CATALOG OF ELECTIVE DISCIPLINES

6B09 - Veterinary
(Code and classification of the field of education)

6B091 - Veterinary
(Code and classification of the direction of training)

0841
(Code in the International Standard Classification of Education)

B083 - Veterinary Science
(Code and classification of the educational program group)

6B09103 - Veterinary
(Code and name of the educational program)

(Level of preparation)

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Developed
By the Academic Committee of the OP
Head of AK Yessengulova N.
Manager of OP Zhexenayeva A.

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Chairman of the Academic Council Oralkanova I.

Bioorganic chemistry

Discipline cycle	Basic disciplines
Course	2
Credits count	3
Knowledge control form	Examination

Short description of discipline
The discipline studies the relationship of organic molecules with the biological system and the phenomenon that arise on the basis of the processes of their biological formation in the animal body. This discipline forms students` understanding of the biological role of natural compounds, and also establishes the relationship between the structure, reactivity of chemical compounds and their functional role. He teaches the study of the influence of the structural elements of tissues.

Purpose of studying of the discipline
identification of the relationship between the structure of an organic compound and itsbiological function

Learning Outcomes
ON 10 Apply classical and innovative methods of laboratory diagnostics of diseases of animals and birds, using complex methods of diagnostics and prevention of infectious and non-contagious animal diseases.

Learning outcomes by discipline
1) Knows the relationship of organic molecules and their biological functions.
2) Forms an idea of the biological role of natural compounds, establishes a connection between the structure, reactivity of chemical compounds and their functional role.
3) Studies the effect on the body of biopolymers, which are structural components of cells and tissues.as interdisciplinary connections between bioorganic chemistry and other disciplines (biochemistry, pharmacology, hygiene, etc.)

Prerequisites
School course

Postrequisites
Veterinary Pharmacology

Animal Biochemistry

Discipline cycle	Basic disciplines
Course	2
Credits count	3
Knowledge control form	Examination

Short description of discipline
The discipline studies chemicals and its processes occurring in living organisms, the process of life from the point of view of chemistry. He studies the types, functional role, metabolic pathways of the main biomolecules that make up a living cell and methods for transforming genomic data, the principles of energy conversion in biological systems, the main methods for the synthesis of biologically active substances, the transformation of proteins, carbohydrates.

Purpose of studying of the discipline
students learn the main classes of biologically important substances, the composition, structure, properties of these substances;
- biological functions performed in the body, mechanisms of action;
- changes, interactions of biological substances in the processes of life, the main ways of formation of substances;
- be able to study the basic biochemical systems and chemical reactions; acquire practical skills to study the composition, structure, and properties of biological substances;

Learning Outcomes
ON 10 Apply classical and innovative methods of laboratory diagnostics of diseases of animals and birds, using complex methods of diagnostics and prevention of infectious and non-contagious animal diseases.

Learning outcomes by discipline
1) knows the chemical composition of a living organism, the structure and physico-chemical properties of high–molecular proteins, carbohydrates, fats and nucleic acids, as well as the mechanisms of action of biologically active substances - vitamins, enzymes and hormones;
2) assimilates knowledge about metabolism and energy exchange in a living organism;
3) is able to conduct biochemical studies of nutrients and biologically active substances;

Prerequisites
School course

Postrequisites
Veterinary Pharmacology

Fundamentals of Biochemistry and BAS

Discipline cycle	Basic disciplines
Course	2
Credits count	3
Knowledge control form	Examination

Short description of discipline
The discipline studies the chemical composition and properties of substances related to the structure, biochemical properties and metabolic pathways of transformations of the main classes of biomolecules of living cells, largely related to the understanding of tissues and organs, and also considers the structure and functions of the body, vitamins, hormones, enzymes, proteins, lipids, glycosides and the main stages of gene expression.

Purpose of studying of the discipline
the study methodology for establishing the major structures of biomolecules, secondary metabolites

Learning Outcomes
ON 10 Apply classical and innovative methods of laboratory diagnostics of diseases of animals and birds, using complex methods of diagnostics and prevention of infectious and non-contagious animal diseases.
Learning outcomes by discipline
1) Studies the chemical composition and properties of substances related to the structure, biochemical properties and metabolic pathways of transformations of the main classes of biomolecules of living cells,
2) Knows largely related to the understanding of tissues and organs, as well as the structure and functions of the body, vitamins, hormones, enzymes, proteids, lipids, glycosides, the main stages of gene expression
3) Examines the structure and functions of the body, vitamins, hormones, enzymes, proteids, lipids, glycosides and the main stages of gene expression.
Prerequisites
School course Basic and profile disciplines of the EP
Postrequisites
Veterinary Pharmacology

Animal husbandry

Discipline cycle	Basic disciplines
Course	2
Credits count	5
Knowledge control form	Examination

Short description of discipline
The discipline studies the main tasks of breeding farm animals for the production of a variety of livestock products and certain branches of animal husbandry. The course reveals the features of breeding farm animals in breeding and commodity farms, promising areas for improving existing animal breeds. At the same time, the discipline considers the issues of using information technologies and the use of large-scale breeding in animal husbandry, animal biotechnology.
Purpose of studying of the discipline
Theoretical foundations and practical issues of breeding certain species of animals and birds.
Learning Outcomes
ON 3 Ensure obtaining veterinary and sanitary quality of livestock and poultry products.
Learning outcomes by discipline
1) Studies the peculiarities of breeding agricultural animals in breeding and commodity farms.
2) Studies modern requirements, promising areas of breeding improvement of existing breeds of agricultural animals.
3) Applies selection and breeding work planning in practice.
Prerequisites
Introduction to the specialty
Postrequisites
Animal feeding

Poultry farming

Discipline cycle	Basic disciplines
Course	2
Credits count	5
Knowledge control form	Examination

Short description of discipline
The discipline considers the formation of theoretical knowledge and practical skills necessary to manage the technologies for the production of hatching and food eggs, meat production in intensive poultry farming, poultry products, their processing and use. The course studies the productive qualities, constitution and exterior of the bird, as well as feeding, maintenance and care, as the basis of poultry farming, bird breeds of different areas of productivity.
Purpose of studying of the discipline
The importance of poultry farming as a branch of the agro-industrial complex that produces high-value protein foods in a short time with minimal labor and material resources. Eggs and meat, their nutritional qualities and importance in human nutrition
Learning Outcomes
ON 3 Ensure obtaining veterinary and sanitary quality of livestock and poultry products.
Learning outcomes by discipline
1) acquire knowledge of modern methods of qualitative improvement of poultry farming based on large- scale breeding and biotechnology.
2) The importance of poultry farming as a branch of the agro-industrial complex that produces high-value protein foods in a short time with minimal labor and material resources.
3)Poultry by-products: feather and down, droppings, waste collection and poultry slaughter.
Prerequisites
Introduction to the specialty
Postrequisites
Animal feeding

Private animal husbandry

Discipline cycle	Basic disciplines
Course	2
Credits count	5
Knowledge control form	Examination

Short description of discipline
The discipline studies the biological and economic characteristics of farm animals. The course includes the study of livestock industries, such as cattle breeding, horse breeding, sheep breeding, goat breeding, pig breeding, poultry breeding, camel breeding, maral breeding, fish farming, beekeeping, rabbit breeding. Directed development of private animal husbandry is impossible without knowledge of the exterior and constitutional features of animals, animal breeds, scientific research methodology, selection and breeding work in animal husbandry, and technological processes for the production of livestock products.
Purpose of studying of the discipline
The concept of the growth and development of animals. Patterns of growth and development of animals in the embryonic, fetal periods and after birth. The concept of the constitution, classification of types of constitution and their characteristics.
Learning Outcomes
ON 3 Ensure obtaining veterinary and sanitary quality of livestock and poultry products.
Learning outcomes by discipline
1) Knows the patterns of growth and development of animals in the embryonic, fetal periods and after birth.
2) Applies the concept of the constitution, classification of types of the constitution and their characteristics.
3) Demonstrates basic knowledge of animal nutrition, preparation of diets for different types of animals and different age groups in accordance with feeding standards.
Prerequisites
Introduction to the specialty
Postrequisites
Animal feeding

