of the discipline

The purpose of mastering the discipline is to study the basics of commodity science, development prospects, establish patterns of formation of consumer properties and quality of medical and pharmaceutical products; study of the factors that form and maintain the quality of medical and pharmaceutical products; determination of rational ways of preserving goods during transportation, storage, operation, in the light of solving the main tasks of providing the population with medicines of various pharmacotherapeutic groups, homeopathic, parapharmaceutical, medical-cosmetic and veterinary medicines, dietary supplements and natural products, equipment, tools, devices , suture materials, medical needles, dressings, patient care items and other goods sold through the pharmacy network; study of normative and technical documentation, orders and instructions of the Ministry of Health of the Russian Federation, laws, statistical materials, reference books used in the practice of the pharmacist.

2. Place of the discipline in the structure of the specialty program

The place of the discipline in the structure of the educational program is determined by the curriculum.

The discipline «Medical and pharmaceutical commodity science» refers to professional electives.

The discipline «Medical and pharmaceutical commodity science» serves to teach students modern principles of classification and coding of various groups of medical and pharmaceutical goods, the nomenclature and consumer properties of medical and pharmaceutical goods, the classification and range of materials used in medicine and pharmacy, technological processes of manufacturing medical devices, methods of protection against corrosion and biocorrosion. As part of the discipline, the student learns the functional properties of devices, instruments, equipment and other medical equipment, conducts marketing research with in-depth merchandising analysis of medical and pharmaceutical products.

3. Competence, formed as a result of the development of the discipline of «Medical and pharmaceutical commodity science»

The process of studying the discipline is aimed at forming the elements of the following competencies in accordance with the SEES:

Competency code	Content of competence in accordance with the SEES	Competence achievement indicators	Decomposition of competences (learning outcomes) in accordance with the indicators
ПК.1	capable of ensuring and conducting quality control of medicines in the conditions of pharmaceutical organizations	ПК.1.3 Draws up documentation of the established sample for the acceptance control of medicines, medical devices, biologically active additives and other goods of the pharmacy range, as well as for the withdrawal of products from circulation	**To know:** the modern principles of classification and coding of various groups of medical and pharmaceutical products; the regulatory documentation related to the storage of medicinal products; how to store medicines; the rules for the transportation of medicines, the range and consumer properties of medical and pharmaceutical products, classification, range of materials, their application in medicine and pharmacy. **To be able:** to work with regulatory and technical documentation and special forms accompanying medical and pharmaceutical products from the manufacturer to the consumers; to ensure the safety of medical and pharmaceutical goods, taking into account the principles of storage, features of consumer properties and environmental aspects; to provide advisory assistance in the transportation of medicines, to determine the indicators of the assortment, to form the

			optimal assortment for pharmacies. **To possess:** to classify and code medical and pharmaceutical products, taking into account their main application, firms and manufacturers, possess the information necessary for the transportation of medicinal product, the skills of calculating the completeness, width, depth, stability of the assortment, the formation of the optimal assortment of pharmacies.
ПК.3	Ready to sell medicines in accordance with the rules of wholesale trade, the procedure for retail sale and the procedure for the transfer of medicines established by law	ПК.3.1 Carries out accounting and dispensing of medicines and other goods of the pharmacy assortment in pharmacy organizations in accordance with the established requirements	**To know:** the legal basis for the preparation of primary accounting documents in the manufacture and quality control of dosage forms, intra-pharmaceutical preparation and packaging of medicines; the rules for drawing up documentation when withdrawing products from circulation; the basic principles of accounting for inventory, the structure and procedure for maintaining documents at the stages of acceptance, storage and release of goods. **To be able:** to form a conclusion on the quality of medicinal products, observe the rules for the preparation of primary accounting documents, the rules for processing documentation when withdrawing products from circulation; make a choice of accounting methods and draw up documents on accounting policies, draw up accounting and control logs for the storage of medicines. **To possess:** the methods necessary for assessing the quality of medicines, medical devices, dietary supplements and other goods in the pharmacy range; rules for the preparation of documentation when products are withdrawn from circulation; normative, reference and scientific literature for solving professional problems.

4. Total workload of the course: 108 hours (3 credit points)

5. Developer:

Kiseleva Larisa Georgievna, Ph.D., Associate Professor of the Department of Pharmacology and Pharmacy