Ministry of Agriculture of the Russian Federation
Federal State Budgetary Educational Institution
of Higher Education
"St. Petersburg State University of Veterinary Medicine"

APPROVED BY
Vice-Rector for Educational
Work and Youth Policy
_____ Sukhinin A.A.
April 10, 2026

Department of clinical diagnostics

EDUCATIONAL WORK PROGRAM

for the discipline

"CLINICAL DIAGNOSTICS"

The level of higher education
SPECIALIST COURSE

Specialty 36.05.01 Veterinary Medicine
Profile: «General clinical veterinary medicine»
Full-time education
Education starts in 2026

Reviewed and adopted
at the meeting of the department
on April 9, 2026.
protocol no. 10

Head of the department
of clinical diagnostics,
doctor of veterinary medicine, professor
_____ Kovalev S.P.

Saint Petersburg
2026

1. PURPOSE AND OBJECTIVES OF DISCIPLINE

The purpose of the discipline: to learn to correctly recognize and examine a sick animal, summarize the results obtained, evaluate the anatomical and physiological characteristics of the animal's body depending on environmental, technological and other conditions.

Objectives of the discipline: determination of health status and the earliest possible and comprehensive study of disorders that occur in the body, making it possible to diagnose the disease, determine its etiology and pathogenesis. Using general clinical research methods and laboratory diagnostics within the framework of propaedeutics, work out optimal methods for studying the biochemical, biophysical and cytological composition of biological fluids of the body, indicators of the health of animals in normal and pathological conditions, establish the diagnostic role of individual tests and their combinations; identify the features of individual indicators. To master the methodology for conducting clinical examination of productive animals as a set of planned measures aimed at the timely detection of animal diseases, disease prevention, with the aim of timely treatment of sick people and the creation of healthy, highly productive herds.

Clinical diagnostics as a subject consists of three main sections, closely related to each other: medical diagnostic technique, semiotics and medical logic, diagnostic methods. Of great importance are students' mastery of clinical, laboratory and instrumental methods of researching farm animals, gaining experience in identifying symptoms and syndromes, and the ability to analyze a situation in order to make a diagnosis.

2. THE LIST OF THE PLANNED RESULTS OF THE DISCIPLINE (MODULE), CORRELATED WITH THE PLANNED RESULTS OF THE REALISED EDUCATIONAL PROGRAM

As a result of mastering the discipline, the student prepares for the following types of activities, in accordance with the educational standard of the FSE on 05.36.01 "Veterinary Medicine".

The field of professional activity:

13 Agriculture

Types of professional activity tasks:

- Medical;
- Expert control;
- Scientific and educational.

2.1. The student's competencies formed (acquired) as a result of mastering the discipline

The education of the discipline should form the following competencies:

a) General professional competencies (GPC):

GPC-1 Is able to determine the biological status, normal clinical signs of organs and systems of the animal body.

GPC-1 ID-1 To know: safety precautions and personal hygiene rules during the examination of animals, methods of its fixation; schemes of clinical examination of an animal and the procedure for examination individual body systems; methodology for diagnosis of the pathological process

GPC-1 ID-2 To be able to: collect and analyze anamnesis data, conduct laboratory and functional studies, necessary to determine the animal biological status.

GPC-1 ID-3 To possess practical skills: for conducting on its own a clinical examination of an animal, using classical research methods and digital technologies.

PC-1. Anamnesis of animal life and disease to identify the cause of disease, conduct a general clinical study of animals in order to establish a preliminary diagnosis and determine the ongoing research program

PC-1 ID-1To be able to collect and analyze information about the origin and purpose of animals, the method and conditions of husbandary, feeding (anamnesis of animal life), including use of sensor devices, mechanisms, sensors, tags, etc.
PC-1 ID-2 To be able to collect and analyze information about the occurrence and manifestation of animals diseases, previously transmitted diseases, epizootological conditions (anamnesis of animal disease), with the use of sensor devices, mechanisms, sensors, tags, etc.
PC-1 ID-3 To be able to fix animals to ensure safety during a clinical trial
PC-1 ID-4 To be able to perform a clinical examination of animals, using common methods: examination, palpation, percussion, auscultation and thermometry.
PC-1 ID-5 To be able to establish a preliminary diagnosis based on anamnesis analysis and clinical research, using general methods.
PC-1 ID-6 To know the method of collecting animals anamnesis of life and disease.
PC-1 ID-7 To know the factors of animal life that contribute to the occurrence of infectious and non-infectious diseases.
PC-1 ID-8 To know the forms and rules for filling out the journal for the registration of sick animals and the animal's medical history, including in electronic form in accordance with the requirements of veterinary rules.
PC-1 ID-9 To know the methods of animals' fixation during clinical examination.
PC-1 ID-10 To know the technique of conducting an animal clinical study, using general methods, in accordance with the guidelines, instructions, rules for the diagnosis, prevention and treatment of animals.

PC-2. Development of an animal research program and conduction of clinical study, using special (instrumental) and laboratory methods to clarify the diagnosis.