Zootechnical accounting and feed analysis

Discipline cycle	Basic disciplines
Course	2
Credits count	5
Knowledge control form	Examination

Short description of discipline
The discipline studies modern methods and scheme of feed analysis, determines the quantity and quality coefficient of different types of feed, which is a determining factor in the successful development of the livestock industry in market conditions. The course of the discipline is aimed at studying the features of feed accounting, assessing feed by nutritional value and full nutrition on a scientific basis, as well as evaluating feed by qualitative composition.
Purpose of studying of the discipline
Organizes zootechnical accounting of green and coarse feeds.
Learning Outcomes
ON 4 Apply biological knowledge in the development of special disciplines, for the implementation of therapeutic and preventive and sanitary measures.
Learning outcomes by discipline
Ensure obtaining veterinary and sanitary quality of livestock and poultry products.
1) Organizes zootechnical accounting of green and coarse feeds. The method of taking average samples of coarse feed for analysis.
2) Determines nitrogenous substances and crude protein in feed.
3) Demonstrates basic knowledge in the field of assessment of the food supply and preparation of diets.
Prerequisites
Animal husbandry
Postrequisites
General zoo hygiene

Animal feeding

Discipline cycle	Basic disciplines
Course	2
Credits count	5
Knowledge control form	Examination

Short description of discipline
The discipline reveals the organization of animal feeding. In general, the discipline defines the rules for optimal feeding of animals and the formulation of individual diets. Considers the system of feeding cattle, including pregnant dry cows and heifers, lactating cows, young animals, breeding bulls and fattening animals, as well as the system of rationed feeding of sheep and goats, horses, pigs, camels and poultry.
Purpose of studying of the discipline
Owns the methods of distinguishing the types of feed, evaluates the quality, determines the rationing of feeding farm animals, creates rations.
Learning Outcomes
ON 4 Apply biological knowledge in the development of special disciplines, for the implementation of therapeutic and preventive and sanitary measures.
Learning outcomes by discipline
Ensure obtaining veterinary and sanitary quality of livestock and poultry products.
- distinguish types of feed;
- assesses the quality of feed;
- properly organizes the preparation of animal feed;
- knows the correct rationing in the feeding of farm animals and makes up diets for various animals.
Prerequisites
Animal husbandry

Postrequisites
General zoo hygiene

Norms and optimization of the diet of animal feeding

Discipline cycle	Basic disciplines
Course	2
Credits count	5
Knowledge control form	Examination

Short description of discipline
When studying the discipline, such issues as the creation of optimal conditions for feeding, keeping farm birds and animals that meet the physiological needs of the body, taking into account natural and climatic factors, are considered. The course is aimed at optimizing the diet of all types of farm animals, including deer, fur-bearing animals, poultry, marketable fish, bees and unproductive animals. When drawing up feeding rations, the species, breed, age, sex and other characteristics of animals are taken into account.

Purpose of studying of the discipline
High milk yields and at the same time a high level of profitability are ensured by following a number of rules for feeding cows: the concentration of nutrients and biologically active substances in the diet and their ratio, environmental parameters, etc.

Learning Outcomes
ON 4 Apply biological knowledge in the development of special disciplines, for the implementation of therapeutic and preventive and sanitary measures.

Learning outcomes by discipline
Ensure obtaining veterinary and sanitary quality of livestock and poultry products.
1) Demonstrates basic knowledge in the field of assessment of the food supply and preparation of diets.
2) High milk yields and at the same time a high level of profitability are ensured by following a number of rules for feeding cows: the concentration of nutrients and biologically active substances in the diet and their ratio, environmental parameters, etc.
3) Both deficiency and excess of nutrients reduces productivity; it is necessary to feed high-quality feed to animals; diets should be compiled using computer programs.

Prerequisites
Animal husbandry

Postrequisites
General zoo hygiene

The medical examination of farm animals

Discipline cycle	Basic disciplines
Course	2
Credits count	5
Knowledge control form	Examination

Short description of discipline
The discipline studies the principles of developing a plan for the systematic inspection of animals in order to obtain high quality products from farm animals. The main task is to give students theoretical and practical knowledge on the medical examination of animals, as well as for the timely detection of early clinical signs and preclinical diseases, they plan a system of veterinary diagnostic and treatment-and-prophylactic measures for the prevention and treatment of sick animals.

Purpose of studying of the discipline
Medical examination is a system of planned diagnostic and therapeutic preventive measures aimed at timely detection of early subclinical and clinical signs of animal disease, prevention of diseases and treatment of patients.

Learning Outcomes
ON2 Use professional skills in practice in therapeutic, diagnostic, surgical activities.
ON 4 Apply biological knowledge in the development of special disciplines, for the implementation of therapeutic and preventive and sanitary measures.
ON 5 Make a decision when prescribing treatment for diseases with various clinical symptoms and syndromes.

Learning outcomes by discipline
1) theoretical and practical knowledge on the medical examination of animals, as well as for the timely detection of early clinical signs and preclinical diseases, plan a system of veterinary diagnostic and therapeutic and preventive measures for the prevention and treatment of sick animals.
2) studies the principles of developing a plan for systematic inspection of animals in order to obtain high-quality products from farm animals.
3) Knows both theoretical and practical knowledge of the features of the clinical diagnosis of fur-bearing animals and birds, as well as some digital data of biological features, morphological and biochemical composition of blood, urine of fur-bearing animals and birds.

Prerequisites
Veterinary Latin terminology

Postrequisites
Veterinary propedeutics

Clinical diagnosis of fur animals and birds

Discipline cycle	Basic disciplines
Course	2
Credits count	5
Knowledge control form	Examination

Short description of discipline
The discipline gives students both theoretical and practical knowledge about the features of the clinical diagnosis of fur animals and

birds, digital data on biological characteristics, morphological and biochemical composition of blood, urine of fur animals, the concept of syndromes, symptoms, disease prognosis and its rationale. Demonstrates basic knowledge of veterinary medicine, the ability to make a correct diagnosis and effectively use available medicines.

Purpose of studying of the discipline

Theoretical and practical training of students for timely and correct diagnosis, for the prevention of diseases of carnivorous animals.

Learning Outcomes

ON2 Use professional skills in practice in therapeutic, diagnostic, surgical activities.
ON 4 Apply biological knowledge in the development of special disciplines, for the implementation of therapeutic and preventive and sanitary measures.
ON 5 Make a decision when prescribing treatment for diseases with various clinical symptoms and syndromes.

Learning outcomes by discipline

1) Understands the concepts of syndromes, their classification.
2) Teaches both theoretical and practical knowledge of the features of the clinical diagnosis of fur-bearing animals and birds, as well as some digital data of biological features, morphological and biochemical composition of blood, urine of fur-bearing animals and birds.
3) Demonstrates basic knowledge in the field of veterinary medicine, the ability to make a correct diagnosis and effectively use existing medicines.

Prerequisites

Veterinary Latin terminology

Postrequisites

Veterinary propedeutics

Fundamentals of diagnostic and therapeutic techniques in veterinary medicine

Discipline cycle	Basic disciplines
Course	2
Credits count	5
Knowledge control form	Examination

Short description of discipline

The discipline studies symptoms and syndromes in assessing the disease state of animals, auscultation of the chest, research and comparative evaluation of the diagnosis of the thyroid gland, chest organs (larynx, trachea), vesicular respiration, bronchial physiological, bronchial pathological, plegaphony, rhinography, studies of the respiratory system using graphic methods: pneumography, test chest puncture. Provides an agricultural and domestic clinical study outline.

Purpose of studying of the discipline

** mastering veterinary diagnostic methods and techniques of animal treatment.*

Learning Outcomes

ON2 Use professional skills in practice in therapeutic, diagnostic, surgical activities.
ON 4 Apply biological knowledge in the development of special disciplines, for the implementation of therapeutic and preventive and sanitary measures.
ON 5 Make a decision when prescribing treatment for diseases with various clinical symptoms and syndromes.

