

ANIMAL HYGIENE

Department of Veterinary Hygiene named after prof. A.K. Skorokhodko

Faculty of Veterinary Medicine

Lecturer	Roman Dymko
Term	IV-V semester
Major	Master degree
ECTS credits	5,5
Control	Exam
Class-room hours	90 hours (of them: lectures – 30 hours, practical and laboratory classes – 60 hours)

Subject overview

The purpose of the discipline is to provide students with knowledge of the basics of modern zoohygienic science and practice for them in the economy of a set of veterinary measures aimed at maintaining health, improving productivity and quality and safety of livestock products.

The course goal is to develop the legislation and organizational structure of the State Veterinary Service of Ukraine at the enterprises of the meat, dairy and fishing industries, at the border and transport, objects and methods of state veterinary control conditions for keeping animals.

The course objective is to familiarize students with the veterinary legislation of Ukraine with the basics of deontology and jurisprudence in veterinary medicine, veterinary records management in the field of animal hygiene, prevention of diseases of various etiologies, control and regulation of microclimate parameters of livestock facilities.

Lectures:

1. Introductory lecture. Physical properties of the air environment.
2. Air temperature. Air humidity.
3. Air velocity. Atmospheric pressure.
4. Solar radiation.
5. Chemical composition of the air.
6. Biological properties of the air. Dust, its classification.
7. Sanitary and hygienic requirements for feed. Hygienic requirements for the feeding regime of animals.
8. Manure removal systems in livestock premises. Methods of storage and disinfection of manure.
9. Ventilation systems for livestock premises.
10. Heat balance of livestock facilities.
11. Soil, its hygienic value.
12. Sanitary and hygienic value of water.
13. Collections and utilization of biowaste.

14. Sanitary-hygienic estimation of forage quality.
15. Evaluation of disinfection quality.
16. Sanitary and hygienic requirements for transportation of animals.
17. Systems and methods of keeping cattle.
18. Hygienic requirements for keeping young cattle.
19. Hygiene of pigs.
20. Hygiene of sheep.
21. Hygiene of horses.
22. Hygiene of poultry
23. Hygiene of rabbits Hygiene of bees and pond fish farming.

Classes:

(practical, laboratory classes)

1. Physical properties of the air environment and methods of their research.
2. Physical properties of the air environment and methods of their research.
3. Physical properties of the air environment and methods of their research.
4. Physical properties of the air environment and methods of their research.
5. Physical properties of the air environment and methods of their research.
6. Rehabilitation of livestock air.
7. Rehabilitation of livestock air.
8. Expert assessment of the microclimate of the livestock premises.
9. Chemical properties of the air environment and methods of their research.
10. Chemical properties of the air environment and methods of their research.
11. Biological properties of the air.
12. Hygiene of livestock premises.
13. Hygiene of livestock premises.
14. Physical properties and chemical composition of soil.
15. Veterinary and sanitary requirements for soils.
16. Physical properties of water.
17. Sanitary and topographic inspection of the water source.
18. Chemical composition of water.
19. Hygienic indicators of water.
20. Feed hygiene and methods of quality control.
21. Veterinary and sanitary requirements in animal husbandry.
22. Veterinary and sanitary requirements in pig breeding.
23. Veterinary and sanitary requirements in poultry farming.
24. Veterinary and sanitary requirements in sheep and goat breeding.
25. Veterinary and sanitary requirements in horse breeding.
26. Veterinary and sanitary requirements in rabbit breeding, animal husbandry and fish farming.

ANIMAL WELFARE, ETHOLOGY AND PROFESSIONAL ETHICS

Department of Veterinary Hygiene named after prof. A.K. Skorokhodko

Faculty of Veterinary Medicine

Lecturer	Roman Dymko
Term	VI semester
Major	Master degree
ECTS credits	4
Control	Exam
Class-room hours	60 hours (of them: lectures – 30 hours, practical classes – 30 hours)

Subject overview

The purpose of the discipline "Animal Welfare, Ethology and Professional Ethics" is to develop special knowledge and practical skills based on the acquired knowledge of the ethics of veterinary medicine, humane treatment of animals, including productive, ensuring their proper well-being in accordance with physiological characteristics. Study of animal behavior, their life manifestations, the impact on them of the nervous system, hereditary factors, housing conditions, feeding, exploitation, changes in the environment, anthropogenic factors.

The subject of the discipline "Animal Welfare, Ethology and Professional Ethics" is the professional activity of a veterinarian, especially the social behavior of different species of farm animals. Influence on them of a nervous system, hereditary factors, conditions of the maintenance, feeding, operation, changes of environment, the anthropogenic factor.

Lectures:

1. Introduction. Subject, methods and tasks of the discipline "Animal Welfare, Ethology and Professional Ethics". Connection with other disciplines.
2. Legislation governing the work of veterinarians and treatment of animals. Professional traditions and ethics of a veterinarian.
3. Morality and consciousness in professional activities.
4. Business communication of a veterinarian with animal owners and patients.
5. Ethology. Characteristics of individual elements and features of animal behavior.
6. Behavior of animals Hierarchy, grouping, territoriality, aggression
7. Reproductive behavior. Sexual demorphism. Marital and family relations. Caring for offspring.
8. Organization of communities. Social behavior.

9. Locomotions of animals. Migration. Adaptive capabilities of animals.
10. Biological rhythms. Food and game, research behavior
11. Animal welfare. Humane education. Legislation. European conventions. Criminal liability.
12. Welfare of pigs
13. Welfare of cattle
14. Welfare of birds
15. Transportation. Ante-mortem detention. Slaughter.

Practical classes:

1. Code of professional ethics of a veterinarian. Law on Veterinary Medicine. Legislation governing the treatment of animals.
2. The doctor as a person. Health doctor. Selfactions. Ability to self-improvement. Duty and conscience-assessment of knowledge and Professional errors, iatrogenic.
3. Professional and ethical problems. Collegiality of doctors. Conflict prevention. Team works
4. Ethology. Individual and social forms of behavior and their definitions.
5. Hierarchical relationships in animals.
6. Adaptation, acclimatization, synanthropization and domestication of animals.
7. Marital and family relations. Study of behavioral reactions in farm animals.
8. Law of Ukraine "On Fauna". Law of Ukraine "On protection of animals from cruel treatment" Law of Ukraine "On state control over compliance with legislation on food, feed, animal by-products, animal health and welfare", European conventions.
9. 5 freedoms according to the characteristics of age, species, sex, physiological condition of animals, etc. The impact of different housing systems on animal welfare. Life manifestations of well-being.
10. The use of laboratory animals in experiments.
11. Euthanasia.
12. Cosmetic surgery and other surgeries without medical indications
13. Fur animals. Animals for entertainment.

BIOCHEMISTRY OF ANIMALS WITH THE BASICS OF PHYSICAL AND COLLOID CHEMISTRY

Department of Biochemistry and Physiology of Animals named after Acad. M.F. Gulyi

Faculty of Veterinary Medicine

Lecturer	Kalachniuk LH, Professor of the Department of Biochemistry and Physiology of Animals named after Acad. M.F. Gulyi, Doctor of Biological Sciences, Professor
Term	3, 4
Major	Master degree
ECTS credits	6
Control	Exam
Class-room hours	180 hours (of them: lectures – 60 hours, laboratory classes – 90 hours)

Subject overview

The discipline is a mandatory component of the educational program "Veterinary Medicine", which provides basic concepts about the chemical composition of the animal, classification, functions of proteins, carbohydrates, lipids, minerals, enzymes, hormones and vitamins.

The main ways of biochemical processes that provide homeostasis, energy balance, growth and development of animals are subject to study. Significant attention is paid to the study of the biochemical composition of biological fluids and tissues of animals and the processes that occur in them. The study of the discipline provides mastery of such general competencies as knowledge and understanding of the subject area, the ability to search, process and analyze information from various sources, the ability to apply knowledge in practical situations. Studying the discipline provides the acquisition of such professional competencies as the ability to use modern knowledge of the laws of biochemistry of different species to effectively adjust the treatment of animals and drugs.

Lectures:

1. Animal biochemistry is the history of its development and its place among the natural sciences.
2. Basics of Physical Chemistry.
3. Basics of Colloid Chemistry.
4. Physico-chemical methods of research in biochemistry.
5. Cell and its organic compounds. Carbohydrates.
6. Lipids and biomembranes.
7. Amino acids, peptides, proteins.

8. Nucleosides, nucleotides and nucleic acids.
9. Water and mineral balance and its effect on the metabolism.
10. Vitamins. Coenzymes.
11. Enzymes and their kinetic properties.
12. Hormones and mechanisms of their influence on metabolic processes
13. Biochemistry of digestion and features of digestive processes in different organisms.
14. Metabolism of carbohydrates and its peculiarities (in ruminants).
15. Amphibolic transformation of organic substances (the tricarboxylic acids cycle). Energy of biochemical processes.
16. Metabolism of lipids.
17. The metabolic processes of proteins and some amino acids.
18. Catabolism and anabolism of nucleotides and nucleic acids.
19. Metabolism and its characteristics by biochemical parameters of urine
20. Biochemistry of products of animal origin.

Laboratory classes:

1. Rules of lab-work and safety in biochemical lab. Facilities, table wires, solutions and reagents of biochemical laboratory.
2. Solutions. pH.
3. The buffered solution.
4. Osmosis.
5. Sorption and biological phenomena.
6. Colloidal solutions.
7. Physico-chemical methods of research in biochemistry.
8. Carbohydrates: colour tests on starch and glycogen.
9. Carbohydrates: mono-, disaccharides.
10. Lipids and their components.
11. Amino acids.
12. Amides of acids.
13. Proteins.
14. Nucleic acids and their components.
15. Role of mineral substances in the metabolic processes.
16. Some representatives of vitamins. Coenzymes.
17. Enzymes. Kinetic aspects
18. The role of hormones in metabolic processes
19. Carbohydrate metabolism, its intermediates
20. Biological oxidation of substances and their energy metabolism.
21. Lipid metabolism and its intermediates.
22. Protein metabolism intermediates and their characteristics (I, II).
23. Nucleic acid metabolism intermediates.
24. Biochemical parameters of biological fluids.
25. Biochemistry of products of animal origin.

CLINICAL DIAGNOSIS OF ANIMAL DISEASES

Department of Therapy and clinical diagnostics

Faculty of Veterinary medicine

Lecturer	Andrii Zemlianskyi - candidate (PhD) of vet. science, associated professor Pavlo V. Sharandak - doctor of vet. science, professor
Term	4, 5
Major	Master degree
ECTS credits	7
Control	Exam
Class-room hours	210 hours (of them: lectures – 30 hours, practical or laboratory classes – 90 hours)

Subject overview

Clinical diagnostics is the science that studies clinical, instrumental, and laboratory methods of investigating sick animals, the technique and sequence of their application in the study of individual organs and systems, the symptoms and signs identified during this process, and the main ways of recognizing diseases. The name of the subject comes from the Greek words *klinicalis* — the art of treatment or *clinica* — a medical institution with a hospital, and *diagnostics* — from *diagnosis* — recognition, and *diagnosticon* — capable of recognizing. Therefore, clinical diagnostics teaches methods of animal examination for disease recognition.

Clinical diagnostics consists of three main sections closely related to each other. The first section presents the methods of animal examination, the technique, and the sequence of their application in the study of individual organs and systems, namely medical technique. The second section discusses the indicators identified during the examination of individual organs and systems (body temperature, pulse rate, scar contraction, heart tones, respiratory sounds, etc.), their deviations from the indicators characteristic of healthy animals. This section studies symptoms and is therefore called semiology or semiotics.

However, this is not enough for disease recognition. It is also necessary to have the skill to summarize the symptoms obtained during the examination of the sick animal, to group them by causes, to determine the connection between them, and based on this, to make a conclusion, which is called a diagnosis. The chain of these logical operations constitutes the essence of the so-called medical thinking, which requires a large stock of knowledge, good memory, observance, and significant experience. The main methods and stages of this thinking, its features, form the basis of the third section of the subject — diagnostic methods.

Thus, the subject "Clinical Diagnostics" does not aim to diagnose a specific disease; it studies methods of clinical examination applied in the diagnosis of

various types of diseases — non-infectious, infectious, parasitic, and therefore forms the basis of all subsequent clinical subjects — internal non-infectious diseases, obstetrics, surgery, epizootiology, parasitology. All clinical subjects are based on diagnostics because the recognition of any disease precedes its treatment and prevention, and the diagnosis, regardless of the cause of the disease, is made using the same methods and principles outlined in the course of clinical diagnostics. This is why clinical diagnostics is also called propaedeutics (from Greek propaideuo — to teach preliminarily, to prepare).

Clinical diagnostics, being the basis for clinical subjects, at the same time is based on the foundation of general theoretical disciplines: anatomy, physiology, pathological physiology, dialectics, physics, chemistry, without the knowledge of which it is impossible to successfully master this subject. The importance of studying "Clinical Diagnostics" for the formation of a veterinary doctor increases with the introduction of farm specialization, the application of advanced technologies in animal husbandry, and the development of high-productivity farms. And also veterinary clinics that provide health care for pet animals.

Lectures:

1. General diagnostics. The concept of symptoms, syndromes, diagnosis, prognosis. Protocol of a clinical study of animals. Preliminary acquaintance with the animal: registration and history.
2. The clinical examination process. Diagnostic value of pathological changes of the skin and subcutaneous tissue.
3. Diagnostic value of examination of skin, visible mucous membranes and lymph nodes.
4. The study of the cardiovascular system.
5. Study of heart tones by auscultation method and characteristics of their changes.
6. Abnormal heart sounds, physiological and abnormal arrhythmias, defects.
7. Visual diagnostics of the cardiovascular system.
8. Study of arrhythmias.
9. Clinical Examination of the Respiratory Tract.
10. Auscultation of the respiratory tract.
11. Examination of the Alimentary System.
12. The abdomen exam.
13. The monogastric animals stomach investigation.
14. The urinary system investigation.
15. The urine exam.
16. Clinical study of the nervous system in animals.
17. Blood investigation.
18. Leukogram. Diagnostic significance.
19. Biochemical blood analysis.

Classes:
(practical, laboratory classes)

1. Approach to animals and their fixation.
2. Registration and history.
3. Definition of habitus.
4. Wool/hair cover investigation.
5. Skin investigation.
6. Mucous membranes investigation.
7. Examination of lymph nodes. Thermometry.
8. Clinical examination of the cardiovascular system.
9. Diagnosis of heart murmurs.
10. Study of heart defects in animals.
11. Study of blood vessels, arterial and venous pressure.
12. Application of the ECG method in clinical veterinary practice.
13. Diagnosis of cardiac arrhythmias.
14. Clinical examination of the respiratory tract. Examination of upper respiratory tract.
15. Examination of the lower respiratory tract.
16. Auscultation of lungs.
17. Radiography of the respiratory tract.
18. Clinical examination of the alimentary system. Examination of oral cavity, pharynx, esophagus, appetite. Examination of food and water intake.
19. Intubation of the esophagus, stomach, rumen, reticulum, omasum, abomasum.
20. External examination of the organs of the abdominal cavity in monogastric animals.
21. The clinical examination of the alimentary system of cattle, sheep and goats.
22. The clinical examination of the liver in animals.
23. X-ray examination of the organs of the abdominal cavity.
24. Examination of the urinary system. Clinical methods of investigation of the urinary system.
25. Examination of urine. Determination of physical and chemical properties of urine. Microscopic elements of urine.
26. Examination of the nervous system. Investigation of animal behavior, sense organs, sensitivity, reflexes.
27. Methods and technique of obtaining blood from different types of animals. Determination of properties of blood.
28. Study of the morphological composition of blood. Determination of the number of leukocytes.
29. Determination of biochemical indicators of animal blood.

CYTOLOGY, HISTOLOGY, EMBRYOLOGY

Department of Animal Anatomy, Histology and Pathomorphology
named after Academician Volodymyr Kasyanenko

Faculty of Veterinary Medicine

Lecturer	T. A. Mazurkevych, Doctor of Veterinary Sciences, Associate Professor
Term	Academic year – 1, 2, semester – 2, 3
Major	Master degree
ECTS credits	7
Control	Exam
Class-room hours	210 hours (of them: lectures – 60 hours, practical and laboratory classes – 90 hours)

Subject overview

The academic discipline «Cytology, Histology, Embryology» is compiled in accordance with the educational and professional training program for the ED «Master» of the specialty 211 «Veterinary Medicine» of the full term of study. It is fundamental in the training of a veterinarian. Together with anatomy, physiology and biochemistry, they form the necessary basis for students to successfully master paraclinical and clinical disciplines. The discipline «Cytology, Histology, Embryology» includes four sections: «Cytology», «Embryology», «General Histology» and «Special Histology». Each of them has its own subject of study. «Cytology» studies the structure and function of cells, «Embryology» – the development and structure of germ cells and embryo development, «General Histology» – the development, structure and function of tissues, «Special Histology» – the structure of organs of their systems and apparatus. The subject of study of this discipline is the micro- and ultramicroscopic structure of the structural components of the organism, and their formation in the process of embryonic development.

Lectures:

1. Insight into Histology. Definitions and subject of “Histology, Cytology, Embryology” and its place in the biological and veterinary sciences.
2. Cytology. Overview of eukaryotic cells. Cell theory. The chemical composition of cells.
3. Cytology. The structure of the eukaryotic cell. Structure and function of plasmolemma. Cytoplasm. The cytoplasm compartment.
4. Cytology. The structure of the eukaryotic cell. Cytoplasmic inclusion and their classification.
5. Cytology. The structure of the eukaryotic cell. Cell division.
6. Embryology. Structure of Germ Cells.
7. Embryology. Development of germ cells. Early embryonic development.
8. Embryology. Differentiation of Germ Layers and Axial Organs. Embryogenesis of Amphioxus, Fish and Amphibians.

9. Embryology. Embryogenesis of Birds and Mammals.
10. General Histology. General characteristics of tissues. Epithelia.
11. General Histology. Connective tissue. Body fluids.
12. General Histology. Proper Connective Tissue.
13. General Histology. Supportive tissues.
14. General Histology. Muscle Tissue.
15. General Histology. Nervous tissue.
16. Special Histology. Cardiovascular System.
17. Special Histology. Lymphatic system (Central organs of hematopoiesis and lymphopoiesis).
18. Special Histology. Lymphatic system (Peripheral organs of hematopoiesis and lymphopoiesis).
19. Special Histology. Endocrine System.
20. Special Histology. Integumentary System.
21. Special Histology. Digestive System. (Oral structures. Extramural salivary gland).
22. Special Histology. Digestive System (Esophagus. Glandular stomach. Compound stomach).
23. Special Histology. Digestive system (Small and large intestine. Liver and pancreas).
24. Special Histology. Respiratory System.
25. Special Histology. Urinary System.
26. Special Histology. Female Reproductive System.
27. Special Histology. Male Reproductive System.
28. Special Histology. Nervous System.
29. Special Histology. Analyzers. Eye.
30. Special Histology. Analyzers. Spiral organ. Vestibular apparatus.

Classes:

(practical, laboratory classes)

27. Microscope. How to use microscope. Histological laboratory.
28. Paraffin technique. Hematoxylin and eosin staining.
29. Cytology. General morphology of eukaryotic cells. Mitochondria. Endoplasmic reticulum. Golgi complex.
30. Cytology. Centrioles. Cytoplasmic inclusions (nutritive, secretory, pigment).
31. Cytology. Nucleus. Mitosis. Amitosis.
32. Embryology. Structure of spermatozoa in mammals and bird. Structure of mammal oocyte.
33. Embryology. Fertilization. Syncaryon. Zygote cleavage in Lancelet fish and Amphibia. Blastula.
34. Embryology. Unequal cleavage. Blastula.
35. Embryology. Frog's neurula. Gastrulation in birds.
36. Embryology. Germ layers and axial organs of chick embryo.
37. Embryology. Fetal membranes of birds and mammals. Placenta.
38. General Histology Epithelia. Surface epithelia.
39. General Histology Connective tissue. Body fluids. Blood of mammals, birds, amphibians.

40. General Histology Proper Connective Tissue. Mesenchyme and mucous connective tissue. Reticular tissue. Adipose tissue.

41. General Histology Proper Connective Tissue. Loose connective tissue. Dense connective tissue.

42. General Histology Supportive tissues. Cartilage and bone tissue.

43. General Histology Muscle Tissue. Smooth muscle tissue. Skeletal and cardiac muscle tissue.

44. General Histology Nervous tissue. Neurons. Chromatophilic substance. Neurofibrils.

45. General Histology Nervous tissue. Neuroglia. Nerve fibers (unmyelinated and myelinated). Synapses.

46. Special Histology. Cardiovascular System. Heart. Elastic and muscular arteries.

47. Special Histology. Cardiovascular System. Muscular vein. Blood capillaries.

48. Special Histology. Lymphatic (Lymphoid) Organs. Red bone marrow. Thymus. Bursa of Fabricius.

49. Special Histology. Lymphatic (Lymphoid) Organs. Lymph node. Spleen. Palatine tonsils.

50. Special Histology. Endocrine System. Hypophysis.

51. Special Histology. Endocrine System. Adrenal glands. Thyroid gland. Parathyroid gland.

52. Special Histology. Integumentary System. Skin with hair. Skin without hair. Eyelid.

53. Special Histology. Integumentary System. Mammary gland (lactating and non-lactating).

54. Special Histology. Integumentary System. Horn skin derivatives. Hooves.

55. Special Histology. Digestive System. Tooth crown and root. Development of tooth.

56. Special Histology. Digestive System. Tongue (filiform and foliate papilla). Salivary glands.

57. Special Histology. Digestive System. Esophagus.

58. Special Histology. Digestive System. Glandular stomach.

59. Special Histology. Digestive System. Compound stomach (rumen, reticulum, omasum).

60. Special Histology. Digestive System. Avian stomach.

61. Special Histology. Digestive System. Small and large intestine.

62. Special Histology. Digestive System. Liver. Pancreas.

63. Special Histology. Respiratory System. Trachea. Mammal's and bird's lung.

64. Special Histology. Urinary System. Kidney. Ureter. Scheme of nephron.

65. Special Histology. Urinary System. Ureter. Urinary bladder.

66. Special Histology. Female Reproductive System. Ovary. Corpus luteum. Uterine tube (oviduct).

67. Special Histology. Female Reproductive System. Uterus. Vagina.

68. Special Histology. Male Reproductive System. Testis. Epididymis testis. Prostate.

69. Special Histology. Nervous System. Spinal cord. Cerebral cortex. Cerebellum.

70. Special Histology. Nervous System. Dorsal root ganglia. Nerve.

71. Special Histology. Sense Organs. Posterior wall of eyeball. Cornea. Organ of Corti.

EPIZOOTOLOGY AND INFECTIOUS DISEASES

Department of Epizootology, Microbiology and Virology

Faculty of Veterinary Medicine

Lecturer	Nedosiekov Vitalii V.
Term	4, 5
Major	Master degree
ECTS credits	9
Control	Exam
Class-room hours	280 hours (of them: lectures – 90 hours, practical or laboratory classes – 120 hours)

Subject overview

The latest requirements for the preservation of animals, in particular young animals, to improve their productivity and quality of livestock products, environmental protection require radical changes in the training of veterinarians, good knowledge of animal diseases. This is especially true of infectious diseases, as we now know more than 500 and new diseases are emerging every year. Of the 500 infectious diseases, half are zoonoses, ie diseases common to animals and humans. The study and knowledge of these diseases should be mandatory for the veterinarian.

The purpose of teaching epizootology is to teach students the theoretical and methodological foundations of infectious and epizootic processes, patterns that underlie the development of infectious diseases, mastering the methods of diagnosing infectious diseases of bacterial, viral and fungal nature, skills of scientifically sound planning, organization and conduct of anti-epizootic.

Lectures:

1. Introduction to epizootology. Subject and methods of epizootology. The history of the development of the science of epizootology. Connection of epizootology with other sciences. Relationships of micro- and macro-organisms. Epizootological aspects of teaching about infection. Infectious process and forms of its manifestation. The role of microorganisms in the infectious process.

2. The influence of environmental factors on the development and manifestation of the infectious process. Types of infections. Infectious disease and forms of its manifestation. The importance of the macroorganism in the development and manifestation of the infectious process. Non-specific (natural) resistance and specific immunity. Immunodeficiencies.

3. The essence of the epizootic process. Epizootic chain and its links: the source of the causative agent of infection, the mechanism of transmission of the causative agent, susceptible animals. Driving forces of the epizootic process.

4. The influence of climatic, meteorological, geographical and other natural conditions, as well as socio-economic factors on the occurrence and manifestation of epizootics. Seasonality and frequency of manifestation of epizootics. Concepts of "source of infectious agent" and "reservoir of infectious agent". Mechanism, factors and ways of transmission of pathogens of infectious diseases. The role of the external environment in the storage and movement of infectious agents. Resistance of infectious agents in the external environment. The concept of horizontal and vertical ways of transmission of the causative agent of the disease.

5. Susceptible animals. Individual and group susceptibility of animals to diseases. The importance of animal susceptibility in the epizootic process. Manifestations of the epizootic process: sporadic, enzootic, panzootic. Dynamics of epizootics and characteristics of its main stages. Peculiarities of epizootic manifestation in closed (isolated) and open (non-isolated) herds of animals. Epizootic and natural foci of infectious diseases. The concept of an epizootic focus, a disadvantageous point and a threatening zone. Types of epizootic outbreaks. The doctrine of the natural foci of infectious diseases. The concept of regional epizootology and epizootological geography, their connection with the issue of ecology.

6. Nomenclature and principles of classification of infectious diseases. Zoonoses, zoonooses, anthroponoses. Laws and categories of epizootology. Evolutionary and ecological aspects of infectious diseases of animals. Intensive and extensive indicators of the intensity of the epizootic process.

7. Population-level phenomena in epizootology. Basics of epizootological analysis. The main tasks and principles of anti-epizootic measures. The issue of forecasting epizootics and their modeling. General and special prevention of infectious diseases. Features of general anti-epizootic measures for infectious diseases.

8. Therapy and curative and preventive measures for infectious diseases of animals. Measures and methods of individual and group non-specific and specific therapy. General and special prevention of infectious diseases. Features of general anti-epizootic measures for infectious diseases. Disinfection, disinsection and deratization, their place and importance in the complex of anti-epizootic measures. Characteristics of disinfectants and the technique of disinfection of various objects. Safety rules. Methods of controlling the effectiveness of disinfection.

9. Bioprotection and biosafety. Methods of combating particularly dangerous transboundary and emergent diseases.

10. Anthrax.

11. Tuberculosis.

12. Brucellosis.

13. Rabies.

14. Leptospirosis.

15. Foot and mouth disease.

16. Clostridiosis of ruminants.
17. Necrobacteriosis. Paratuberculosis.
18. Infectious rhinotracheitis.
19. Contagious nodular dermatitis of cattle.
20. Bovine leukemia.
21. African swine fever.
22. Swine fever.
23. Swine influenza.
24. Respiratory-reproductive syndrome of pigs. Circovirus infection of pigs.
25. Viral transmissible gastroenteritis of pigs.
26. Newcastle disease of birds.
27. Infectious bronchitis of birds.
28. Infectious laryngotracheitis of birds.
29. Neurolymphomatosis.
30. Infectious bursal disease.
31. Colibacteriosis.
32. Salmonellosis.
33. Glanders. Strangles of horses.
34. Infectious anemia of horses.
35. Rhinopneumonia of horses.
36. Canine distemper.
37. Corona virus infections of cats and dogs.
38. Parvovirus infections of dogs and cats.
39. Borreliosis.
40. Myxomatosis of rabbits. Viral hemorrhagic disease of rabbits.
41. Epizootic situation and legal regulation of veterinary provision in beekeeping.
42. Preventive measures for associated diseases of bees.
43. General preventive and veterinary sanitary measures in apiaries.
44. Acquaintance with the system of anti-epizootic measures in fish farming.
45. The main infectious diseases of fish, their prevention and control measures.

Classes:

(practical, laboratory classes)

1. Veterinary and veterinary facilities. Acquaintance with the infectious disease clinic and isolator, mode of their work. The role of laboratory and diagnostic studies in infectious diseases of animals. Technique of blood sampling from animals of different species for laboratory diagnostic tests.
2. Rules and techniques of taking and sending pathological material for laboratory tests. Preservation of pathological material. Organization of clinical examination of infectious ill animals. Personal prevention and safety.
3. Technique and methods of conducting allergic studies of animals with simultaneous clinical examination. Organization of vaccinations. Introduction

to the technique of vaccination of animals and the technique of administration of immune sera.

4. Module 1. The doctrine of infectious and epizootic process.

5. Study of the method of epizootological inspection of the farm and registration of the act of epizootological examination. Methods of keeping epizootic journals and compiling epizootic maps.