Learning outcomes by discipline

1) studies symptoms and syndromes in assessing the painful condition of animals, chest auscultation, examination and comparative evaluation of the diagnosis of the thyroid gland, chest organs (larynx, trachea), vesicular respiration, bronchial physiological, bronchial pathological, plegaphony, rhinography, studies of the respiratory system by graphic methods: pneumography, trial puncture of the chest.
2) Provides a scheme of clinical research of agricultural and domestic.
3) Owns veterinary diagnostic methods and methods of treatment of animals.

Prerequisites

Veterinary Latin terminology

Postrequisites

Veterinary propedeutics

Comparative physiology of agricultural animals

Discipline cycle	Basic disciplines
Course	2
Credits count	5
Knowledge control form	Examination

Short description of discipline

This discipline studies the features of physiological functions and mechanisms, patterns and technologies of keeping animals, and also contains material on the vital processes of a healthy organism, taking into account unity and interaction with the external environment. Knowledge of the laws of activity of organs, tissues, cells, systems and general, particular mechanisms. Fundamentals of applied sciences of a general biological nature.

Purpose of studying of the discipline

The study of the laws of life processes at different structural levels (metabolism, respiration, nutrition, etc.); identification of the mechanisms of interaction between individual systems of the body, the body and the external environment; verification of the qualitative difference in the functions of organisms of different degrees of evolutionary development and in different environmental conditions; study of the patterns of formation of various functions in the course of individual development of the body is the educational basis of Veterinary Medicine and zootechnics, knowledge of which is especially necessary for a veterinarian in effective preventive work, Diagnosis, Treatment, Organization of positive storage, effective use of animals, increasing their productivity. It is also necessary for related specialties to evaluate the quality of animal raw materials and take a special place in their processing, mastering ways and methods to improve the technology for this purpose. It involves studying the essence of the phenomena of life, determining the methods of its management and orientation.

Learning Outcomes

ON 4 Apply biological knowledge in the development of special disciplines, for the implementation of therapeutic and preventive and sanitary measures.

Learning outcomes by discipline

1) formulate definitions and general concepts about the laws of the structure of organs
2) Apply the knowledge gained during the subsequent study of other fundamental and specialized disciplines obtained on the basis of modern achievements of physiology in animal physiology, as well as their application in future activities in veterinary medicine
3) summarize the basic knowledge gained about the various functions of the animal body

Prerequisites

Anatomy of domestic animals

Postrequisites

Veterinary cytology, histology, embryolog

Animal Physiology

Discipline cycle	Basic disciplines
Course	2
Credits count	5
Knowledge control form	Examination

Short description of discipline

This discipline studies the physiology of individual systems and organs, consists of general and cellular physiology. It also provides a systematic approach to the study of the vital activity of the body: the digestive system, blood circulation, respiration, endocrine and reproductive systems, the development of immunity, the physiology and neurophysiology of animals. The discipline considers a holistic, complex and dynamic system in active interaction with the environment.

Purpose of studying of the discipline

The study of the laws of life processes at different structural levels (metabolism, respiration, nutrition, etc.); identification of the mechanisms of interaction between individual systems of the body, the body and the external environment; verification of the qualitative difference in the functions of organisms of different degrees of evolutionary development and in different environmental conditions; study of the patterns of formation of various functions in the course of individual development of the body is the educational basis of Veterinary Medicine and zootechnics, knowledge of which is especially necessary for a veterinarian in effective preventive work, Diagnosis, Treatment, Organization of positive storage, effective use of animals, increasing their productivity. It is also necessary for related specialties to evaluate the quality of animal raw materials and take a special place in their processing, mastering ways and methods to improve the technology for this purpose. It involves studying the essence of the phenomena of life, determining the methods of its management and orientation.

Learning Outcomes

ON 4 Apply biological knowledge in the development of special disciplines, for the implementation of therapeutic and preventive and sanitary measures.

Learning outcomes by discipline

Apply biological knowledge in the development of special disciplines, for the implementation of therapeutic and preventive and sanitary measures.
1) describe the basic laws that form the basis of physiological processes, functions of organs and systems, mechanisms of regulation of physiological processes, normal physiological parameters of the animal body
2) To recognize the types and age characteristics of the animal organism, classification of organ types by origin, shape, function, location and internal structure
3) analyze the connection of the system of internal organs with the body with the external environment, the principles of organ construction

Prerequisites

Anatomy of domestic animals

Postrequisites

Pathological physiology of animals

Animal Ethology

Discipline cycle	Basic disciplines
Course	2
Credits count	5
Knowledge control form	Examination

Short description of discipline

The discipline considers the study of the biological factors of animal behavior, as well as its significance in the process of development and phylogenesis for adaptation to the environment. Animal behavior is an external manifestation of the vital activity of a living organism and includes any kind of activity shown by an individual in response to environmental changes and, if necessary, to meet any internal needs.

Purpose of studying of the discipline

Formation of a systematic and integral representation of a wide area of animal behavior.

Learning Outcomes

ON 4 Apply biological knowledge in the development of special disciplines, for the implementation of therapeutic and preventive and sanitary measures.

Learning outcomes by discipline

1) Demonstrates knowledge in the field of biology, ethology concretizes biological diversity without taking animals out of the general diversity of organisms
2) considers the part and defining this part not by direct comparison with other forms, but through the whole – by finding the place of animals in the entire system of organisms
3) To use the method of cognition of animals, on the one hand, revealing general ethological and general biological facts, and on the

other – using the general theory of the origin and development of life.

Prerequisites

Anatomy of domestic animals

Postrequisites

Veterinary cytology, histology, embryolog

Laboratory research methods in veterinary medicine

Discipline cycle	Basic disciplines
Course	2
Credits count	3
Knowledge control form	Examination

Short description of discipline

The discipline studies the basic definitions, terminological scientific research, the methodology of theoretical and experimental research, processes scientific and technical information. Carries out a complex of operations, including the timely detection of side effects from drugs, assessment of the dynamics of the inflammatory process, the effectiveness of therapy, detects various blood diseases, conducts examinations, measurements, tests, analyzes, tests carried out in laboratories in relation to the subjects.

Purpose of studying of the discipline

get acquainted with the basic definitions, terminology of scientific research, learn how to process scientific and technical information.

Learning Outcomes

ON 10 Apply classical and innovative methods of laboratory diagnostics of diseases of animals and birds, using complex methods of diagnostics and prevention of infectious and non-contagious animal diseases.

Learning outcomes by discipline

1) Studies the basic definitions, terminological scientific research, methodology of theoretical and experimental research, processes scientific and technical information.

2) Studies the methodology of theoretical and experimental research, analysis of theoretical and experimental data, stages of the introduction of R&D into production, types of R&D effectiveness.

3) Performs a complex of operations, including the timely detection of side effects from drugs.

Prerequisites

Introduction to the specialty

Postrequisites

Basic and profile disciplines of the EP

Fundamentals of laboratory work in veterinary

Discipline cycle	Basic disciplines
Course	2
Credits count	3
Knowledge control form	Examination

Short description of discipline

The discipline introduces the rules of work in the laboratory and safety with laboratory devices, studies the history, structure and activities of state veterinary laboratories, describes the classification of laboratory utensils, their standardization and work with dishes, cleaning, washing and sterilization. Classifies measuring instruments and utensils for them. Prepares chemical reagents for research, laboratory animals, work with them and their use.

Purpose of studying of the discipline

Definition and objectives of the subject, history of development. Veterinary laboratories and safety equipment when working in laboratories. Structure of veterinary laboratories. Occupational health and safety at work in veterinary laboratories, first aid in case of accidents.

Learning Outcomes

ON 10 Apply classical and innovative methods of laboratory diagnostics of diseases of animals and birds, using complex methods of diagnostics and prevention of infectious and non-contagious animal diseases.

Learning outcomes by discipline

Apply classical and innovative methods of laboratory diagnostics of diseases of animals and birds, using complex methods of diagnostics and prevention of infectious and non-contagious animal diseases.

1) The discipline teaches methods for determining the accuracy and evaluation of laboratory research in the field of biology and veterinary medicine, develops veterinary diagnostic biological products in accordance with the types of pathogens, conducts bioassays and identification of laboratory animals with the cultivation of microbes, viruses, etc. On nutrient media, masters the ethics of the specialty and deontological justification.