6. General acquaintance with biological products: vaccines, bacteriophages, hyperimmune sera, gamma globulins, allergens, diagnostic drugs for serological tests. Progressive methods of animal immunization.

7. Disinfection and its import for prevention and elimination of infectious diseases. Tips and objects of disinfection. Methods and means of disinfection. Disinfectants from the groups: acids, alkalis, phenols, salts of heavy metals. Oxidizing and chlorine-containing disinfectants.

8. Introduction to new disinfectants. Technique of preparation of solutions of basic disinfectants and their application. Features of disinfection of various objects and calculation of disinfectants. Devices and machines for disinfection of various objects. Demonstration of disinfection machines. Methods and means of disinfection and deratization.

9. Module 2. Epizootic process and its driving forces. System of anti-epizootic measures.

10. Tetanus. Botulism. Anthrax.

11. Pseudotuberculosis. Paratuberculosis. Tuberculosis.

12. Pasteurellosis. Chlamydiosis. Listeriosis. Brucellosis.

13. Murrain. Tularemia. Smallpox. Leptospirosis.

14. Rabies. Aujeszky's disease. Trichophytia. Microsporia.

15. Module 3. Infectious diseases common to several species of animals.

16. EMCAR. Malignant edema.

17. Bradzot. Blutang.

18. Viral diarrhea in cattle. Parainfluenza - 3.

19. Infectious enterotoxemia of sheep. Hoof rot.

20. Horny pneumonia in cattle. Malignant catarrhal fever of cattle.

21. Prion diseases of ruminants (Spongiform encephalopathy of cattle. Scrapie. Spring-Maedi).

22. Respiratory syncytial infection of cattle. Cattle plague.

23. Infectious pleuropneumonia of goats.

24. Contagious pustular dermatitis of sheep and goats.

25. Module 4. Infectious diseases of ruminants.

26. Classic swine fever. Actinobacillary pleuropneumonia of pigs.

27. Parvovirus infection (diseases of the reproductive organs of pigs). Pseudomonas aeruginosa of pigs.

28. Infectious atrophic rhinitis of pigs. Hemophilic polyserositis.

29. Cholenterotoxemia of pigs.

30. Teschen disease. Epidemic diarrhea.

31. Swine dysentery. Anaerobic dysentery of pigs.

32. Vesicular disease. Swine vesicular exanthema. Vesicular stomatitis.

33. Module 5. Infectious diseases of pigs.
34. Respiratory mycoplasmosis. Viral hepatitis of ducklings. Viral sinusitis of ducklings.
35. Bird flu. Leukemia of birds. Laying syndrome.
36. Salmonellosis of birds. Pulloros-typhus. Pasteurellosis (cholera) of birds.
37. Ornithosis. Smallpox. Aspergillosis. Candidiasis of birds.
38. Module 6. Infectious diseases of birds.
39. Viral enteritis of young animals. Streptococcus.
40. The myth of horses. African horse plague.
41. Viral arteritis. Epizootic lymphangitis of horses.
42. Contagious equine pleuropneumonia.
43. Infectious equine encephalomyelitis.
44. Infectious metritis of horses. Rhodococcal infection of horses.
45. Module 7. Infectious diseases of horses and young animals.
46. Adenovirus infections of dogs (Infectious hepatitis of carnivores. Infectious laryngotracheitis of dogs). Dog flu.
47. Leukemia of cats. Calcivirosis.
48. Carnivorous viral enteritis.
49. Immunodeficiency of cats. Cat anemia.
50. Aleutian mink disease. Pseudomonas mink. Fur pasteurellosis.
51. Module 8. Infectious diseases of carnivores and fur animals.
52. Varroosis of bees. Nosematosis and acarapidosis.
53. European and American bee rot. Ascopherosis and aspergillosis of bees.
54. Saccular brood. Chronic and acute viral paralysis of bees. Septicemia of bees.
55. Hafniosis, salmonellosis and colibacillosis of bees
56. Non-communicable diseases of bees and pests and enemies of bees
57. Aeromonosis (furunculosis) of salmon. Aeromonosis of carp.
58. Spring viremia of carp. Vibriosis.
59. Viral hemorrhagic septicemia. Bacterial rot of fins. Smallpox carp.
60. Bronchiomycosis of fish. Saprolegniosis of fish and caviar in fish farms.
61. Module 9. Infectious diseases of fish and bees.

FOOD HYGIENE

Department of Veterinary Hygiene

Faculty of Veterinary Medicine

Lecturer

Term

4-5

Major

Master degree

ECTS credits

5

Control

Exam

Class-room hours

120 hours (of them: lectures – 60 hours,
laboratory classes – 60 hours)

Subject overview

The course "Food Hygiene" is a special cycle discipline in veterinary professionals training. According to the Law of Ukraine "On Veterinary Medicine" primary purpose of teaching is to form in veterinarians knowledge of sanitary measures and clear issues of hygiene testing and safety of food and raw materials of animal origin during their production (private sector, collective farms, etc.), at all stages of processing (meat, dairy, poultry, and fish plants) and during transport, storage and sale, following the implementation of existing veterinary and sanitary measures.

Course content will provide the veterinary students with a general understanding of the basic principles of food safety, to include development and enforcement of laws and regulations impacting food animal processing industries and food consumers (e.g., traceability and ante- and post-mortem inspection and certification requirements); approaches to microbiological and physical foodborne hazard identification, testing and sampling; and foodborne hazard prevention and control.

Lectures:

1. Introduction. General information about Veterinary food hygiene with the basics of technology and standardization of products of animal origin.
2. National and international regulation of food hygiene and safety.
3. The chemical composition and technological properties of milk.
4. Sanitary conditions for obtaining high-quality milk at farms.
5. Veterinary control of milk quality and dairy products in food markets.
6. Veterinary and sanitary examination of honey and other bee products.
7. Veterinary hygiene and examination of fish and other aquatic organisms.
8. Veterinary hygiene and examination of poultry eggs.

9. Slaughter animals, transportation and identification of fatness categories.

10. Premises for processing of slaughtered animals and veterinary and sanitary demands. Acceptance of slaughtered animals.

11. The basic technology and hygiene of slaughtered animals and poultry processing.

12. Organization and Methods veterinary expertise after slaughter and carcasses of slaughtered animals.

13. The morphology, chemical composition and characteristics of meat of different animal species.

14. Changes in the meat after slaughter.

15. The basic technology of hygiene and preserving of meat and meat products.

16. Meat post mortem examination of in cases of infectious diseases.

17. Veterinary-sanitary examination of products of slaughter animals with invasive disease.

18. Veterinary-sanitary examination and assessment of products of slaughter animals with non-communicable diseases or intoxication.

19. Food borne diseases and its prevention.

20. Veterinary hygiene and exam of game.

Classes:

(practical, laboratory classes)

1. Requirements for milk according to National Standard.

2. Organoleptic and laboratory methods for determining the quality of milk.

3. Laboratory tests of milk quality parameters (acidity).

4. Determination of the protein content in milk and milk cheese fitness.

5. Determination of milk cleanliness. Methods of microbiological control of milk

6. Determination of milk authenticity

7. Determination of abnormal milk, pasteurization quality control

8. Methods of research of dairy and fermented dairy

9. Technology of manufacturing hard rennet cheeses. Examination of hard and fermented milk cheeses

10. Methods of examination of butter

11. Methods for the determination of water content and diastase in natural honey

12. Pollen analysis of honey. Determination of the acidity of natural honey. Methods for determining honey adulteration.

13. Inspection of fish and fish products.

14. Procedure and standards for sampling for laboratory research of food products of plant origin. Procedure for testing samples of food products of plant origin. Inspection of food of plant origin for pathology

15. Determination of the mass fraction of nitrates in food of plant origin by the ionometric method.
16. Testing of samples of cereals, flour and starch.
17. Procedure for testing samples of mushrooms.
18. Examination of carcass and organ lymph nodes of slaughtered animals.
19. Meat freshness determination.
20. Methods for determining meat obtained from sick and dead animals. Inspection of animal slaughter products for parasitic diseases (fascioliasis, dicroceliosis, sarcosporidiosis, etc.).
21. Inspection of animal slaughter products in case of cysticercosis (veterinary evaluation, methods of decontamination).
22. Inspection of animal slaughter products for trichinosis.
23. Meat species determination.
24. Inspection of sausage products. Inspection of canned products.
25. Methods for determining the total number of microorganisms in meat and its products.
26. Methods for determining the freshness of meat by bacteriological method.
27. Methods for determining the veterinary residual in food.

FUNDAMENTALS OF ANIMAL BREEDING

Department of Genetics, Breeding and Biotechnology of Animals

Faculty of Animal Husbandry and Aquatic Resources
Specialty 211 Veterinary medicine

Lecturer	Iryna Suprun
Term	2-nd year of study, 3-ed semester
Major	Bachelor or Master degree
ECTS credits	4
Control	Exam
Class-room hours	120 hours (of them: lectures – 15 hours, practical or laboratory classes – 30 hours)

Subject overview

The objective of this course is to familiarize future specialists with the subjects pertinent to their professional domain, specifically the biological characteristics of various types of agricultural animals, their individual development, growth patterns across different age stages, and the correlation between productivity and physiological and technological factors. Additionally, students will learn about breeding and selection methods and their implications for animal health and susceptibility to diseases. The knowledge acquired will enable veterinarians to consider zootechnical factors when treating different types of agricultural animals.

The course aims to equip future veterinarians with the necessary skills for preventive and therapeutic interventions, taking into account the unique characteristics of agricultural animals and the technologies employed in various branches of animal husbandry.

Upon completion of the course, students should possess knowledge of the biological characteristics of different types of agricultural animals, growth and developmental patterns at various ages, as well as their conformation, exterior, breeding methods, selection procedures, and the evaluation of breeders based on offspring quality. Furthermore, they should be able to assess conformation and external body parts, determine the direction of animal productivity, breed, age, constitution type, condition, disease susceptibility, estimate productivity, ascertain inbreeding density, and determine the breeding value of animals.

Lectures:

1. Introduction: The Concept of Subject and Breed Doctrine.
2. Conformation, External Appearance, and Internal Anatomy of Agricultural Animals.
3. Developmental Progression of Individual Agricultural Animals.

4. Productivity of Agricultural Animals.
5. Techniques for Breeding Agricultural Animals and Herd Improvement.
6. Theoretical and Practical Principles of Selection and Culling, Lineage Analysis, Inbreeding, and Heterosis.
7. Biological Characteristics and Varieties of Cattle and Horses.
8. Biological Attributes and Breeds of Poultry, Pigs, and Sheep.

Classes:

(practical, laboratory classes)

1. Animal Husbandry Identification System.
2. Animal Conformation.
3. Methods for Assessing Animal Exterior.
4. Techniques for Recording and Estimating Animal Age and Growth.
5. Recording and Assessing Milk Yield.
6. Recording and Assessing Meat Yield.
7. Breeding Methods: Crossbreeding and Drawing Up Crossbreeding Schemes.
8. Estimating Animals' Breeding Value Using Pedigree Analysis.
9. Inbreeding: Techniques for Estimating the Inbreeding Coefficient.

GENERAL AND SPECIAL SURGERY

Department of Surgery and Pathophysiology named after
acad. I.O. Povazhenko

Faculty of Veterinary Medicine

Lecturer	V.V. Klymchuk, Candidate of Vet. Sciences (PhD)
Term	Academic year 4,5, semester 7, 8, 9
Major	Master degree
ECTS credits	7
Control	Exam
Class-room hours	210 hours (of them: lectures – 60 hours, practical or laboratory classes – 90 hours, self-study – 60 hours.)

Subject overview

Purpose mastering the basics of surgical pathology with a specific idea of the causes, etiology, pathogenesis, diagnosis and apply a comprehensive approach to the treatment of surgically ill animals.

Objectives to combine in practice knowledge and skills in general biological disciplines directly with clinical, to learn the basics of surgical pathology, to form a clear idea of the causes, pathogenesis, principles of treatment and prevention of surgical diseases of animals.

As a result of studying the discipline the student must:

Know: the clinical manifestation of surgical diseases that are registered in animals, to identify the causes of their occurrence, to be able to make an accurate diagnosis, to have sufficient operative and conservative methods of treatment.

Be able: to correctly diagnose, provide the necessary individual surgical care to a sick animal, to carry out preventive measures aimed at preventing the emergence of mass surgical diseases, to give them a scientific and economic justification.

Lectures:

1. A brief history of veterinary medicine. The subject of general medicine and its connection with other disciplines.

2. General information about surgical diseases of animals, methods of treatment and prevention.

3. Injuries to animals (classification, prevention). The impact of injury on the body.

4. Bleeding. Acute anemia. Classification of bleeding and ways to stop it.

5. Closed animal injuries.

6. Wounds (open mechanical damage). Symptoms, classification, types of healing.

7. Surgical infection: types and clinical manifestations.

8. Diseases of blood and lymphatic vessels. Damage to peripheral nerves.
9. Killing, ulcers, fistulas. Foreign bodies.
10. Displacement of internal organs.
11. Skin diseases (symptoms, diagnosis and treatment).
12. Muscle diseases (myositis, myopathosis and atrophy).
13. Diseases of tendons, tendon sheaths and bursae.
14. Diseases of bones and joints.
15. Neoplasms. Classification. Methods of diagnosis and treatment.
16. Anatomy and physiology of the visual organ in animals.
17. Research of the organ of vision.
18. Diseases of the eyelids, conjunctiva and cornea.
19. Inflammation of the vascular tract and retinal disease.
20. Anatomical and physiological characteristics of the fingers in animals.

Features of the structure.

21. Hoof care and deformities.
22. Diseases of the hooves in cows.
23. Features of deformities and diseases of the hooves of horses.
24. Diseases in the head (injuries, diseases of bones and peripheral nerve endings).
25. Diseases in the oral cavity.
- Diseases of the spine.
27. Diseases in the pelvic cavity.
28. Diseases in abdomen cavity.
29. Diseases in the chest.
30. Diseases of the pelvic limb.

Classes:

(practical, laboratory classes)

1. Familiarity with the work of the surgical clinic. Outpatient and inpatient treatment of animals. Documentation.
2. Methods of clinical examination of animals with surgical pathology. Preparing animals for surgery. Postoperative care of animals. Local reaction of the body to injury: inflammatory processes. General methods of treatment of animals with inflammatory processes.
3. Novocaine therapy. Methods of stimulating therapy in surgical diseases.
4. Shock. Classification, symptoms and methods of prevention and treatment.
5. Closed damage. Thermal and chemical damage. Electrotrauma.
6. Technique of research of the general condition of the wounded animal, research of a wound, surgical processing of wounds. Wound healing. Imposition of primary and secondary sutures.
7. Sepsis (classification, clinical picture, treatment and prevention).
8. Diagnosis and treatment of animals with diseases of death, ulcers and fistulas. Foreign bodies (symptoms and treatment of animals with this pathology).
9. Types of displacements of internal organs, causes, diagnosis and treatment.
10. Causes of dermatitis and eczema in animals. Diagnosis and treatment.

11. Symptoms of myositis and myopathosis. Causes of muscle atrophy. Diagnosis and treatment.

12. Pathogenesis, clinical picture and treatment of diseases of tendons, tendon sheaths and bursae.

13. Methods of diagnosis and treatment of bone fractures.

14. Diagnosis and treatment of animals with various tumors.

15. Anatomical structure and physiology of the organ of vision.

16. Examination of the eye and its protective devices.

17. Operations and surgical interventions in the treatment of animals with pathologies of the visual organ.

18. Diseases of the eyelids, connective tissue and lacrimal apparatus.

19. Diseases of the cornea and keratoconjunctivitis.

20. Diseases of the vascular membrane of the eye and pathological condition of ventricular moisture.

21. Diseases of the lens, pathology of the vitreous and optic nerve.

22. Pathology of internal pressure, eye injuries and viral eye lesions.

23. Anatomical and physiological features of the structure of the hooves of horses, toes and hooves of productive animals and toes of small animals.

24. The mechanism of hooves and hooves, limbs and its effect on the shape of the hooves.

25. Pododermatitis. Diagnosis and treatment.

26. Septic subdermatitis.

27. Defeat of synovial formations.

28. Hoof diseases characteristic of horses.

29. General issues of prevention of hoof diseases. Horseshoeing.

30. Diseases of the oral cavity: inflammation and dislocation of the mandibular joint, retention cysts and wounds, diseases of the teeth and salivary glands.

31. Hematoma of the auricle and otitis.

32. Spinal necrosis and esophageal disease.

33. Closed injuries and purulent processes in the withers.

34. Pneumothorax and hemothorax: etiology, diagnosis and treatment.

35. Diseases of the bones in the chest and lower back.

36. Displacement of internal organs: torsion, strangulation, eventration, prolapse, prolapse.

37. Hernias, classification, clinical signs and treatment.

38. Causes and treatment of peritonitis.

39. Surgical diseases in the breast.

40. Andrology.

41. Post-castration complications.

42. Diseases of the thoracic limb.

43. Diseases of the pelvic limb.

44. Minimally invasive surgery and plastic surgery.

GENETICS

Department of Genetics, Breeding and Biotechnology of Animals

Faculty of Veterinary Medicine

Lecturer	Kostenko Svitlana
Term	
Major	Master degree
ECTS credits	4
Control	Exam
Class-room hours	60 hours (of them: lectures – 30 hours, practical or laboratory classes – 30 hours)

Subject overview

The purpose of studying the discipline "Genetics" is to provide students with theoretical and practical knowledge for future effective production and research activities to improve animal health. "Genetics" forms the theoretical basis of such a discipline as animal breeding and selection.

While studying the discipline, students will learn to identify, using different types of genetic analysis (cytogenetic, molecular genetic, hybridological, genealogical), animal carriers of harmful mutations and economically valuable genes and gene ensembles to obtain offspring with the expected productivity indicators or with new qualitative characteristics.

Students will learn to understand the role of heredity and variability, as well as the influence of the environment on the manifestation of the norm of genotype reaction in the pathological processes of hereditary diseases. Studying the discipline will give the concept of animal mutations, hereditary pathology at different levels from molecular (gene, chromosome, genome), cellular, organismal to population levels.

Lectures:

1. Genetics as a science. History, methods, use in veterinary medicine.
2. Cytological bases of heredity. Mitosis, cell cycle, their disorders.
3. Meiosis. Gametogenesis.
4. Molecular basis of heredity. DNA, replication.
5. The central dogma of molecular biology. RNA, transcription, translation
6. Genetic code, its properties.
7. Regulation of gene expression and their disruption.
8. Variability, its types. Genomic mutations.
9. Gene mutations and chromosomal aberrations.
10. Interaction of allelic genes. Mendel's laws and deviations from them.
11. Interaction of non-allelic genes.

12. Linked inheritance of genes.
13. Genetics of sex. Genes are dependent and sex-linked.
14. Population genetics.
15. Pathogenetics.

Classes:

(practical, laboratory classes)

1. Mitosis, cell cycle, their disorders. Cytogenetic analysis of animals.
2. Meiosis. Gametogenesis.
3. DNA, replication. Isolation of DNA. PCR analysis.
4. RNA analysis, transcription.
5. Translation of RNA. Protein analysis.
6. Gene mutations for their implementation at the level of DNA, RNA, protein, signs and disorders of the body.
7. Variability, its types. Genomic mutations. Genome disorders and their impact on animal health.
8. Gene mutations and chromosomal aberrations. Chromosomal disorders and their impact on animal health.
9. Hybridological analysis for monohybrid and dihybrid crossing. Drosophila workshop. Monogenic diseases.
10. Hybridological analysis for epistasis, polymerization, complementary action of genes. Drosophila workshop. Polygenic traits.
11. Analysis of genetic maps. Hybridological analysis for linked inheritance of genes. Drosophila workshop.
12. Hybridological analysis for sex-linked inheritance. Diseases are linked to sex chromosomes. Drosophila workshop.
13. Analysis of population processes. Hardy-Weinberg law.
14. Pathogenetics. Genealogical analysis.
15. Compilation and analysis of pedigrees.

GLOBAL PARASITOLOGY

Department of Pharmacology, Parasitology and Tropical Veterinary
Medicine

Faculty of Veterinary Medicine

Lecturer	Professor Dr. Maryna V. Galat
Term	Semesters 11
Major	Master degree
ECTS credits	4
Control	Exam
Class-room hours	120 hours (of them: lectures – 15 hours, practical or laboratory classes – 30_hours)

Subject overview

The programme of study of the normative discipline "Global Parasitology" is compiled in accordance with the educational and professional training programme for educational qualification Master of Veterinary Medicine. The purpose of studying the discipline is to deepen the theoretical and practical knowledge of the master's degree in the role of parasites in the animal world. The relationship between the parasite and the host system. Mutual adaptations of the parasite-host system. Formation of external or internal parasitism. Evolution of parasite-host relations. The parasite-host system as a physiological concept. Immunological processes in the system of parasite-host. Use of the acquired knowledge to predict the spreading, diagnosis, treatment and prevention of parasitic diseases. Acquiring practical skills in modern methods of diagnosing parasitic diseases, as well as preparing the master's degree for independent scientific and practical work. The logic and structure of the course will allow masters to acquire the necessary amount of knowledge that will allow them to achieve a high level of professional competence in the future. The main role of the discipline is to master the principles of general parasitology for prognosis, diagnosis, treatment and prevention, preventive measures in the case of parasitic diseases.

Lectures:

1. Relationships between animals and the place of parasites in the animal kingdom.
2. Physiology and immunological factors in the parasite-host system.
3. Biological features of the parasite-host system in trematodes.
4. Biological features of the parasite-host system in cestodes.
5. Biological features of the parasite-host system in nematodes.

6. Biological features of the parasite-host system in Acanthocephala parasitic group.

7. Biological features of the parasite-host system in insects and mites/ticks.

8. The biological features of the parasite-host system in protozoan organisms of veterinary medicine importance.

Classes:

(practical, laboratory classes)

1. Relationships between animals and the place of parasites in the animal kingdom.

2. Physiology and immunological factors in the parasite-host system.

3. Biological features of the parasite-host system in trematodes.

4. Biological features of the parasite-host system in cestodes.

5. Biological features of the parasite-host system in nematodes.

6. Biological features of the parasite-host system in Acanthocephala parasitic group.

7. Biological features of the parasite-host system in insects and mites/ticks.

8. The biological features of the parasite-host system in protozoan organisms of veterinary medicine importance.

HISTORY OF UKRAINIAN STATEHOOD

Department of International Relations and Social Sciences

Faculty of Veterinary Medicine

Lecturer	Kravchenko Nataliia Borysivna
Term	I
Major	Master degree
ECTS credits	4
Control	Exam
Class-room hours	45 hours (of them: lectures – 15 hours, practical or laboratory classes – 30 hours)

Subject overview

The course is an introductory designed course for the Bachelor student, which provides the basic concepts of all aspects of Ukrainian Statehood.

The goal of the course: train the highly qualified specialists on the basis of the processes of the humanization of school, integration of the professional and social-humanitarian base, improvement of the content and structure of the course, use of the achievements of the world and national ideas, common values.

Objectives of the course: study of the history of Ukrainian statehood and the deep understanding of the history of formation of the Ukrainian people and Ukrainian state system, consolidation of the national originality, interpretation of the political activity of the classes and social group in Ukraine at the certain stages of the historical development

Lectures:

1. Introduction to the Course «History of Ukrainian Statehood».
2. Genesis of Ukrainian statehood in the Middle Ages: scientific polemics.
3. The latent period of the Ukrainian state, diversity and contradictory interpretations.
4. Ukrainian national revolution (mid XVII century).
5. The Cossack Hetmanate.
6. Revival of Ukrainian ideas National self-determination (the end of XVIII-XIX centuries).
7. New trends in socio-political life of Ukraine at the beginning of XX century.
8. Evolution Ukrainian state in 1917-1920.
9. The Soviet form of statehood (1921-1939).
10. Ukraine and the Second World War: A New Paradigm.

11. Changes in the political life of Ukraine (40-80 years of the twentieth century).
12. Historical features of state processes in independent Ukraine (since 1991).
13. Agro-industrial complex of Ukraine.
14. Ukraine and the World: geopolitical factor in a historical retrospective.
15. Prospects of Ukrainian state in the XXI century.

Classes:

(practical, laboratory classes)

1. Methodical lessons.
2. The state building traditions in Ukraine in the ancient history: hypotheses and evidence
3. Rus in the Ukrainian and World history.
4. Ukrainian lands in the foreign countries fourteenth to seventeenth centuries.
5. Ukrainian statehood in the second half of the XVII century.
6. The functioning of state mechanisms in the Ukrainian lands in the eighteenth century.
7. Socio-political movement in Ukrainian the nineteenth century.
8. Competitions of national democratic forces for Ukrainian statehood at the beginning of the twentieth century.
9. The struggle for the restoration of the statehood of the Ukrainian nation (1917-1920years).
10. Nation-building in the interwar period.
11. The struggle for Ukrainian statehood in Western Ukraine in 20-30 years of the twentieth century.
12. State building in the Ukrainian lands during the Second World War.
13. Ukraine on the path to independence, social and political transformation (1945-1991years).
14. Theory and practice of nation-building in the conditions of independence Ukraine.
15. Ukrainian state at the present stage.

INORGANIC CHEMISTRY

Department of Analytical and Bioinorganic Chemistry & Water Quality

Agrobiological Faculty
Specialty 211 Veterinary medicine

Lecturer	Lavrik Ruslan
Term	1
Major	Bachelor or Master degree
ECTS credits	4
Control	Exam
Class-room hours	70 hours (of them: lectures – 15 hours, practical or laboratory classes – 45 hours)

Subject overview

The discipline studies the theoretical foundations of contemporary Inorganic Chemistry and data about features of bio-elements such as Hydrogen, Halogens, Oxygen, Sulfur, Nitrogen, Phosphorus, Carbon, Tin, Lead, Boron, Aluminum, Alkaline and Alkaline-earth metals, Manganese, Iron, Cobalt, Nickel, Copper, Zinc, Molybdenum, Silver, Mercury, Cadmium, Chromium. Chemical processes with these elements and its compounds are shown on the points of view theory of electrolytic dissociation, hydrolysis, redox processes and possibility of complex compound formation. In labs it is shown the foundations of qualitative tests of mentioned above compounds of bio-elements and its using in the practice of veterinary medicine.

Lectures:

1. Classification of inorganic compounds: a modern view.
2. Atomic structure and Chemical Bond.
3. Theory of electrolytic dissociation. Hydrolysis of salts.
4. Solutions. Concentration of solutions.
5. Oxidation-Reduction Reactions (RedOx).
6. Complex (Coordination) compounds. Chemical properties of elements of 7 and 6 groups.

Classes:

(practical, laboratory classes)

1. The main classes of inorganic compounds.
2. Solutions. Reaction of solutions of electrolytes. The chemical properties of electrolyte solutions.
3. Hydrolysis of salts.
4. Redox reactions. Experimental study of the influence of the environment of the course of redox reactions.
5. Coordination compounds. Experimental study of methods of their preparation and study of chemical properties.
6. Chemical properties of halogens and chalcogens.

INTERNAL DISEASES OF ANIMALS

Department of Internal diseases of animals

Faculty of Veterinary medicine

Lecturer	Sharandak Pavlo, Zemliansky Andriy
Term	8-10 th semester
Major	Master degree
ECTS credits	7,3
Control	Exam
Class-room hours	220 hours (of them: lectures – 45 hours, practical or laboratory classes – 120 hours)

Subject overview

Purpose: the main goal of the discipline "Internal Diseases of Animals" is for students to master important issues of general therapy and prevention of internal diseases of animals, as well as to study internal diseases of animals, to find out their etiology, pathogenesis, symptoms.

Objectives: during studying the discipline "Internal Diseases of Animals", students must acquire knowledge and practical skills regarding the etiology of pathogenesis, patho-anatomical changes, symptoms, diagnosis, course, prognosis, therapy and prevention of non-infectious internal diseases of animals. In the case of studying these issues, it is necessary to deepen the theoretical training on the etiopathogenesis of diseases and animal therapy, to develop in students clinical thinking, a creative approach when solving practical issues on the elimination of animal diseases.

Acquisition of competences:

integrated competency (IC):

– IC 1 Ability to solve complex tasks and problems in the field of veterinary medicine, which involves conducting research and/or implementing innovations and is characterized by the uncertainty of conditions and requirements.

general competences (GC):

- GC 1. Ability to abstract thinking, analysis and synthesis.
- GC 2. Ability to apply knowledge in practical situations.
- GC 3. Knowledge and understanding of the subject field and profession.
- GC 7. Ability to conduct research at the appropriate level.
- GC 8. Ability to learn and master modern knowledge.
- GC 9. Ability to make informed decisions.
- GC 11. Ability to evaluate and ensure the quality of performed works.

professional (special) competences (PC):

– PC 1. The ability to establish the features of the structure and functioning of cells, tissues, organs, their systems and body apparatuses of animals of various classes and species -mammals, birds, insects (bees), fish and other vertebrates.