2) Mastering new laboratory technologies and diagnostic methods in veterinary modernization and mastering the bio-program use of laboratory animals

3) Is able to justify the veterinary laboratory assessment of the methods of using newly introduced and used in veterinary laboratory practice tools

Prerequisites

Introduction to the specialty

Postrequisites

Basic and profile disciplines of the EP

Basics of laboratory diagnostics

Discipline cycle	Basic disciplines
Course	2
Credits count	3

Knowledge control form	Examination

Short description of discipline
The discipline is the basis for future professionals in the veterinary sector working in veterinary laboratories and in production. Knows the classification of laboratory glassware, their standardization. Able to work with utensils with measuring instruments and methods of working with them. Can prepare and prepare chemical reagents. Works with laboratory animals. Carries out a study of blood, serum, plasma, urine, feces, feed.

Purpose of studying of the discipline
classification of laboratory utensils, their standardization. Working with dishes. Measuring instruments and methods of working with them.

Learning Outcomes
ON 10 Apply classical and innovative methods of laboratory diagnostics of diseases of animals and birds, using complex methods of diagnostics and prevention of infectious and non-contagious animal diseases.

Learning outcomes by discipline
1) Knows the classification of laboratory utensils, their standardization.
2) Is able to work with dishes with measuring instruments and methods of working with them.
3) Works with laboratory animals. Conducts a study of blood, serum, plasma, urine, feces, feed.

Prerequisites
Introduction to the specialty

Postrequisites
Basic and profile disciplines of the EP

Veterinary Immunology

Discipline cycle	Profiling discipline
Course	3
Credits count	5
Knowledge control form	Examination

Short description of discipline
The discipline studies the influence of foreign substances on the body, manifestations of immunological reactions, the formation of a primary and secondary immune response, the mechanisms of innate and adaptive immunity, the role of central, peripheral organs and cells of the immune system in the development of immunity, the structure and purpose of the main histocompatibility complex, the practical significance of reactions, based on the interaction of an antigen with an antibody in the diagnosis of infectious diseases.

Purpose of studying of the discipline
Familiarization with the types of immunity, cellular and humoral mechanisms of its formation and practical application of the doctrine of immunity.

Learning Outcomes
ON 10 Apply classical and innovative methods of laboratory diagnostics of diseases of animals and birds, using complex methods of diagnostics and prevention of infectious and non-contagious animal diseases.

Learning outcomes by discipline
1) Classifies the theoretical foundations of immunity, classification and structure of antigens and antibodies
2) Studies serological reactions in a microbiological laboratory.
3) Applies knowledge to obtain sera and antigens for serological reactions.

Prerequisites
Animal Physiology

Postrequisites
Pathological anatomy of animals

Veterinary propedeutics

Discipline cycle	Profiling discipline
Course	3
Credits count	5
Knowledge control form	Examination

Short description of discipline
The discipline studies modern methods of clinical and laboratory research, the plan for the clinical study of animals, general examination of the animal, determination of habitus, examination of the skin and its derivatives and pathological changes, identification of the causes of the disease, diagnosis, examination of visible mucous membranes and their pathological changes, examination of the lymph nodes, laboratory tests of blood, urine, feces. Recognition and study of pathological changes.

Purpose of studying of the discipline
these are the rules and methods of clinical research. General research methods: examination, palpation, percussion, auscultation, thermometry. Special and additional research methods. The scheme of the clinical trial. Symptoms and syndromes of the disease, diagnosis.

Learning Outcomes
ON2 Use professional skills in practice in therapeutic, diagnostic, surgical activities.
ON 4 Apply biological knowledge in the development of special disciplines, for the implementation of therapeutic and preventive and sanitary measures.
ON 5 Make a decision when prescribing treatment for diseases with various clinical symptoms and syndromes.

Learning outcomes by discipline
1) The discipline forms clinical logical memory on the basis of semiotics arising from the physiological clinical process, based on the biological specificity of animal principles of clinical and diagnostic cognition in determining the morphofunctional abilities of autonomous systems.
2) Has the basic principles of the substantiation of propaedeutic studies corresponding to the preconditions of veterinary clinical

examination
3)Understands on a scientific basis the needs for the formation of clinical logical memory of veterinary diagnostics and masters the use in the examination of animals

Prerequisites
Fundamentals of diagnostic and therapeutic techniques in veterinary medicine

Postrequisites
General therapy

Animal feed poisoning

Discipline cycle	Profiling discipline
Course	4
Credits count	5
Knowledge control form	Examination

Short description of discipline
The discipline studies the causes of feed poisoning, explains the mechanisms of toxic effects of poisons, examines clinical symptoms, evaluates pathoanatomic changes. Discusses methods of diagnosis, treatment and prevention of animal poisoning. Shows the patterns of toxic effects of poisons on the body of birds, fur-bearing animals, fish. Studies the manifestations and features of chemical toxicosis, phyto-toxicosis and toxicosis caused by poisons of animal origin.

Purpose of studying of the discipline
The purpose of studying the discipline "Animal feed poisoning" is for students to gain theoretical and practical knowledge in the field of veterinary toxicology of animal feed, to master the skills of analyzing anamnestic information, searching for rational methods when planning preventive and curative measures on this issue.
The modern development of society dictates the study of issues related to the protection of human health and the production of environmentally friendly food of animal origin.
When preparing veterinary specialists for the course "Animal feed poisoning", the following goals are set:
- to scientifically substantiate the effect of chemicals on the body of animals, taking into account the conditions of occurrence and causes of poisoning;
- based on the data of chemical and toxicological examination with the analysis of symptoms, pathological picture and anamnestic information, to make a timely and accurate diagnosis;
- it is scientifically justified to carry out preventive measures for

Learning Outcomes
ON2 Use professional skills in practice in therapeutic, diagnostic, surgical activities.
ON 4 Apply biological knowledge in the development of special disciplines, for the implementation of therapeutic and preventive and sanitary measures.
ON 5 Make a decision when prescribing treatment for diseases with various clinical symptoms and syndromes.

Learning outcomes by discipline
1) studies the causes of food poisoning, explains the mechanisms of toxic effects of poisons, examines clinical symptoms, evaluates pathoanatomic changes.
2) Knows all the causes of animal poisoning, has the skills and techniques of using this knowledge for theoretical and practical purposes
3) Knows the active principles, fodder and poisonous plants and is able to apply to specific tasks

Prerequisites
Veterinary toxicology

Postrequisites
Production practice 3

Sanitary and hygienic norms of livestock facilities

Discipline cycle	Profiling discipline
Course	4
Credits count	5
Knowledge control form	Examination

Short description of discipline
The discipline studies the sanitary and hygienic standards of livestock facilities that provide for progressive technology for keeping animals. Gives an idea on the elimination of adverse factors and the maximum use of favorable ones. Provides the desired efficiency of productivity and a high level of labor productivity, as well as the norms for the technological design of veterinary facilities for livestock enterprises, the norms for the technological design of manure storage facilities, the technological design of haylage and silage storage facilities.

Purpose of studying of the discipline
training of sanitary and hygienic standards at livestock facilities, taking into account advanced technologies for ensuring productivity, low operational costs and high production labor.

Learning Outcomes
ON 7 Conduct veterinary and sanitary examination and ensure the food safety of livestock and crop products.
ON 8 To carry out veterinary and sanitary supervision of objects controlled by the veterinary and sanitary service.
ON 9 To organize the protection of the population from diseases common to animals and humans.