– PC 2. The ability to use tools, special devices, devices, laboratory equipment and other technical means to carry out the necessary manipulations during the performance of professional activities.

– PC 3. Ability to follow the rules of labor protection, asepsis and antiseptics during professional activities.

– PC 4. The ability to conduct clinical research for the purpose of formulating conclusions about the condition of animals or establishing a diagnosis.

– PC 6. Ability to select, pack, fix and send samples of biological material for laboratory research.

– PC 7. Ability to organize, conduct and analyze laboratory and special diagnostic studies.

– PC 18. Ability to use specialized software tools to perform professional tasks.

Program learning outcomes (PLO):

1. Know and correctly use the terminology of veterinary medicine.

2. Use information from domestic and foreign sources to develop diagnostic, treatment and business strategies.

3. Collect anamnestic data during registration and examination of animals, make decisions regarding the choice of effective methods of diagnosis, treatment and prevention of animal diseases.

Lectures:

1. Introductory lecture. Definition of the subject. The main stages of the development of the doctrine of internal diseases of animals. Principles, types and methods of therapy.

2. General therapy and prevention of internal diseases of animals. Theoretical foundations and practical aspects of dispensation of animals.

3. Concept of physiotherapy and physiotherapy. Principles and classification of modern methods of physiotherapy.

4. Diseases of the cardiovascular system. Classification. Spread. General symptoms and syndromes. Diseases of the pericardium.

5. Diseases of the myocardium and endocardium.

6. Diseases of the respiratory system. Classification and distribution. Symptoms and syndromes of respiratory diseases. Diseases of the respiratory tract.

7. Inflammatory and non-inflammatory lung diseases.

8. Diseases of the pleura: pleurisy, hydro- and pneumothorax.

9. Diseases of the digestive system. Classification, distribution, symptoms and syndromes of diseases of the digestive system. Diseases of the stomachs of ruminants.

10. Stomach and intestinal diseases with colic syndrome. Classification, main symptoms, principles of diagnosis and treatment of sick animals with colic syndrome.

11. Topic of lecture 3. Diseases of the stomach and intestines: gastritis, peptic ulcer, gastroenteritis, gastroenterocolitis.

12. Diseases of the liver and biliary tract. Classification, distribution, main syndromes of diseases of the liver and biliary tract. Hepatitis, hepatodystrophy.
13. Diseases caused by metabolic disorders. Classification, distribution, features of the course and diagnosis. Ketosis.
14. Diseases caused by disturbances in the metabolism of macroelements. Osteodystrophy, hypomagnesemia, postpartum hypophosphatemia.
15. Microelementoses of animals. Distribution, general principles of diagnosis and prevention.
16. Diseases of the endocrine system. Causes and mechanisms of development. Diseases of the thyroid, parathyroid and adrenal glands.
17. Diseases of young animals. Classification and spread of diseases of young animals. Peculiarities of the age-related physiology of young animals. Immunodeficient condition of young animals. Antenatal hypotrophy.
18. Classification, distribution and main syndromes of kidney and urinary tract diseases. Principles of therapy and prevention.
19. Urolithiasis. Distribution, general principles of diagnosis and therapy.
20. Diseases of the blood system. Classification. Spreading. Anemias: classification, etiology, methods of diagnosis and treatment.
21. Diseases of the nervous system. Classification, distribution, general syndromes and diagnosis of diseases of the nervous system.
22. Functional diseases of the nervous system in animals. Distribution, general principles of diagnosis and therapy.
23. Allergic and autoimmune diseases of animal skin. General characteristics, methods of diagnosis and treatment.
24. Diseases of fur animals. Biological features of fur animals. Distribution, diagnosis and prevention of internal diseases of fur animals.

Classes:

(practical, laboratory classes)

1. Personal hygiene, safety techniques during research and treatment of animals. Clinical documentation.
2. Therapeutic technique. Individual and group methods of drug administration. External methods of drug use.
3. Enteral methods of drug administration. Enemas
4. Parenteral administration of drugs. Introduction of medicinal substances into respiratory organs: inhalation, aerosol therapy and aerosol prophylaxis.
5. Etiotropic and pathogenetic therapy. Novocaine blocks, anti-stress therapy, reflexology. Non-specific stimulation therapy.
6. Physiotherapy. Mechanism of action, indications, method of application of photo-, electro-, hydro- and mechanotherapy.
7. Clinical-laboratory and special research methods of thematically sick animals in a clinic with pathology of the cardiovascular system.
8. Diagnosis, treatment and prevention of myocardial diseases.

9. Diagnosis, treatment and prevention of pericardial diseases.
10. Diagnosis, treatment and prevention of endocardial diseases and heart defects.
11. Clinical-laboratory and special research methods of thematically sick animals in a clinic with pathology of the respiratory organs.
12. Diagnosis, treatment and prevention of diseases of the respiratory tract.
13. Diagnosis, treatment and prevention of pneumonia in animals.
14. Diagnosis, treatment and prevention of non-inflammatory lung diseases: emphysema, pulmonary edema, pulmonary hemorrhage.
15. Differential diagnosis, treatment and prevention of pleural diseases: pleurisy, hydro- and pneumothorax.
16. Clinical laboratory and special methods of research, treatment and prevention of diseases of the digestive system.
17. Diagnosis, treatment and prevention of diseases of the oral cavity, pharynx and esophagus.
18. Diagnosis, treatment and prevention of ruminant foregut diseases.
19. Diagnosis, treatment and prevention of diseases of the stomach and intestines with colic syndrome. Enteralgia, expansion of the stomach, intestinal flatulence. Chemo- and coprosthesis.
20. Diagnosis, treatment and prevention of diseases of the stomach and intestines: gastritis, gastroenteritis, peptic ulcer disease.
21. Diagnosis, treatment and prevention of diseases of the peritoneum (peritonitis, ascites).
22. Clinical laboratory and special methods of research, treatment and prevention of diseases of the liver and biliary tract.
23. Clinical laboratory and special methods of research and treatment for diseases of the pancreas.
24. Clinical laboratory and special methods of research of metabolic diseases in a clinic with thematically sick animals.
25. Diagnosis, treatment and prevention of diseases caused by a predominant disorder of protein, carbohydrate and lipid metabolism.
26. Clinical-laboratory and special research methods for disturbances in the metabolism of macroelements in animals.
27. Differential diagnosis, therapy and prevention of macronutrient metabolism disorders in animals
28. Diagnosis, treatment and prevention of animal microelement diseases.
29. Diagnosis, treatment and prevention of diseases caused by vitamin metabolism disorders.
30. Clinical laboratory and special methods of research, treatment and prevention of diseases of the endocrine system.
31. Diagnosis, treatment and prevention of neonatal diseases of young animals: hypoglycemia, casein-bezoar disease, colostrum toxicosis, dyspepsia of newborns.
32. Diagnosis, treatment and prevention of postnatal diseases of young

animals: hypoplastic anemia, parakeratosis of piglets, periodic tympany of calves, bezoar disease, white muscle disease, enzootic ataxia of lambs.

33. Clinical-laboratory and special research methods of thematically sick animals in the clinic with diseases of the urinary system.

34. Clinical laboratory and special methods of research, treatment and prevention of kidney diseases.

35. Clinical laboratory and special methods of research, treatment and prevention of diseases of the urinary tract.

36. Differential diagnosis, treatment and prevention of urolithiasis (urolithiasis).

37. Clinical and hematological diagnosis, therapy and prevention of anemias: posthemorrhagic, hypoplastic, hemolytic.

38. Diagnosis, therapy and prevention of diseases with hemostasis disorders. Hemorrhagic diatheses.

39. Clinical-laboratory and special research methods of thematically sick animals with diseases of the nervous system.

40. Diagnosis, therapy and prevention of diseases of the brain and spinal cord and their membranes.

41. Functional nervous diseases. Epilepsy, eclampsia and neuroses.

42. Stress syndrome in animals and its prevention.

43. Diagnostic methods and general principles of animal treatment for allergic diseases.

44. Diagnosis, treatment and prevention of skin diseases and their derivatives. Sweat gland dysfunction. Autoimmune skin diseases.

45. Clinical laboratory and special methods of research, treatment and prevention of non-contagious diseases of fur animals

OPERATIVE SURGERY, TOPOGRAFIC ANATOMY AND ANESTHESIOLOGY

Department of Surgery and Pathophysiology named after acad. I.O. Povazhenko

Faculty of Veterinary Medicine

<i>Lecturer</i>	V.V. Klymchuk, Candidate of Vet. Sciences (PhD)
<i>Term</i>	Academic year 3, semester 5, 6
<i>Major</i>	Master degree
<i>ECTS credits</i>	7
<i>Control</i>	Exam
<i>Class-room hours</i>	180 hours (of them: lectures – 45hours, practical or laboratory classes – 90 hours, self-study – 45 hours)

Subject overview

Surgical operations are used in treatment of animals and improvement of their productivity. Surgical operations are noted wide variety and belong to the most complex medical interventions. It will be successful performing surgical operations is impossible without knowledge of topographical anatomy. Tasks: - with the help of operational interventions, solves specific economic problems the task of restoring lost or low productivity in the shortest possible time animals, promoting the fastest recovery of the herd, quantitative and qualitative improvement meat, dairy products or wool.

The course of operative surgery consists of general and special parts. In the general part presents general data about the surgical operation, fixation of animals, asepsis and antiseptics, analgesia, elements of surgical operations, etc.

In a special part, anatomical and topographic structure and technique are taught carrying out various operations in the areas of the head, neck, torso, limbs and others parts of the animal's body.

Lectures:

1. Introductory. The doctrine of surgery. The importance of operative surgery in a number of clinical disciplines. Classification of operations. Content of operations.

2. Asepsis and antiseptics in veterinary surgery.

3. Anesthesiology. Premedication. General anesthesia. Anesthesia. Neuroleptanalgesia. Preparing the animal for anesthesia. Monitoring. Anesthesia of certain species of animals. Complication.

4. Local anesthesia. Superficial, infiltrative, regional, spinal.
5. Non-specific stimulant therapy in veterinary surgery.
6. Novocaine blockades. Novocaine therapy. The effect of novocaine on the body. Theoretical bases of action of novocaine blockades, means of increase of their efficiency. Indications and contraindications.
7. Injections, punctures of vessels and cavities, infusions. Blood transfusions.
8. Separation and joining of biological tissues.
9. Temporary and permanent cessation of bleeding. Help with significant blood loss.
10. Plastic surgery.
11. Desmurgia.
12. Operations in the head. Topographic anatomy. Operations in the orbit. Operations on the horns, paranasal sinuses. Operations for sheep coenurosis. Operations on teeth, tongue, salivary glands. Ringing bulls. Rhinoplasty. Ear surgery.
13. Operations in the abdomen. Topographic anatomy. Laparotomy, laparocentesis, gastronomy. Enterotomy, bowel resection. Rumenocentesis, rumenotomy. Abomasotomy. Hernias. Herniotomy.
14. Surgical interventions in the genital area. Castrations. Operations in the pelvis. Urethrotomy, urethrostomy. Cystotomy.
15. Operations in the anus and rectum. Tail operations.
16. Topographic anatomy of the thoracic and pelvic limbs. Limb surgery

Classes:

(practical, laboratory classes)

1. Safety during operations. Organization of surgical work. Work in the operating room and on the road.
2. Fixation and fall of animals. Asepsis and antiseptics. Types and means. Surgeon's hands and operating field treatment. Sterilization of sutures and dressings and surgical linen. Sterilization of surgical instruments. Surgical instruments.
3. Anesthesiology. Superficial, infiltrative anesthesia. Local anesthetics. Preparation of solutions. Regional anesthesia of the head and lateral costal wall. Regional anesthesia of the soft abdominal wall. Regional anesthesia of the urogenital organs. Spinal anesthesia.
4. Injections, punctures of blood vessels, cavities. AUFOK. Blood transfusions. Tissue separation. Types of bleeding and ways to stop it.
5. Connections of tissues. Requirements, materials and methods of joining fabrics. Varieties of knots and seams. Types of soft biological tissue sutures. Special types of seams. Intestinal, tendon sutures.
6. Elements of plastic surgery.
7. Desmurgia. Types of bandages and dressings

8. Novocaine blockades. Head, neck, chest. Novocaine blockades. Abdomen, genitourinary organs, other types of n/blockades.

9. Operations in the head

10. Trepanation of additional nasal cavities. Ear surgery. Salivary gland surgery. Dental surgery. Operations in the orbit. Operations on the vessels of the neck. Esophagotomy. Tracheotomy. Tracheostomy.

11. Surgical interventions in the thoracic region. Thoracentesis, rib resection.

12. Laparotomy, laparocentesis, gastronomy. Rumenocentesis, rumenotomy. Enterotomy, bowel resection. Intestinal anastomoses. Herniotomy.

13. Castration of males. Castration of cryptorchids. Castration of females. Post-castration complications.

14. Operations on the penis and foreskin. Preparation of test bulls.

15. Catheterization of the bladder. Urethrotomy, urethrotomy. Cystocentesis, cystotomy. Urethroplasty.

ORGANIC CHEMISTRY

Department of General, Organic and Physical Chemistry

Agrobiological Faculty
Specialty 211 Veterinary medicine

Lecturer	Krotenko V.V.
Term	1 course
Major	Master degree
ECTS credits	4
Control	Exam
Class-room hours	120 hours (of them: lectures – 30 hours, practical or laboratory classes – 30 hours)

Subject overview

The aim of the discipline "Organic Chemistry" is to form students' theoretical foundations of organic chemistry, practical skills in working with different types of organic compounds, studying the specific features of their behavior in chemical reactions, gaining experience in a chemical laboratory to solve specific practical problems, ability to work with scientific literature. The course of organic chemistry should be the basis for the study of special disciplines: biochemistry, animal physiology, genetics, etc.

A master's degree student must be able to identify patterns of relationship between the structure and structure of chemical compounds; also be able to establish the relationship between the constituent parts of the substance, as well as individual components in mixtures; know the laws of chemical processes; to develop skills and abilities to use modern achievements of organic chemistry in veterinary medicine.

Lectures:

1. Science of organic chemistry, its definition. Subject and methods of organic chemistry.
2. Saturated and unsaturated hydrocarbons (alkanes, alkenes, alkynes, alkadienes).
3. Carbocyclic aliphatic (alicyclic) and aromatic hydrocarbons (arenes).
4. Aliphatic and aromatic halogenated hydrocarbons.
5. Alcohols.
6. Phenols.
7. Aldehydes and ketones.
8. Saturated and unsaturated carboxylic acids. Aromatic acids. Hydroxy-, aldehydic and keto-acids.
9. Fats as representatives of lipids.

10. Carbohydrates. Monosaccharides, Disaccharides.
11. Carbohydrates. Polysaccharides.
12. Amines, their definition and classification. Chemical properties of amines.
13. Aminoacids.
14. Proteins, their structure and biological importance.
15. Heterocyclic compounds.

Classes:

(practical, laboratory classes)

1. Qualitative elementary analysis of organic compounds.
2. Hydrocarbons.
3. Arenes (aromatic hydrocarbons). Terpenes.
4. Alkyl Halides.
5. Alcohols. Phenols.
6. Aldehydes and Ketones.
7. Carboxylic Acids.
8. Esters and Fats.
9. Carbohydrates. Monosaccharides.
10. Carbohydrates. Disaccharides.
11. Polysaccharides.
12. Amines and amides.
13. Amino acids.
14. Proteins.
15. Heterocyclic compounds.

PARASITOLOGY AND INVASIVE DISEASES OF ANIMALS

Department of Pharmacology, Parasitology and Tropical Veterinary
Medicine

Faculty of Veterinary Medicine

Lecturer	Professor Dr. Maryna V. Galat
Term	6 & 7 semesters
Major	Master degree
ECTS credits	6
Control	Exam
Class-room hours	180 hours (of them: lectures – 45 hours, practical or laboratory classes – 75 hours)

Subject overview

Parasitology is a complex science that studies zoonotic parasites, the diseases they cause and measures to combat them. It is one of the main clinical disciplines that forms a veterinary specialist. The main role of the discipline is to master the structure and development of pathogens of invasive diseases and treatment and prevention measures in farms of various directions. The main focus is on zoonoses, diseases common to humans and animals.

The purpose of the discipline is to acquire theoretical and practical knowledge of diagnosis, treatment and prevention of invasive animal diseases, to gain practical skills in conducting antiparasitic measures in livestock farms and to prepare students for independent practical work.

The uniqueness of the discipline lies in the teaching of the following sections of the discipline: helminthiasis of different animal species and features of their prevention, filariasis (animal setariosis and dog heartworm), babesiosis, eimeriosis, toxoplasmosis, sarcocystosis and many other diseases of animals parasitic origin.

Lectures:

1. The doctrine of invasive diseases.
2. Helminthological methods of research.
3. General characteristics of trematodes. Fasciolosis of animals. Paramphistomatidoses of ruminants. Opisthorchiasis of animals.
4. Dicroceliosis. Echinostomatidoses of poultry. Identification of molluscs to species.
5. General characteristics of cestodes. Cysticercosis of animals.
6. Echinococcosis of animals. Cenurosis of sheep.
7. Moniesiosis. Anoplocephalidoses of horses.

8. Dipylidiosis of carnivores. Hymenolepididosis.
9. General characteristics of nematodes. Ascaridatoses of animals.
10. Pulmonary strongylidoses. Gastrointestinal strongylidoses of animals.
11. Amidostomosis.
12. Trichuratoses of animals.
13. Spiruratoses of animals.
14. Filariasis of animals.
15. Acanthocephalosis of animals.
16. General characteristics of Insecta class.
17. Wingless insects.
18. Bloodsucking insects.
19. Flies of veterinary importance.
20. General characteristics of Acarina class.
21. Sarcoptosis and psoroptosis.
22. Demodecosis.
23. Argas ticks.
24. Ixodid ticks.
25. General characteristics of protozoans. Pyroplasmidosis of animals.
26. Babesiosis of animals.
27. Eimeriosis of animals.
28. Sarcocystosis of animals. Cryptosporidiosis.
29. Toxoplasmosis of animals.
30. Main antiprotozoan medicines. Diseases caused by procarionts.

Classes:

(practical, laboratory classes)

1. Laboratory research methods
2. Paramphistomatidoses of ruminants. Dicrocoeliosis. Fascioliasis of animals.
3. Opisthorchiasis of animals.
4. Echinostomatidoses of poultry. Identification of molluscs to species.
5. Cysticercosis of animals.
6. Echinococcosis of animals. Cenurosis of sheep.
7. Moniesiasis of ruminants. Anoplocephalidoses of horses. Dipylidiosis of carnivores.
8. Hymenolepidiosis of poultry.
9. Ascaridatoses of animals.
10. Pulmonary strongylidoses.
11. Gastrointestinal strongylidoses of animals.
12. Strongylidoses of horses Amidostomosis.
13. Trichuratoses of animals. Trichinellosis.
14. Spiruratoses of animals and poultry.
15. Acanthocephalosis of animals.
16. Hypodermosis of cattle. Oestrosis of sheep.

17. Equine gastrophilosis.
18. Zoophilus flies.
19. Bloodsucking insects.
20. Wingless insects.
21. Sarcoptiformes mites.
22. Psoroptiformes mites.
23. Demodicosis of animals.
24. Argas species.
25. Long proboscis ixodes ticks.
26. Short proboscis ixodes ticks.
27. Bovine babesiosis.
28. Canine and equine babesiosis.
29. Eimeriosis of poultry.
30. Eimeriosis of rabbits.
31. Sarcocystosis of animals.
32. Toxoplasmosis of animals.
33. Cryptosporidiosis of animals.
34. Balantidiosis.
35. Amebiases of animals.
36. Diseases caused by procariots. Anaplasmosis.
37. Diseases caused by procariots. Borreliasis.

PHILOSOPHY WITH ELEMENTS OF LOGIC

Department of Philosophy and International Communication

Faculty of Veterinary Medicine

Lecturer	D.I. Chornomordenko
Term	
Major	Master degree
ECTS credits	4
Control	Exam
Class-room hours	30 hours (of them: lectures – 15 hours, practical or laboratory classes – 15 hours)

Subject overview

This course is devoted to problems which are fundamental and important in all times for all specialists. Course "Philosophy with elements of logic" contains 3 modules, 4 credits for students of specialty "Veterinary medicine", masters degree. The structure of the course gives students general overview of history of humans, society, science, which is needed to form their point of view, culture of thinking, professional and personal skills. Philosophical questions and issues teach students to think, have doubts, logic will give them algorithms to validate their knowledge.

Lectures:

1. Philosophy as universal knowledge. Philosophical basis of biology.
2. Ancient Philosophy as a ground for European science and education. Logic.
3. Medieval Philosophy and Renaissance. logical thoughts in scholastics.
4. Age of Reasoning and Enlightenment. Logic in Age of Reasoning.
5. German classical philosophy and its role in the incipience of contemporary philosophy.
6. Ukrainian philosophy: history and nowadays.
7. Laws of formal logic. Basis of theory of argumentation.

Classes:

(practical, laboratory classes)

1. Philosophy of science as a universal type of knowledge.
2. Logic as a science.
3. Philosophy of the Middle Ages and the Renaissance: the influence on the formation of the modern European worldview.

4. New Age philosophy as the basis for the development and formation of contemporary philosophy. Logic in Age of Reasoning.
5. Ukrainian philosophy.
6. Philosophy of the XIX-XXI centuries.
7. Development of philosophical thought in Ukraine.
8. Philosophical understanding of the concept of "science", "coevolution".
9. 9 Notion as a basis of abstract thinking.
10. 10 Modern problems in philosophy of knowledge. Art of argumentation.
11. Philosophy of culture, problems of civilization.
12. Axiology and ethics, problems of bioethics.
13. Philosophy of biology.
14. Interaction of biology and socio-humanitarian complex of knowledge.
15. 15 Veterinary medicine in the system of interdisciplinary knowledge.

PHYSICS WITH FUNDAMENTALS OF BIOPHYSICS

Department of Physics

Education and research institute of Energetics,
Automatics and Energy saving
Specialty 211 Veterinary medicine

Lecturer	candidate of physical and mathematical sciences, associate professor Oksana Godlevska
Term	1
Major	Master degree
ECTS credits	4
Control	Exam
Class-room hours	60 hours (of them: lectures – 30 hours, practical or laboratory classes – 30 hours)

Subject overview

The main objective of the course “ Physics with fundamentals of biophysics” is to expose principal laws and theses of physics which make it possible to study general regularities of natural phenomena; to apply the principles and methods of the physical sciences to biological problems; to consider the biophysical problems which are concerned with the viability of agricultural animals and their interaction with the environment; to elucidate possible application of physical instrumentation to veterinary practice.

The main requirements to the student after studying by him the course “Physics with fundamentals of biophysics” are the following:

The student must know

the main physical quantities and units, principal laws and theses of general physics, theory and practice of measurement errors;

general physical processes and phenomena which take place in the living organism;

the effects of external physical factors on agricultural animals and their interaction with the environment;

possibility of the application of physical instrumentation to veterinary practice.

The student must be able

to process experimental data and estimate measurement errors;

to explain physical principles and mechanisms of function of living organism;

to use modern physical methods and devices in veterinary practice.

Final control is carried out in the form of tests for each of the modules and an exam.

Lectures:

- 1-2. Mechanics. Kinematics, dynamics, statics.
3. Elastic properties of bodies. Biomechanics.
4. Hydrodynamics.
5. Basics of hemodynamics.
- 6-7. Acoustics, bioacoustics.
- 8-9. Thermodynamics of equilibrium and irreversible states and processes; animal thermobiology.
- 10-11. Electricity, bioelectricity.
12. Magnetism, biomagnetism
- 13-14. Geometric, wave optics.
15. Physiological optics and photobiology of agricultural animals.

Classes:

(practical, laboratory classes)

1. Statistical calculations (error, significant figure, rounding).
2. Determining the acceleration of free fall using a mathematical pendulum
3. Determination of Young's modulus of elastic substances
4. Determination of the moment of inertia of a torsional pendulum.
5. Determination of the rate of sedimentation of bodies and the coefficient of internal friction of a liquid by the Stokes method
6. Determination of the ratio of specific heat capacities C_p/C_v of gas by the method of adiabatic expansion (Clément-Desormes method).
7. Determination of the surface tension of a liquid by the droplet separation method.
8. Determination of entropy change during melting of tin.
9. Study of the electrostatic field
10. Determination of the electromotive force of the current source by the compensation method
11. Determination of the specific charge of an electron using the magnetron method.
12. Determination of the horizontal induction component of the Earth's magnetic field.
13. Determination of refractive indices using a microscope
14. Determination of the wavelength of light using a diffraction grating
15. Determination of Planck's constant by the Lukyrskyi method.

SPECIAL EPIZOOTOLOGY

Department of Epizootology, Microbiology and Virology

Faculty of Veterinary Medicine

Lecturer	Nedosiekov Vitalii V.
Term	6
Major	Master degree
ECTS credits	4
Control	Exam
Class-room hours	120 hours (of them: lectures – 15 hours, practical or laboratory classes – 30 hours)

Subject overview

Studying the discipline "Special Epizootology" will provide an opportunity to deepen the theoretical knowledge of the master's degree in diagnosis, treatment and prevention of infectious diseases, and fundamentally work on general issues of epizootology, OIE documents on infectious animal diseases, preventive and preventive measures, in-depth study of infectious diseases challenge in today's globalized world (SARS, bovine spongiform encephalopathy, highly pathogenic avian influenza, African swine fever), the study of emerging infectious diseases, and those that were not taken into account in the when considering the course "Epizootology and infectious diseases".

Lectures:

1. Factor diseases that are characterized by relay transmission of the pathogen and those that are not. Epizootic process and its control in factorial diseases of animals.
2. Prevention of factor diseases of animals.
3. Emerging infections. Exotic infections.
4. Known diseases in new, altered forms of manifestation and course, which have moved to new species of animals or new nosoarea.
5. New, previously unknown to science infections. Old, once defeated infections, but again out of control. Transboundary infectious diseases.
6. Bioterrorism: national and global threats.
7. Infectious diseases of animals, pathogens of which can be used as agents of bioterrorism.
8. Stamping out. Strategy and tactics of control and control of infectious diseases.

Classes:
(practical, laboratory classes)

1. Module 1. Factor diseases of animals.
2. Anaerobic enterotoxemia of animals. Bradzot. Erysipelas.
3. Hemophilic polyserositis. Dysentery. Nodular dermatitis. Sap.
4. Streptococcus. Vibriosis. Myth. Necrobacteriosis.
5. Colibacteriosis. Cholienterotoxemia. Pasteurellosis. Salmonellosis.
6. Module 2. Transboundary, emergent and exotic infectious diseases.
7. Regulations on "Emergency Anti-Epizootic Commissions", which documents and orders regulate their work. The principle of operation and functions of such commissions. General characteristics of emerging infectious diseases. Methods of prevention and protection of the territory of the state from the introduction of pathogens of emerging infectious diseases. OIE and EU legislation in the fight against and control of these infectious diseases.
8. Consideration of aspects of emergence on the example of (1) new previously unknown to science infections: hemorrhagic disease of rabbits, coronavirus enteritis of ducklings; (2) known diseases in new, altered forms of manifestation and course: infectious bursitis of chickens, salmonellosis; (3) old, once defeated infections that came out of the control of veterinary services: classical swine fever, rabies, bovine tuberculosis.
9. General characteristics of exotic infections. Methods of prevention and protection of the territory of the state from the introduction of pathogens of exotic infectious diseases. OIE and EU legislation in the fight against and control of these infectious diseases. Consideration of exotic infections on the example of African horse sickness, African swine fever, cattle plague, catarrhal sheep fever.
10. Transboundary infectious diseases. Murrain. Cattle plague. Contagious pleuropneumonia of cattle. Smallpox of sheep and goats. Plague of small ruminants. Highly pathogenic avian influenza.
11. Module 3. Protection of animals and humans from infectious diseases, the causative agents of which can be used as agents of bioterrorism. Stamping out.
12. Consideration of the connection between the occurrence of the most dangerous infectious diseases of humans with the reservoir role of different species of animals and birds fever Marburg, Ebola, West Nile fever.
13. Consideration of the connection between the most dangerous infectious diseases of people with the reservoir role of different species of animals and birds fever yellow fever, Argentine hemorrhagic fever, hemorrhagic fever Machupo fever, Potomac disease.
14. Consideration of the connection between the occurrence of the most dangerous infectious diseases of people with a reservoir role of different species of animals and birds of the Crimea-Congo, hemorrhagic fever with renal syndrome.
15. Consideration of the connection between the occurrence of the most dangerous infectious diseases of people with the reservoir role of different species of animals and poultry fever.