Learning outcomes by discipline
1) To form the skills and abilities of using regulatory documents and evaluate the data obtained.
2) Identify the main technological requirements for the construction solutions of the main industrial buildings and structures, the norms of areas and sizes of the main technological elements; the norms of microclimate parameters.
3)Apply the norms and regulations of work in the field of animal husbandry

Prerequisites
Veterinary-sanitary examination

Postrequisites
Technology, hygiene, sanitation and veterinary and sanitary examination of meat and dairy products

Veterinary Formulation

Discipline cycle	Profiling discipline
Course	4
Credits count	5
Knowledge control form	Examination

Short description of discipline
The discipline studies the technological processes for the manufacture of dosage forms, taking into account scientific and technical documentation (NTD), the rules for the preparation of dosage forms, their labeling and packaging, storage, transportation and use of drugs in accordance with the procedure for scientific and technical documentation. Substances are the subject of drug technology, i.e. raw materials of animal and vegetable origin, as well as synthetic and mineral materials used for the preparation of medicines.
Purpose of studying of the discipline
students gain theoretical knowledge in the field of veterinary pharmacology, mastering methods of solving calculations for dosing and prescribing prescriptions for various dosage forms, as well as practical skills in the manufacture of various dosage forms.
Learning Outcomes
ON2 Use professional skills in practice in therapeutic, diagnostic, surgical activities.
ON 4 Apply biological knowledge in the development of special disciplines, for the implementation of therapeutic and preventive and sanitary measures.
ON 5 Make a decision when prescribing treatment for diseases with various clinical symptoms and syndromes.
Learning outcomes by discipline
. 1)Use the acquired knowledge to build models of real methods and methods of pharmacotherapy
2)Understand the essence of the main technological methods used in pharmaceutical production
3) Apply knowledge in the manufacture of medicines
Prerequisites
Veterinary Pharmacology
Postrequisites
Clinical Pharmacology

Veterinary and sanitary examination of poultry products

Discipline cycle	Profiling discipline
Course	4
Credits count	5
Knowledge control form	Examination

Short description of discipline
The discipline studies the regulatory and technical documentation for the veterinary and sanitary examination of products in poultry farms and markets, and also considers the sequence of veterinary and sanitary examination, including examination of the skin of the carcass and examination of visible mucous membranes, establishing the degree of bleeding, then examining the head, neck, internal organs and abdominal cavity. Introduces more effective means of quality control of raw materials, poultry products.
Purpose of studying of the discipline
in theoretical knowledge and practical work, students are taught to carry out veterinary and sanitary assessment of the degree of safety and quality of poultry, fish, bee and crop products in order to fulfill the tasks set for veterinary sanitary expertise
Learning Outcomes
ON 7 Conduct veterinary and sanitary examination and ensure the food safety of livestock and crop products.
ON 8 To carry out veterinary and sanitary supervision of objects controlled by the veterinary and sanitary service.
ON 9 To organize the protection of the population from diseases common to animals and humans.
Learning outcomes by discipline
1) studies regulatory and technical documentation on veterinary and sanitary examination of products in poultry farms and markets
2) considers the sequence of veterinary and sanitary examination, including examination of the skin of the carcass and examination of visible mucous membranes, determination of the degree of exsanguination, further examination of the head, neck, internal organs and the thoracic cavity.
3) Introduces more effective means of quality control of raw materials, poultry products.
Prerequisites
Veterinary-sanitary examination
Postrequisites
Forensic veterinary sanitary examination

General therapy

Discipline cycle	Profiling discipline
Course	4
Credits count	5
Knowledge control form	Examination

Short description of discipline
The discipline studies methods of treatment, eliminates the causes of disease factors, restores impaired functions of individual organs and systems, normalizes metabolism, productive and reproductive qualities. Taking into account the achievements of veterinary and other sciences, technology and production, he teaches mastering research methods for detecting internal diseases of animals, on the basis of which he develops the necessary treatment-and-prophylactic and other veterinary measures.
Purpose of studying of the discipline

The purpose of studying the discipline is to master students` knowledge, skills and skills in the diagnosis, treatment and prevention of non-infectious diseases of animals, birds and fur-bearing animals.

Learning Outcomes

ON2 Use professional skills in practice in therapeutic, diagnostic, surgical activities.
ON 4 Apply biological knowledge in the development of special disciplines, for the implementation of therapeutic and preventive and sanitary measures.
ON 5 Make a decision when prescribing treatment for diseases with various clinical symptoms and syndromes.

Learning outcomes by discipline

1) The discipline develops veterinary measures based on the achievements of veterinary science and technology and production, having mastered the methods of diagnosing internal diseases of animals.
2) Learn how to choose and prescribe medicines in accordance with the principle of the methodology of treatment of functional pathological conditions of the animal body
3)Consistent assessment of the effectiveness of the use of traditional and modern veterinary medicines

Prerequisites

Veterinary propedeutics

Postrequisites

Private therapy

Optimization of conditions for keeping productive animals and birds

Discipline cycle	Profiling discipline
Course	4
Credits count	5
Knowledge control form	Examination

Short description of discipline

The discipline studies modern methods of creating optimal conditions for keeping and exploiting animals, which help to increase the body`s natural resistance to diseases and maximize productivity. Maintaining high productivity of animals is achieved by optimizing the conditions of keeping, constantly ensuring a high level of sanitary and hygienic culture. The optimization of environmental conditions reflects the basic provision of zoohygiene, which requires the creation of a balance.

Purpose of studying of the discipline

To study modern methods of creating optimal conditions for the maintenance and exploitation of animals and birds, which contribute to increasing the body`s natural resistance to diseases and maximum productivity.

Learning Outcomes

ON 7 Conduct veterinary and sanitary examination and ensure the food safety of livestock and crop products.
ON 8 To carry out veterinary and sanitary supervision of objects controlled by the veterinary and sanitary service.
ON 9 To organize the protection of the population from diseases common to animals and humans.

Learning outcomes by discipline

1) To master the methods of creating optimal conditions for the maintenance of different animal species and age groups
2) Organize work with disinfectants and carry out disinfection in livestock premises
3) Solve production issues on pastures of livestock premises.

Prerequisites

Private zoo hygiene

Postrequisites

Sanitary and hygienic norms of livestock facilities

Veterinary Radiobiology

Discipline cycle	Basic disciplines
Course	4
Credits count	5
Knowledge control form	Examination

Short description of discipline

This discipline introduces students to the concepts of radiometry and dosimetry. On the biological effect of ionizing radiation. Sources of ionizing radiation, migration of radionuclides along feed chains. Radiation damage and radiation sickness of animals diagnosis and treatment. Studies the technological process of primary processing of animals exposed to external radiation, the organization of work with radioactive substances and the basics of radiation safety.

Purpose of studying of the discipline

The purpose of the "Veterinary Radiobiology" subject is to provide students with theoretical knowledge and practical skills in monitoring radioactive contamination of external environmental objects and animal products and raw materials.

Learning Outcomes

ON 7 Conduct veterinary and sanitary examination and ensure the food safety of livestock and crop products.
ON 8 To carry out veterinary and sanitary supervision of objects controlled by the veterinary and sanitary service.
ON 9 To organize the protection of the population from diseases common to animals and humans.

Learning outcomes by discipline

- radiation examination of elements of nuclear physics, radiometry, dosimetry, radiotoxicology and radioecology, veterinary supervision and control facilities;
- to know the basis of the biological effect of nuclear radiation, to assess, treat and predict radiation sickness;
- veterinary radiation assessment of livestock products and raw materials contaminated with radioactive substances;

Prerequisites

Basic and profile disciplines of the EP

Postrequisites

Final examination

State Veterinary Service

Discipline cycle	Basic disciplines
Course	4
Credits count	5
Knowledge control form	Examination

Short description of discipline
The discipline studies quality control in accordance with normative technical documentation. The discipline studies the system of organizations, institutions of a veterinary profile, at enterprises, transport, carrying out a complex of anti-epizootic measures. Knows the regulations in the area. Types of quality control of raw materials of animal origin. Demonstrates basic knowledge of veterinary reporting, able to make decisions in the monitoring, production and implementation of veterinary documents.

Purpose of studying of the discipline
a brief history of the development of the veterinary service in Kazakhstan. The structure of the Veterinary Service of the Republic of Kazakhstan. To determine the cost-effectiveness of preventive or curative measures of the selected disease.

Learning Outcomes
ON 7 Conduct veterinary and sanitary examination and ensure the food safety of livestock and crop products.
ON 8 To carry out veterinary and sanitary supervision of objects controlled by the veterinary and sanitary service.
ON 9 To organize the protection of the population from diseases common to animals and humans.