STATE VETERINARY AND SANITARY EXAMINATION

Department of Veterinary Hygiene

Faculty of Veterinary Medicine

Lecturer

Term

6

Major

Master degree

ECTS credits

4

Control

Credit test

Class-room hours

**30 hours (of them: lectures – 15 hours,
practical or laboratory classes – 15 hours)**

Subject overview

According to the Association Agreement, Ukraine must bring its sanitary and phytosanitary (SPS) legislation in line with EU requirements in order to obtain an export permit to trading partner countries that recognize the EU's control system. The interdisciplinary nature of food safety requires complex knowledge. Organic agricultural production, which is gaining significant development in our country, requires knowledge about the basic requirements for this type of product. This course of State Veterinary and Sanitary Examination include current approaches of the State food safety management based on European approaches and will contribute to a better understanding of the food safety system and the objectives of official controls. This course will be of added value in terms of curriculum development and modernization and understanding of the role of EU and national authorities in food safety policy management, providing students with relevant knowledge needed in the current labor market in Ukraine.

Lectures:

5. Significance of the state veterinary expertise for obtaining quality and safe products.

6. Theoretical backgrounds of approaches to food and feed safety control.

7. Approaches of regulation of food safety control in Ukraine and harmonization with EU requirements. General provisions of the legislation on food products.

8. The basic principles of ensuring food safety and hazardous factors are related to food.

9. Objectives, methods and tools of modern food safety control. Application of European approaches.

10. International influence on food legislation. Ways to strengthen the national food control system (systemic, organizational and individual levels).

11. Risk analysis in the food chain (microbiological and chemical hazards).
12. Organization of state control. The main components of the state control system.
13. Organic food production (general requirements, principles, certification and audit).

Classes:

(practical, laboratory classes)

1. General provisions of the legislation on food products.
2. Safety systems as a means of monitoring food safety in the EU agri-food chain (HACCP principles, HACCP implementation and audit).
3. Capacity control measures. Inspection and audit.
4. Control of foreign substances in feed and pollutants in food products.
5. Application of the principles of state control to specific types of production (production and processing of milk, meat, eggs, feed).
6. Callanges of the state control system in Ukraine.
7. Presentation of students' research topics.

SURGICAL DISEASES OF PRODUCTIVE ANIMALS

**Department of Surgery and Pathophysiology named after
acad. I.O. Povazhenko**

Faculty of Veterinary Medicine

Lecturer	V.V. Klymchuk, Candidate of Vet. Sciences (PhD)
Term	Academic year 5, semester 9
Major	Master degree
ECTS credits	4
Control	Exam
Class-room hours	120 hours (of them: lectures – 15 hours, practical or laboratory classes – 30 hours, self-study – 75 hours)

Subject overview

The purpose of the discipline "surgical diseases of productive animals" is to improve and deepen theoretical knowledge and practical skills in recognizing internal diseases of productive animals, studying their etiology, pathogenesis, symptoms, course, prognosis; organization of preventive and curative measures depending on the specific conditions of keeping, feeding and productivity of animals.

Improve and deepen theoretical knowledge and practical skills in recognizing diseases of productive animals, teach the student to make responsible decisions independently and bear personal responsibility for them

Integral competence: the ability to solve specialized tasks and problems in professional activities in the field of veterinary medicine in the direction of "Surgical diseases of productive animals".

Lectures:

1. Prevention of injuries of productive animals in modern conditions of keeping. Classification of injuries. The impact of trauma on the animal body.
2. Meaning and types of anesthesia of productive animals, prevention of complications during anesthesia and struggle with them.
3. Prevention of open mechanical damage. Specific features of the wound process of productive animals.
4. Prevention of surgical infection. Mechanisms that prevent the development of infection.
5. Castration of productive animals and prevention of complications.
6. Prevention, diagnosis and treatment of head diseases in productive animals.

7. Prevention and treatment of diseases in the area of the abdominal wall and rectum of productive animals.

8. Prevention, diagnosis and treatment of limb diseases of productive animals in industrial and collective farms.

Classes:

(practical, laboratory classes)

1. Prevention of injuries of productive animals in modern conditions of keeping. Classification of injuries. The impact of trauma on the animal body.

2. Meaning and types of anesthesia of productive animals, prevention of complications during anesthesia and struggle with them.

3. Prevention of open mechanical damage. Specific features of the wound process of productive animals.

4. Prevention of surgical infection. Mechanisms that prevent the development of infection.

5. Castration of productive animals and prevention of complications.

6. Prevention, diagnosis and treatment of head diseases in productive animals.

7. Prevention and treatment of diseases in the area of the abdominal wall and rectum of productive animals.

8. Prevention, diagnosis and treatment of limb diseases of productive animals in industrial and collective farms Prevention of orthopedic pathology and its diagnosis in productive animals.

VETERINARY CLINICAL BIOCHEMISTRY

Department of Biochemistry and Animal Physiology named after
academician Maxim Guly

Faculty of Veterinary Medicine

Lecturer	Valerii Tsvilikhovskiy
Term	6 years
Major	Master degree
ECTS credits	4
Control	Exam
Class-room hours	60 hours (of them: lectures – 15 hours, practical or laboratory classes – 45 hours)

Subject overview

Purpose of the course – to give students the necessary theoretical knowledge and practical skills for obtaining equipment and learning diverse biological material obtained from sick animals for clinical and biological research and laboratory analysis, including for a correct interpretation of the results of these studies.

Objectives of the course. A study of the course the student should: know the features of biochemical processes in the body during different animal diseases and indicators that characterize them, to understand the molecular mechanisms of pathogenesis of many diseases of various etiologies; be able to receive a variety of biological material, conduct necessary laboratory tests and among a large number of laboratory methods to select the most informative measure the effectiveness of drugs and the degree of recovery processes in the affected tissues and organs and to interpret the obtained results, comparing them with the symptoms of disease.

Lectures:

1. Objects and methods in clinical biochemistry.
2. Disorders of protein metabolism in case of diseases of the internal organs of animals.
3. Laboratory diagnosis of disorders of carbohydrate metabolism in the case of diseases of the internal organs of animals.
4. Laboratory diagnosis of lipid metabolism disorders in the case of diseases of the internal organs of animals.
5. Clinical enzymology. Primary and secondary enzyme pathology.
6. Enzymodiagnosics in the pathology of the internal organs of animals.
7. Biochemistry and pathobiochemistry of blood system in animals in the pathology of internal organs.
8. Laboratory diagnosis in the pathology of the urinary system.

Classes:

(practical, laboratory classes)

1. Safety at work in biochemical laboratories. Preparation of biological material for the clinical and biochemical studies. Laboratory examination of gastric juice.
2. Studies of total protein and protein fractions of blood serum, the interpretation of changes.
3. Proteinuria, qualitative and quantitative methods for determination of protein in the urine. The remaining (non-protein) nitrogen and its components, the clinical significance of their research.
4. Metabolism of carbohydrates and clinical significance of study parameters of carbohydrate metabolism. Glycosuria, clinical and diagnostic value of research available glucose in the urine.
5. Metabolism of lipids and clinical diagnostic value of the study of lipid metabolism. Investigation of ketone bodies in urine.
6. Studies of water and electrolyte metabolism and clinical diagnostic value of these studies.
7. Investigation of serum enzymes and their significance in the diagnosis of diseases of the internal organs.
8. Hemoglobinopathies. Clinical significance study of hemoglobin in the blood
9. Clinical biochemistry with liver disease. Determination of total bilirubin and its fractions in biological material.
10. Thymol test. Biochemical methods immunodeficient state of the animals. Electrophoresis of serum proteins in polyacrylamide gels.

VETERINARY MICROBIOLOGY

Department of Epizootology, Microbiology and Virology

Faculty of Veterinary Medicine

Lecturer	Kozlovska Ganna V.
Term	2
Major	Master degree
ECTS credits	6
Control	Exam
Class-room hours	180 hours (of them: lectures – 30 hours, practical or laboratory classes – 60 hours, self-work – 90 hours)

Subject overview

The purpose of the discipline "Veterinary Microbiology" is to form a future specialist in veterinary medicine knowledge and skills related to microorganisms, including biology and ecology of microorganisms, bacterial pathogens of animal diseases and diseases of food origin, principles and methods of laboratory diagnosis of infectious animal diseases.

This course includes: An Introduction to the study of bacteria, viruses, fungi, and protozoa. Topics include History of Microbiology, Prokaryotic and Eukaryotic cells, Classification, Microscopy, Staining techniques, and Microbial growth and nutrition. Materials will include PowerPoint presentations, links to videos, lecture notes at the eLearn. The course will take a 1 semester to complete. The course will be structured in such a way that there will be a progression from one concept to the next, although each lesson will be a stand-alone. It will include laboratory aspects associated with Microbiology.

Lectures:

1. Introductory lecture. Subject and problems of Microbiology.
2. Morphology and taxonomy of microorganisms.
3. Morphology of microscopic fungi and base of their taxonomy.
4. Physiology of microorganisms.
5. Genetics of microorganisms.
6. Ecology of microorganisms.
7. The causative agent of anthrax.
8. Pathogenic cocci.
9. Causative agent of anaerobic infections.
10. Pathogenic enterobacteria.
11. Brucella and tularemia pathogen.
12. The causative agent of tuberculosis.

13. The causative agent of swine erysipelas. Pasteurellosis. Listeriosis.
14. Pathogenic leptospira.
15. Pathogenic mycoplasmas. Chlamydia and Rickettsia.

Classes:

(practical, laboratory classes)

1. Rules and safety at work in the microbiological laboratory. Light microscope. The main forms of bacteria.
2. Preparation, fixation and staining of smears simple method. Special staining techniques of bacteria.
3. The study of bacteria in the living state. Morphology of microscopic fungi and their methods research.
4. Methods of sterilization. Equipment in Microbiology laboratory. Nutrient media for culturing microorganisms. Technology seeding bacteria on nutrient media. Pure cultures of microorganisms.
5. Cultural properties of microorganisms. Biochemical properties of microorganisms.
6. Effect on bacteria physical, chemical and biological factors. Methods for studying microbial antagonism. Sanitary and microbiological objects of the environment.
7. The causative agent of anthrax. Pathogenic coccus.
8. Pathogenic clostridia.
9. The causative agent of colibacillosis and salmonellosis.
10. The causative agent of brucellosis. The causative agent of intestinal yersiniosis.
11. The causative agent of tuberculosis. The causative agent of pseudotuberculosis. The causative agent of leptospirosis.
12. The causative agent of erysipelas. Listeria. The causative agent of pasteurellosis.
13. Pathogenic mycoplasmas. Chlamydia and Rickettsia.
14. Pathogens of mycoses and mycotoxicosis.

VETERINARY PHARMACOLOGY

Department of Pharmacology,
Parasitology and Tropical Veterinary Medicine

Faculty of Veterinary Medicine

Lecturer	I. M. Derkach
Term	5, 6
Major	Master degree
ECTS credits	6
Control	Exam, Semester test
Class-room hours	180 hours (of them: lectures – 60 hours, laboratory classes – 75 hours)

Subject overview

Pharmacology is an experimental science that studies changes in the living organism under the influence of drugs for their use in the practice of veterinary medicine and the search for new effective drugs.

The uniqueness of the discipline lies in the combination of modern domestic and foreign knowledge of veterinary pharmacology. The basis of training is a comprehensive approach that combines theoretical, practical and innovative training. The purpose of the course is to study the basics of prescribing and the requirements for issuing them, the technology of manufacturing dosage forms, pharmacodynamics (mechanism of action, pharmacological effects) and pharmacokinetics (absorption, distribution, biotransformation, excretion) of drugs of various pharmacological groups.

Lectures:

14. Veterinary pharmacology and its tasks. Pharmacotherapy. Pharmacokinetics. Ways of introducing drugs into the animal's body

15. Physicochemical factors of drug transport across cell membranes and their distribution in animals. Biotransformation of drugs and their excretion from the body

16. Pharmacodynamics. Types of action of medicinal substances. Long-term effects of drugs. The mechanism of action of drugs. Factors influencing the action and pharmacological activity of drugs. Features of pharmacological action of drugs in case of repeated use. Interaction of drugs.

17. Drugs that act mainly on the central nervous system. Drugs for anesthesia. The mechanism of action of anesthetics. Stages, levels and types of anesthesia. Drugs for inhalation anesthesia

18. Drugs for non-inhalation anesthesia. Psychotropic substances (sedatives, neuroleptics and tranquilizers)

19. Analgesics. Non-narcotic analgesics. Narcotic analgesics (non-steroidal anti-inflammatory drugs NSAIDs)

20. Drugs that stimulate the function of the central nervous system. Psychostimulants. Analeptics. General tonics

21. Drugs that act mainly on the peripheral nervous system. Classification. Drugs that suppress the function of afferent nerves. Local anesthetics (requirements, classification, mechanism of action). Types of local anesthesia. Characteristics of drugs

22. Drugs that protect sensitive nerve endings from irritation. Emollients, enveloping drugs, binders and adsorbents

23. Drugs that stimulate sensitive nerve endings. Irritants. Essential oils. Vomiting, ruminating and expectorants. Laxatives. Bitters

24. Drugs that affect the efferent nerves. Anatomical and physiological features of efferent nerves. Synapse structure. M- and H-cholinomimetics of direct action. M- and H-cholinomimetics of indirect action. M-cholinomimetics. H-cholinomimetics

25. Drugs of cholinolytic action. Classification of cholinolytic agents. M-cholinolytic agents. H-cholinolytic agents. Muscle relaxants

26. Drugs of adrenomimetic and adrenolytic action. Adrenomimetic means of direct and indirect action. Adrenolytic agents. Antihistamines

27. Drugs acting on the cardiovascular system. Cardiac glycosides. Drugs that normalize heart rate. Antispasmodics

28. Diuretics (diuretics). Drugs that stimulate liver function (cholagogues). Drugs that affect the tone and contraction of the uterus

29. Drugs that regulate metabolic processes. Vitamins and vitamin preparations: classification, mechanism of action and characteristics of certain groups. Multivitamins

30. Hormonal drugs. Classification of hormones and hormonal drugs. The mechanism of action of hormonal drugs. Estrogens, progestogens and androgens. Drugs of pituitary hormones and adrenal cortex. Prostaglandins

31. Tissue drugs. Enzyme and bacterial drugs. Drugs of amino acid

32. Drugs that affect the metabolism of minerals. Drugs of macro- and micronutrients. Complex drugs of mineral substances

33. Antimicrobials. Medicinal dyes. Sulfanilamides. Nitrofurans.

34. Antibiotics: classification by origin, structure, strength and spectrum of antimicrobial action. Rules of rational use of antibiotics and their pharmacokinetics. Negative consequences of irrational use of antibiotics. Characteristics of penicillin antibiotics

35. Characteristics of cephalosporin antibiotics, aminoglycosides, tetracyclines, macroliths and chloramphenicol. Characteristics of polymyxin antibiotics (polypeptide antibiotics), fluoroquinolones, antifungal antibiotics and avermectins. Antiviral drugs. Phytoncides. Polyphytes. Phytomines.

36. Antiseptics and disinfectants. Factors influencing their action. Requirements for antiseptics and disinfectants. Oxidizers. Halogen-containing drugs. Iodine drugs. Aliphatic drugs

37. Disinfectants. Detergents (soaps and detergents). Formaldehyde drugs, phenols, cresols and their derivatives. Quaternary ammonium compounds

38. Antiparasitic drugs. Anthelmintics. Insecticides and acaricides. Drugs for rodent control

39. Antiviral drugs. Antiprotozoal drugs. Eimeriostatic drugs

40. Drugs of radioprotective action. Homeopathy. Antidote drugs.

Laboratory classes:

1. General characteristics of the veterinary formulation. Prescription, its meaning, structure, prescription requirements and dispensing procedure. Pharmacopoeia

2. Schemes and methods of writing prescriptions. Measurement of mass and volume of medicinal substances. Dose, dosage principles. Pharmacy. Storage of medicinal substances

3. Concept of dosage form, classification of dosage forms. Specific veterinary dosage forms. Solid dosage forms Soft dosage forms

4. Liquid dosage forms. Aerosol dosage forms

5. Pharmacy workshop

6. Drugs for anesthesia. Inhaled drugs. Non-inhalation drugs. Barbiturates. Alcohols

7. Psychotropic substances (sedatives, neuroleptics and tranquilizers)

8. Non-narcotic analgesics. Salicylic acid and its derivatives, aniline and pyrazolone derivatives. Analgesics of other groups

9. Psychostimulants. General tonics. Analeptics

10. Local anesthetics. Synthetic compounds of nitrogen. Substituted amides of acetanilide and choline carboxylic acid

11. Substances that stimulate sensitive nerve endings. Irritants, means, essential oils. Expectorants, ruminators, emetics

12. Bitterness and laxatives. Drugs that stimulate liver function (cholagogues).

13. Substances that protect sensitive nerve endings

14. Drugs that affect the efferent nerves. Means of cholinomimetic action. M and H cholinomimetics of direct and indirect action

15. M-cholinomimetics. M-cholinolytics. Ganglionic drugs. H-cholinomimetics H-cholinolytics

16. Adrenergic drugs. Antihistamines.

17. Drugs that affect the cardiovascular system. Cardiac glycosides. Means that normalize heart rate. Antispasmodics

18. Agents acting on blood clotting processes. Blood substitutes

19. Diuretics (diuretics). Cholagogues. Uterine drugs

20. Vitamin drugs. General characteristics, classification, drugs

21. General characteristics of hormones and hormonal drugs. Drugs of female sex hormones. Yellow body drugs. Drugs of male sex hormones. Drugs

of pituitary hormones. preparations of the adrenal cortex. Drugs of hormones of the pancreas and thyroid glands. Prostaglandins

22. Tissue drugs. Enzyme drugs, bacterial drugs. Drugs of amino acids.

23. Drugs that affect the metabolism of minerals. Drugs of macro- and microelements

24. Medicinal dyes with predominant antimicrobial action. Medicinal dyes with predominant antiprotozoal action. Sulfanilamide drugs. Complex drugs of sulfanilamides with trimethoprim. Nitrofurans

25. Antibiotics. Mechanism of antimicrobial action. Penicillins. Cephalosporins.

26. Aminoglycosides. Tetracyclines. Chloramphenicol. Macrolides and azalides. Polymyxins (polypeptide antibiotics) Fluoroquinolones. Avermectins. Antibiotics of different groups. Fungicidal antibiotics. feed antibiotics. Phytoncides. Polyphytes. Phytomines

27. Antiseptic drugs. Oxidizers. Halogens and halogen-containing agents. Aliphatic drugs. Detergents

28. Disinfectants. Formaldehyde group preparations. Chlorine preparations. Chlorine drugs. Acids and alkalis. Phenols, cresols and their derivatives. Quaternary ammonium compounds

29. Antiparasitic drugs. Anthelmintic drugs. Insecticides and acaricides

30. Antiviral drugs. Antiprotozoal agents. Eimeriostatic agents

VETERINARY RADIOBIOLOGY

Department of General Ecology, Radiobiology and Life Safety

Faculty of Veterinary Medicine

Lecturer	Doctor of Biological Sciences Alla Klepko, Candidate of Biological Sciences Volodymyr Illienko
Term	7
Major	Master degree
ECTS credits	4
Control	Exam
Class-room hours	45 hours (of them: lectures – 15 hours, laboratory classes – 30 hours)

Subject overview

The study of this discipline provides comprehensive knowledge of ionising radiation's nature and its effects on living organisms. It also covers the practical application of this knowledge to solve research and applied problems related to radiation safety. Veterinary radiobiology's primary objective is to study the regularities of ionising radiation effects on farm animals' organisms to find ways to control their reactions to this factor. The field of study involves the examination of how radiation interacts with substances in cells and tissues, as well as the sensitivity of living organisms to ionising radiation. Additionally, it encompasses the development of methods for protecting against radiation damage and promoting post-radiation recovery. Furthermore, it includes the investigation of migration pathways and biological effects of radioactive substances that are incorporated by organisms.

Lectures:

1. Introduction to Radiobiology and Radioecology as a single science.
2. Radioactivity, types of ionising radiation and their dosimetry.
3. Biological effects of ionising radiation on plants and animals.
4. Radiosensitivity of plants, animals, and other organisms.
5. Anti-radiation biological protection and radiosensitization.
6. Atmosphere and soil as starting points for radionuclide migration in the environment.
7. Radionuclide intake from soil to plants and animals, biological effects of incorporated radionuclides.

Laboratory classes:

1. Hygienic regulations and basic rules of radiation safety (OSPU-2006; NRBU – 97).
2. Characteristics of ionizing radiation and their interaction with matter.
3. Units of radioactivity and doses of ionizing radiation. Solve problems in the transition from non-system units to SI units.
4. Methods for detecting ionizing radiation. Types of detectors.
5. Methods and devices of radiometric and dosimetric control. Purpose, classification and structure of dosimetric devices.
6. Practical dosimetry to determine the content of ^{137}Cs in the human body. Calculations of external and internal radiation doses.
7. Practical radiometry. Estimation of the degree of radioactive damage to the thyroid gland by radioactive iodine.
8. Measurement of specific and bulk activity of β -emitting radionuclides on a Beta radiometer.
9. Lifetime determination of ^{137}Cs content in animals and humans.

VETERINARY TOXICOLOGY

Department of Pharmacology,
Parasitology and Tropical Veterinary Medicine

Faculty of Veterinary Medicine

Lecturer	I. M. Derkach
Term	8
Major	Master degree
ECTS credits	4
Control	Semester test
Class-room hours	120 hours (of them: lectures – 30 hours, practical or laboratory classes – 30 hours)

Subject overview

Veterinary toxicology is a science that studies poisons that cause or can cause diseases of domestic, domestic and wild animals, birds, fish and useful insects (etiology), their mechanism of action (pathogenesis), stages of chemical and biochemical transformations in the body (biotransformation), ways and terms of absorption, accumulation in organs and tissues and excretion from the body (toxicokinetics), pathoanatomical changes, development of methods of diagnosis, treatment and prevention of poisoning and rules of veterinary and sanitary examination of livestock products. Also, the toxicological characteristics of combat poisons are currently being updated.

The knowledge acquired by students for studying the discipline "Veterinary Toxicology" will be needed for mastering other disciplines at the Faculty of Veterinary Medicine and in the future for the professional activity of a veterinary medicine doctor.

Lectures:

1. Definition, content, tasks and objects of veterinary toxicology. The concept of poisons and poisoning. Parameters of toxicology of poisonous substances. Classification of poisonous substances.
2. Toxicodynamics and toxicokinetics. Diagnosis and prevention of poisoning. Treatment of animals in case of poisoning
3. Toxicological characteristics of organophosphorus compounds. Toxicological characteristics of organochlorine compounds
4. Toxicological characteristics of derivatives of carbamic acid and phenoxy acids
5. Toxicological characteristics of derivatives of phenol and dipyridyl
6. Toxicological characteristics of compounds containing heavy metals mercury and lead

7. Toxicological characteristics of compounds containing the heavy metal copper and arsenic
8. Toxicological characteristics of synthetic pyrethroids, zoocides and fluorinated pesticides, chlorine and its compounds
9. Toxicological characteristics of feed additives. Toxicological characteristics of urea and ammonium salts. Phytotoxicoses. Toxicological characteristics of plants that accumulate nitrates and nitrites
10. Toxicological characteristics of plants containing alkaloids
11. Toxicological characteristics of the containing glycosides of various groups, oxalates, photosensitizing substances, ether oil plants
12. Mycotoxicosis of animals
13. Toxicological characteristics of combat poisons substances

Laboratory classes:

1. Collection of samples for chemical-toxicological and histological analysis. General plan and order for chemical-toxicological analysis. Methods of isolation of poisonous matters from pathological material and forage.
2. Laboratory diagnostics and antidotal therapy in animal poisoning with organophosphates (OPC).
3. Laboratory diagnostics and antidotal therapy in animal poisoning with organochlorine compounds (OCC).
4. Laboratory diagnostics and antidotal therapy in animal poisoning with groups of triazin pesticides, carbomin and 2,4-chlorphenoxiacetic acids.
5. Laboratory diagnostics and antidotal therapy in poisoning with formaldehyde, phenol derivatives and cyanides.
6. Laboratory diagnostics and antidotal therapy in animal poisoning with heavy metals and arsenic salts.
7. Laboratory diagnostics and antidotal therapy in animal poisoning with rodenticides, synthetic pyrethroids, fluorine, sodium chloride poisoning.
8. Laboratory diagnostics and antidotal therapy in animal poisoning with carbamide, nitrates and nitrites.
9. Laboratory diagnostics and antidotal therapy in animal poisoning with plants containing alkaloids.
10. Laboratory diagnostic and antidotal therapy in poisoning with plants, containing glycosides.
11. Laboratory diagnostics and antidotal therapy in animal poisoning with mycotoxins.

VETERINARY VIROLOGY

Department of Epizootology, Microbiology and Virology

Faculty of Veterinary Medicine

Lecturer	Vygovska Liliia M.
Term	2
Major	Master degree
ECTS credits	4
Control	Exam
Class-room hours	120 hours (of them: lectures 30 hours, practical or laboratory classes 45 hours)

Subject overview

An object and task of discipline are «**Veterinary Virology**». Study of the nature, taxonomy; structure, chemical structure, genetic, reproduction and methods of viruses cultivation; familiarity with the pathogenesis of viral diseases, with special antiviral immunity, means and methods of diagnosis and prevention of infectious diseases in animals. Discipline "Veterinary Virology" provides the foundation doctor of veterinary medicine as an infectious disease. The knowledge can consciously perceive the program material subject "epizootology and infectious diseases of animals." **The purpose** of the discipline is the knowledge of viral pathogens, the study of their biological properties. **Objectives** of the discipline:

- learn modern methods of virological studies of biological material from animals;
- the study of nature, taxonomy, structure, chemical structure, genetics, reproduction and methods of culturing viruses;
- the study of pathogenesis viral disease with features of antiviral immunity, means and methods of diagnosis and prevention of infectious diseases of animals.

Lectures:

1. Introduction at the veterinary virology.
2. The chemical structure and ultra structure of viruses.
3. Taxonomy of viruses.
4. Genetic of viruses. Reproduction and cultivate of viruses.
5. Pathogenesis of viruses infection. Antivirus immunity. Specific biological drugs, tests. Antivirus drugs.
6. Family Herpesviridae & Family Poxviridae.
7. Family Adenoviridae. Family Parvoviridae.
8. Families Asfarviridae & Iridoviridae.
9. Family Flaviviridae & Family Reoviridae.
10. Family Coronaviridae.

11. Family Orthomyxoviridae & Family Paramyxoviridae.
12. Family Rhabdoviridae.
13. Family Picornaviridae & Family Retroviridae.
14. Family Bunyaviridae & Family Arenaviridae

Classes:

(practical, laboratory classes)

1. Safety rules and work with virus content materials. Equipment virology laboratory. Bacterial filters, filtration equipment.
2. Sampling, transportation and primary processing of pathological material for virological study.
3. Use of laboratory animals in virology. Development of methods for infection of laboratory animals by the virus content material.
4. Detection of viruses using a light microscope. Detection of elementary cells, viral inclusions-cells.
5. Fluorescent microscopy in virology. Types of construction schematic diagram fluorescent microscope technique of fluorochromation drugs.
6. Electron microscopic study of viruses. The design of EM, making preparations for EM, method of staining.
7. Module 1. Indication of viruses in pathological material.
8. Cooking utensils, salt and nutrient media for culturing cell culture.
9. Primary cell cultures. Learning methods for primary cell cultures by trypsinization.
10. Interweave cell culture. Study methods to maintain these cells in the laboratory.
11. Cultivation of viruses in cell cultures.
12. Study methods of infection of cell cultures, revealing cito-pathogen of viruses into cells.
13. Titration of virus.
14. Module 2. DNA-content viruses. Cultivation of viruses in vitro.
15. Cultivation of viruses in chicken embryos.
16. Assimilation techniques infection CE. Signs of viral replication in OM. Autopsy CE, selection virus content material. Neutralization CE.
17. Hemagglutination viruses. Study methods staging RHA. The development of serological methods for diagnosis of viral diseases. Setting RDHA. RHAD and RDHA.
18. Reaction diffusion precipitation in agar gel (PRD).
19. Neutralization reaction. Methods of Production. Identification and determination of virus titer antibodies by RN.
20. Complement fixation test (CFT). Definitions and types of FMD virus variants using RPR.
21. Immunosorbent assay (ELISA). Application of ELISA in laboratory practice. Study of standard diagnostics are used in veterinary medicine.
22. Molecular genetic methods in virology (PCR).
23. Module 3. RNA-content viruses. Methods of virus identification.