Learning outcomes by discipline
1) Knows a brief history of the development of the veterinary service in Kazakhstan. The structure of the Veterinary Service of the Republic of Kazakhstan.
2) Determines the economic effectiveness of preventive or curative measures of the disease. Statistical data as a source of determination, establishment of morbidity, mortality rates, specific values of economic damage and costs, other average values used in the analysis of the effectiveness of veterinary measures.
3) Demonstrates basic knowledge in veterinary reporting, is able to make decisions during monitoring, production and sale of veterinary documents.

Prerequisites
Introduction to the specialty

Postrequisites
Forensic veterinary sanitary examination

Organization of veterinary affairs

Discipline cycle	Basic disciplines
Course	4
Credits count	5
Knowledge control form	Examination

Short description of discipline
The discipline studies the legislation of the Republic of Kazakhstan, the basics and organizational structure of veterinary business, the organization of veterinary business in the city and in rural areas, the basics of veterinary business, the economics of veterinary events, the planning and organization of veterinary events, the organization of veterinary supervision, issues of veterinary accounting, reporting and office work. Considers the organization of the veterinary service in districts, cities and farms.

Purpose of studying of the discipline
State departmental veterinary service, private veterinary service.

Learning Outcomes
ON 7 Conduct veterinary and sanitary examination and ensure the food safety of livestock and crop products.
ON 8 To carry out veterinary and sanitary supervision of objects controlled by the veterinary and sanitary service.
ON 9 To organize the protection of the population from diseases common to animals and humans.

Learning outcomes by discipline
1) Knows the plans of preventive and antiepizootic measures, the organization of veterinary measures, the economics of veterinary measures, the organization of veterinary supervision, etc.
2) Knows the basics of the organization of the veterinary service;
3) Develops plans for preventive and antiepizootic measures, provides scientific and economic justification for veterinary measures, organizes veterinary and sanitary supervision and examination of products and raw materials of animal origin, etc.

Prerequisites
Introduction to the specialty

Postrequisites
Forensic veterinary sanitary examination

Hygiene of young farm animals and birds

Discipline cycle	Profiling discipline
Course	4
Credits count	5
Knowledge control form	Examination

Short description of discipline
The discipline studies the influence of climate, feed, soil, water, feeding, maintenance, exploitation, rearing and care on the body of birds and animals. Prepares recommendations that contribute to high productivity, rational intake of feeding, maintenance, care and rearing, ensuring high productivity of birds and animals. Teaches the elimination and weakening of adverse influences that violate the health and hygiene of young animals.

Purpose of studying of the discipline
Preparation of future livestock specialists to meet the needs of the country`s livestock products, creating normal conditions in a certain

direction, in order to obtain a rich harvest due to the physiological and large-scale characteristics of animals.

Learning Outcomes

ON 7 Conduct veterinary and sanitary examination and ensure the food safety of livestock and crop products.
ON 8 To carry out veterinary and sanitary supervision of objects controlled by the veterinary and sanitary service.
ON 9 To organize the protection of the population from diseases common to animals and humans.

Learning outcomes by discipline

1) Show the algorithm for drawing up preventive measures for the hygiene of young farm animals and birds
2) Describe and propose modes of keeping farm animals and birds
3) Apply the skills of solving the tasks of a complex of zoohygienic measures aimed at preventing the occurrence and spread of diseases among young farm animals and birds

Prerequisites

Sanitary and hygienic norms of livestock facilities

Postrequisites

Veterinary and sanitary examination of animal raw materials

Private therapy

Discipline cycle	Profiling discipline
Course	4
Credits count	5
Knowledge control form	Examination

Short description of discipline

The discipline studies and combines methods of treatment for specific diseases. It is a subdivision of clinical veterinary medicine and a veterinary discipline that, taking into account the achievements of veterinary and other sciences, technology and production, teaches the mastery of research methods for detecting internal diseases of animals, on the basis of which the necessary therapeutic and preventive and other veterinary measures are taken to prevent the cause of the disease.

Purpose of studying of the discipline

The purpose of studying the discipline is to master students` knowledge, skills and skills in the diagnosis, treatment and prevention of non-infectious diseases of animals, birds and fur-bearing animals.

Learning Outcomes

ON2 Use professional skills in practice in therapeutic, diagnostic, surgical activities.
ON 4 Apply biological knowledge in the development of special disciplines, for the implementation of therapeutic and preventive and sanitary measures.
ON 5 Make a decision when prescribing treatment for diseases with various clinical symptoms and syndromes.

Learning outcomes by discipline

1) Acquire theoretical knowledge about the material nature, causes and pathogenesis of internal non-infectious diseases and instill skills and abilities for the diagnosis, treatment and prevention of internal non-infectious diseases of animals, birds and fur-bearing animals.
2) Knows about modern methods of clinical and laboratory research of animals, in order to identify signs of diseases and diagnose
3) rationally and effectively uses physical and instrumental laboratory methods of animal research

Prerequisites

General therapy

Postrequisites

Clinical Pharmacology

VSE of crop production, fish farming and beekeeping products

Discipline cycle	Profiling discipline
Course	4
Credits count	5
Knowledge control form	Examination

Short description of discipline

The discipline studies the sanitary examination of food products of plant origin. Teaches methods for assessing the quality of herbal products based on ongoing research. Introduces the classification of pond and lake- commodity fish farms, beekeeping products in apiaries. Considers methods for determining nutritional and biological value. Explains the general requirements for sampling for examination, the algorithm for conducting organoleptic, laboratory studies of fish and bee products for good quality.

Purpose of studying of the discipline

in theoretical knowledge and practical work, students are taught to carry out veterinary and sanitary assessment of the degree of safety and quality of poultry, fish, bee and crop products in order to fulfill the tasks set before veterinary sanitary expertise.

Learning Outcomes

ON 7 Conduct veterinary and sanitary examination and ensure the food safety of livestock and crop products.
ON 8 To carry out veterinary and sanitary supervision of objects controlled by the veterinary and sanitary service.
ON 9 To organize the protection of the population from diseases common to animals and humans.

Learning outcomes by discipline

1) Determine the procedure for veterinary and sanitary examination of fish and fish products, bee products. Describe the main technological processes of production and methods of product quality control.
2) Organize organoleptic, laboratory studies, veterinary and sanitary examination of fish farming and beekeeping products. Determine the sanitary quality assessment.
3) Apply the acquired skills in solving tasks to ensure the food safety of animal products, compliance with quality standards.

Prerequisites

Veterinary-sanitary examination

Postrequisites

Veterinary and sanitary examination of animal raw materials

Fundamentals of clinical Hematology

Discipline cycle	Profiling discipline
Course	4
Credits count	5
Knowledge control form	Examination

Short description of discipline
The discipline studies the hematopoietic system in a modern way, based on the basic principles of veterinary science in assessing the state of the animal organism in a physiological, clinical state. Considers the development of hematopoietic organs, research technique. Shows the definition of morphological parameters of blood in pathological changes in the body of sick, healthy animals. Considers the causes of the change, ways to restore the blood parameters of sick animals. Describes the morphology of hematopoietic cells, morphological features in domestic animals, birds.

Purpose of studying of the discipline
Understanding the mechanisms of formation of the normal composition of peripheral blood and the causes of its pathological changes. A clinical blood test is included in the standard of examination of a sick animal at all stages of veterinary care

Learning Outcomes
ON 10 Apply classical and innovative methods of laboratory diagnostics of diseases of animals and birds, using complex methods of diagnostics and prevention of infectious and non-contagious animal diseases.

Learning outcomes by discipline
1) Understands the mechanisms of formation of the normal composition of peripheral blood and the causes of its pathological changes.
2) Conducts a clinical blood test is included in the standard of examination of a sick animal at all stages of veterinary care.
3) Examines and determines the composition of the blood of animals in clinical and laboratory, and also knows special methods for hematological diseases of animals. .

Prerequisites
General therapy

Postrequisites
Clinical Pharmacology

Veterinary and sanitary examination of animal raw materials

Discipline cycle	Profiling discipline
Course	5
Credits count	5
Knowledge control form	Examination

Short description of discipline
The discipline studies and determines the rules of veterinary and sanitary assessment, methods of sanitary and hygienic research of food products and technical raw materials of animal origin, veterinary and sanitary requirements for the collection of blood, intestines, endocrine enzyme raw materials, raw hides. Considers the production of feed of animal origin, the classification and commercial characteristics of the endocrine-enzyme raw materials, the intestines of certain animal species, the requirements for primary processing, the technical disposal of confiscated products, the main types of raw hides.

Purpose of studying of the discipline
students are trained in theoretical knowledge and practical work to carry out veterinary sanitary assessment, production technology, standardization and certification of animal products and raw materials in order to fulfill the tasks set for veterinary sanitary examination.

Learning Outcomes
ON 7 Conduct veterinary and sanitary examination and ensure the food safety of livestock and crop products.
ON 8 To carry out veterinary and sanitary supervision of objects controlled by the veterinary and sanitary service.
ON 9 To organize the protection of the population from diseases common to animals and humans.

Learning outcomes by discipline

** be able to conduct research using state standards in case of contamination of livestock products with foreign substances and apply the acquired knowledge to resolve the situation encountered in the farm.*

Prerequisites
Veterinary-sanitary examination

Postrequisites
Final examination

Organization of artificial insemination of animals and birds

Discipline cycle	Profiling discipline
Course	5
Credits count	5
Knowledge control form	Examination

Short description of discipline
The discipline explains the basics of artificial insemination of farm animals and birds. He studies the physiological and anatomical features of the reproductive apparatus of females and males. After studying the sexual reflexes of females and males, introduces the preparation of an artificial vagina, methods for obtaining ejaculate, evaluation, dilution and storage of semen. Disassembles the organization of artificial insemination: cows, ewes, mares, sows, birds and rabbits.

Purpose of studying of the discipline
Creating optimal conditions for feeding, keeping animals and birds, checking productivity and conducting their comprehensive assessment. Selection and evaluation of high-quality producers and queens.

Learning Outcomes
ON2 Use professional skills in practice in therapeutic, diagnostic, surgical activities.

ON 4 Apply biological knowledge in the development of special disciplines, for the implementation of therapeutic and preventive and sanitary measures.
ON 5 Make a decision when prescribing treatment for diseases with various clinical symptoms and syndromes.

Learning outcomes by discipline

The aim is to equip future specialists with comprehensive and in-depth knowledge in the field of artificial insemination of animals and birds.

Prerequisites

Veterinary gynecology

Postrequisites

Final examination

Veterinary epidemiology

Discipline cycle	Profiling discipline
Course	5
Credits count	5
Knowledge control form	Examination

Short description of discipline

The discipline studies the history of the disease and distribution, etiology, economic damage, pathogenesis, epizootic process and epizootic features of immunity and diagnosis, measures for the prevention and control of infectious diseases of different species of animals and birds. The study of means and methods for the prevention and control of infectious diseases common to different species of animals and humans. Development on this basis of measures for the prevention and elimination of infectious diseases of animals and birds.

Purpose of studying of the discipline

The study of means and methods of prevention and control of infectious diseases common to different species of animals and humans.

Learning Outcomes

ON2 Use professional skills in practice in therapeutic, diagnostic, surgical activities.
ON 4 Apply biological knowledge in the development of special disciplines, for the implementation of therapeutic and preventive and sanitary measures.
ON 5 Make a decision when prescribing treatment for diseases with various clinical symptoms and syndromes.
ON6 Conduct epizootological monitoring for infectious and invasive diseases.

Learning outcomes by discipline

- provide logistical and special equipment, organize and directly perform the work of a veterinarian with contagiously sick animals in accordance with the requirements of existing veterinary and sanitary rules and techniques

Prerequisites

Epizootology and infectious diseases of animals

Postrequisites

Final examination

Invasive diseases of fish and bees

Discipline cycle	Profiling discipline
Course	5
Credits count	5
Knowledge control form	Examination

Short description of discipline

The discipline provides the veterinarian with the necessary knowledge on the morphology and biology of pathogens of invasive diseases, pathogenesis, diagnosis, therapy and prevention of infectious and non-infectious diseases of fish and bees, the causes of which are various organisms of animal origin that parasitize on the body of an animal (insect), in order to prevent the spread and economic damage of parasitic diseases of fish and bees.

Purpose of studying of the discipline

Formation of knowledge on the basics of general pathology, parasitology and epizootology, which are necessary for understanding the processes occurring in a sick body, the general patterns of parasitism and epizootic process.

Learning Outcomes

ON2 Use professional skills in practice in therapeutic, diagnostic, surgical activities.
ON 4 Apply biological knowledge in the development of special disciplines, for the implementation of therapeutic and preventive and sanitary measures.
ON 5 Make a decision when prescribing treatment for diseases with various clinical symptoms and syndromes.
ON6 Conduct epizootological monitoring for infectious and invasive diseases.

Learning outcomes by discipline

Mastering students` knowledge on the organization and implementation of measures for the prevention of diseases, rehabilitation and treatment of fish in fish farms of various types, performing work aimed at protecting fishery reservoirs from the spread of infectious diseases of fish and other aquatic organisms; the ability to find out the epizootic situation and diagnose fish diseases in natural reservoirs, commercial farms and fish hatcheries; acquiring knowledge about the rules for the transportation of fish and other aquatic organisms; veterinary and sanitary requirements for the design and construction of fish farms.

Prerequisites

General Veterinary Parasitology and Helminthology

Postrequisites

Final examination

Clinical Pharmacology

Discipline cycle	Basic disciplines

Course	5
Credits count	5
Knowledge control form	Examination

Short description of discipline
The discipline studies the issues of pharmacodynamics and pharmacokinetics of modern drugs with an analysis of the pharmacotherapeutic effect in the treatment of sick animals, to improve the efficiency and safety of their use. Considers the appointment of medicinal substances in the treatment of animals according to the symptoms and syndromes of the disease. Explains the mechanism of action of drugs, their classification, compatibility when combined and methods of their application.

Purpose of studying of the discipline
The requirements for the development of the discipline "Clinical Pharmacology" are
- formation of in-depth professional knowledge in the field of pharmacokinetics and pharmacodynamics

Learning Outcomes
ON2 Use professional skills in practice in therapeutic, diagnostic, surgical activities.
ON 4 Apply biological knowledge in the development of special disciplines, for the implementation of therapeutic and preventive and sanitary measures.
ON 5 Make a decision when prescribing treatment for diseases with various clinical symptoms and syndromes.

Learning outcomes by discipline
Demonstrates basic knowledge in the field of clinical pharmacology, is able to make decisions in the treatment of diseases with various clinical symptoms and syndromes.

Prerequisites
Veterinary Pharmacology

Postrequisites
Final examination

Forensic veterinary sanitary examination

Discipline cycle	Basic disciplines
Course	5
Credits count	5
Knowledge control form	Examination

Short description of discipline
This discipline studies the procedural foundations of the general provisions and articles of laws on forensic examination of animals, forensic veterinary sanitary examination of animal corpses, forensic veterinary examination based on case materials, examination of cases of disease and death of animals due to violations of zoohygienic conditions: poisoning, diseases caused by physical influences , in case of disputes, in connection with the purchase and sale of animals, infectious diseases.

Purpose of studying of the discipline
The discipline studies the procedural foundations of the general provisions and articles of the laws on forensic examination.

Learning Outcomes
ON 7 Conduct veterinary and sanitary examination and ensure the food safety of livestock and crop products.
ON 8 To carry out veterinary and sanitary supervision of objects controlled by the veterinary and sanitary service.
ON 9 To organize the protection of the population from diseases common to animals and humans.

Learning outcomes by discipline
Demonstrates profiled knowledge in the field of veterinary forensic examination

Prerequisites
Veterinary-sanitary examination

Postrequisites
Final examination

Veterinary Ophthalmology

Discipline cycle	Profiling discipline
Course	5
Credits count	4
Knowledge control form	Examination

Short description of discipline
A discipline that studies the anatomical structure and physiology of the eye, diseases and prevention of eye diseases. When preparing a veterinarian, it is necessary to know and master, and be able to apply methods of treatment, prevention, analyze anamnestic data, have medical thinking, summarize clinical facts, conduct laboratory tests, that is, with the correct collection of anamnestic data, develop effective methods of treatment and make an objective diagnosis.

Purpose of studying of the discipline
Eye diseases in animals are very common. They can occur as a result of the direct action of various mechanical, chemical and physical injuries or develop in some infectious, parasitic and non-infectious diseases.

Learning Outcomes
ON2 Use professional skills in practice in therapeutic, diagnostic, surgical activities.
ON 4 Apply biological knowledge in the development of special disciplines, for the implementation of therapeutic and preventive and sanitary measures.
ON 5 Make a decision when prescribing treatment for diseases with various clinical symptoms and syndromes.

Learning outcomes by discipline
Demonstrates basic and profiling knowledge in the field of providing qualified medical care to animals and birds with eye diseases and carrying out preventive measures.

Prerequisites

General Veterinary Surgery

Postrequisites

Final examination

Veterinary and sanitary control at the border and transport

Discipline cycle	Profiling discipline
Course	5
Credits count	4
Knowledge control form	Examination

Short description of discipline

The discipline studies and considers issues of movement and movement across the state customs border and within the country - the Republic of Kazakhstan of goods under control, veterinary and sanitary supervision and control in order to prevent parasitic and infectious diseases of potentially dangerous diseases for human health from entering the country, sets out methods of control quality of products and raw materials, vegetable and animal origin.

Purpose of studying of the discipline

Theoretical knowledge and practical skills of students on the procedure and rules of transportation of objects (objects) and goods subject to veterinary and sanitary supervision and control across the state customs borders of the Republic of Kazakhstan.

Learning Outcomes

ON 7 Conduct veterinary and sanitary examination and ensure the food safety of livestock and crop products.
ON 8 To carry out veterinary and sanitary supervision of objects controlled by the veterinary and sanitary service.
ON 9 To organize the protection of the population from diseases common to animals and humans.

Learning outcomes by discipline

- features of manufacturing, processing, processing, transportation, storage and use in consumption;
- veterinary and sanitary requirements for any tracked objects (objects) and "cargo" related to import, export, transit and domestic transportation and 196 cattle drives;
- Veterinary and sanitary rules and procedures and necessary actions and measures carried out by the state veterinary and Sanitary supervision and control service at controlled facilities and during transportation at borders and transport, etc.

Prerequisites

Zoonoses

Postrequisites

Final examination

Veterinary Traumatology

Discipline cycle	Profiling discipline
Course	5
Credits count	4
Knowledge control form	Examination

Short description of discipline

The discipline is one of the leading clinical disciplines that shape the clinical thinking of a veterinarian. He studies the diagnosis, etiology of the disease, treatment, as well as the prevention of surgical diseases in animals, many non-contagious, infectious and parasitic diseases. Teaches the correct application of the prevention and treatment of general pathology caused not only by injuries, but also by poor living conditions and improper exploitation of animals.

Purpose of studying of the discipline

Students gain in-depth knowledge on the diagnosis of injuries
of various etiologies, taking into account the features that contribute to the occurrence of injuries of industrial, natural and other factors: the development of methods for the treatment and prevention of injuries of farm animals.

Learning Outcomes

ON2 Use professional skills in practice in therapeutic, diagnostic, surgical activities.
ON 4 Apply biological knowledge in the development of special disciplines, for the implementation of therapeutic and preventive and sanitary measures.
ON 5 Make a decision when prescribing treatment for diseases with various clinical symptoms and syndromes.

Learning outcomes by discipline

- possess the skills and techniques of clinical examination of live animals and the use of this knowledge in theoretical and practical laboratories for the diagnosis and treatment of injuries of farm animals
- to clarify the basic concepts and definitions of this discipline:
- be able to use the acquired knowledge for the diagnosis, treatment and prevention of injuries of farm animals:

Prerequisites

General Veterinary Surgery

Postrequisites

Final examination

Technology, hygiene, sanitation and veterinary and sanitary examination of meat and dairy products

Discipline cycle	Profiling discipline
Course	5
Credits count	4
Knowledge control form	Examination

Short description of discipline

The discipline studies the technology of production of meat and dairy products, various technologies for processing raw materials, manufacturing high-quality products, veterinary and sanitary supervision over the quality of products and raw materials of animal origin,

and conducting veterinary and sanitary measures at meat and dairy production facilities. They will learn the technology of production, sanitation and veterinary and sanitary examination of meat products from sausages, canned meat products, horse meat, cattle, sheep, pigs and sour-milk, acidophilic dairy products.

Purpose of studying of the discipline

Technology of production of meat and dairy products, various technologies of processing raw materials and production of high-quality products and veterinary and sanitary supervision of the quality of animal products and raw materials.

Learning Outcomes

ON 7 Conduct veterinary and sanitary examination and ensure the food safety of livestock and crop products.
ON 8 To carry out veterinary and sanitary supervision of objects controlled by the veterinary and sanitary service.
ON 9 To organize the protection of the population from diseases common to animals and humans.

Learning outcomes by discipline

-conduct veterinary and sanitary expertise of meat and dairy products;;
- carry out veterinary and sanitary measures at all technological stages of meat and dairy production;
- carry out veterinary and sanitary control over the transportation, storage, and processing of meat and dairy products;
- at meat and dairy production facilities

Prerequisites

VSE of crop production, fish farming and beekeeping products

Postrequisites

Final examination

Pre-graduate practice

Discipline cycle	Profiling discipline
Course	5
Credits count	10
Knowledge control form	Total mark on practice

Short description of discipline

Undergraduate practice contributes to the formation of skills of scientific search and processing of information on the topic of the thesis, the formulation of scientific experiment and statistical processing of the data, analysis and presentation of the results of scientific research in the form of qualifying work.

Purpose of studying of the discipline

To confirm the research search, the bachelor must confirm the experiments and results by writing a thesis (project)

Learning Outcomes

ON 5 Make a decision when prescribing treatment for diseases with various clinical symptoms and syndromes.
ON6 Conduct epizootological monitoring for infectious and invasive diseases.
ON 7 Conduct veterinary and sanitary examination and ensure the food safety of livestock and crop products.

Learning outcomes by discipline

For the bachelor`s competence in the field of veterinary medicine, it is necessary to undergo industrial practice in the leading farms of Kazakhstan

Prerequisites

Production practice IV

Postrequisites

Final examination

Production practice IV

Discipline cycle	Profiling discipline
Course	5
Credits count	10
Knowledge control form	Total mark on practice

Short description of discipline

Industrial practice is conducted by students in veterinary institutions under the guidance of teachers of specialized departments, the basis of the practice is organizations (veterinary service, laboratories, enterprises, farms), libraries (when performing theoretical theses). Mastering of specialties directly in production, market structures, meat processing enterprises, laboratories of veterinary and sanitary examination of the market, border control points, scientific organizations and laboratories, structures of the security and quarantine service, enterprises of the biotechnological industry.

Purpose of studying of the discipline

Possesses the ability and willingness to prescribe therapeutic and surgical treatment to patients in accordance with the diagnosis.

Learning Outcomes

ON 5 Make a decision when prescribing treatment for diseases with various clinical symptoms and syndromes.
ON6 Conduct epizootological monitoring for infectious and invasive diseases.
ON 7 Conduct veterinary and sanitary examination and ensure the food safety of livestock and crop products.
ON 8 To carry out veterinary and sanitary supervision of objects controlled by the veterinary and sanitary service.
ON 9 To organize the protection of the population from diseases common to animals and humans.

Learning outcomes by discipline

Performs the main therapeutic measures for the most common diseases and conditions in the adult population of animals, young animals and newborns that can cause severe complications and death: diseases of the nervous, endocrine, immune, cardiovascular, respiratory, digestive, genitourinary systems and blood. Timely identify life-threatening disorders (acute blood loss, respiratory failure, cardiac arrest, coma, shock), use methods of their immediate elimination, and take anti-shock measures

Prerequisites

Production practice 3

Postrequisites