PC-2 ID-1 To be able to study animals, using digital equipment and special (instrumental) methods, including endoscopy, probing, catheterization, radiography, electro cardiography, echography
PC-2 ID-2 To be able to interpret and analyze data from special (instrumental) animal research methods to verify the diagnosis.
PC-2 ID-3 To be able to determine the reaction of the cardiovascular system of animals to various loads by the method of functional tests.
PC-2 ID-4 To be able to take samples of animal biological material for laboratory research.
PC-2 ID-5 To be able to perform analytical preparation, storage of the studied biological material, transportation to the laboratory
PC-2 ID-6 To be able to interpret and analyze data from laboratory animal research methods for diagnosis.
PC-2 ID-7 To know the indication for the use of digital equipment, special (instrumental) and laboratory methods of animal research in accordance with the guidelines, instructions, rules for the diagnosis, prevention and treatment of animals
PC-2 ID-8 To know the safe rules of operation with digital equipment, tools and equipment, used in special (instrumental) animal studies, including X-ray examinations.
PC-2 ID-9To possess skills of the technique of the animal study, using digital equipment and special (instrumental) methods in accordance with methodological guidelines, instructions, rules for the diagnosis, prevention and treatment of animals.
PC-2 ID-10 To know the methods and techniques of administration diagnostic and radiopaque substances for the animal.
PC-2 ID-11 To possess skills of the technique of setting functional tests for animals.
PC-2 ID-12 To know the methodology of sampling and analytical fullfilment of biological material samples for execution of laboratory analyses in accordance with the instructions and methodological documents, regulating the sampling of biological material

PC-12. Organization of the preventive clinical studies of animals, control of the veterinary and sanitary conditions and microclimate of livestock premises in accordance with the plan of antiepizootic measures, plan of the prevention of non-contagious animal diseases. plan of veterinary and sanitary measures

PC-12 ID-4 To be able to carry out clinical studies of animals, using digital technologies as part of the implementation of action plans for the prevention of animal diseases

3. THE PLACE OF DISCIPLINE IN THE STRUCTURE OF THE MPEP

Discipline B1.O.28 "Clinical Diagnostics" is a mandatory discipline of the federal state educational standard of higher education in the specialty 36.05.01 "Veterinary Medicine" (specialty level).

It is mastered in the 5th and 6th semester of full-time study.

When teaching the discipline "Clinical Diagnostics," the knowledge and skills acquired by students in mastering the disciplines of biophysics, zoology, histology and embryology, animal anatomy, biochemistry, physiology, and pathological physiology are used. The discipline "Clinical Diagnostics" is the basic one on which most subsequent disciplines are built, such as:

1. Internal non-communicable diseases.
2. Operative surgery with topographic anatomy.
3. Pathological anatomy and forensic veterinary examination.
4. Veterinary and sanitary examination.
5. Obstetrics and gynecology.
6. Immunology.
7. Diseases of laboratory, small and exotic animals.
8. Diseases of birds.
9. Epizootology
10. Parasitology

4. THE SCOPE OF DISCIPLINE AND TYPES OF ACADEMIC WORK

4.1. The scope of the discipline for full-time education

Type of educational work	Hours	Semesters	
		5	6
Classroom classes (total)	**133**	**48**	**85**
Including:	**-**	**-**	**-**
Lectures, including interactive forms	**50**	**16**	**34**
Practical lessons (PL), including interactive forms, among which are:	68	34	34
practical training (PT)	14	6	8
Self-study	**134**	**58**	**76**
Course work			+
Type of intermediate and final certification (test, exam)	Test, exam	Test	Exam
Total labor intensity hours/credits	**252/8**	**108/3**	**144/4**

4. CONTENT OF THE DISCIPLINE "CLINICAL DIAGNOSTICS"

4.1 Contents of the discipline "Clinical Diagnostics" for full-time study

№	Name	FORMED COMPETENCIES	Semester	Types of educational work, including independent work of students and labor intensity (in hours)			
				L	PL	PT	SS
1.	The concept of clinical diagnostics, its goals and objectives. History of the development of clinical diagnostics, relationship with other disciplines. Symptoms and syndromes of diseases. Diagnosis and its classification. Disease prognosis. Medical history, clinical documentation .	**GPC-1 Is able to determine the biological status, normal clinical signs of organs and systems of the animal body.** GPC-1 ID-1 To know: safety precautions and personal hygiene rules during the examination of animals, methods of its fixation; schemes of clinical examination of an animal and the procedure for examination individual body systems; methodology for diagnosis of the pathological process	5	2			8
2.	Basic and special methods of clinical research. Animal clinical study plan. Safety precautions when working with animals.	**GPC-1 Is able to determine the biological status, normal clinical signs of organs and systems of the animal body.** GPC-1 ID-1 To know: safety precautions and personal hygiene rules during the examination of animals, methods of its fixation; schemes of clinical examination of an animal and the procedure for examination individual body systems; methodology for diagnosis of the pathological process GPC-1 ID-2 To be able to: collect and analyze anamnesis data, conduct laboratory and functional studies, necessary to determine the animal biological status. GPC-1 ID-3 To possess practical skills: for conducting on its own a clinical examination of an animal, using classical research methods and digital technologies. **PC-1. Anamnesis of animal life and disease to identify the cause of disease, conduct a general clinical study of animals in order to establish a preliminary diagnosis and determine the ongoing research program** PC-1 ID-1To be able to collect and analyze information about the origin and purpose of animals, the method and conditions of husbandary, feeding (anamnesis of animal life), including use of sensor devices, mechanisms, sensors, tags, etc. PC-1 ID-2 To be able to collect and analyze information about the occurrence and manifestation of	5	2	4	2	10
3.	Definition of habitus.		5	2	2		4

4.	Examination of mucous membranes, skin and subcutaneous tissue.	animals diseases, previously transmitted diseases, epizootological conditions (anamnesis of animal disease), with the use of sensor devices, mechanisms, sensors, tags, etc. PC-1 ID-3 To be able to fix animals to ensure safety during a clinical trial PC-1 ID-4 To be able to perform a clinical examination of animals, using common methods: examination, palpation, percussion, auscultation and thermometry. PC-1 ID-5 To be able to establish a preliminary diagnosis based on anamnesis analysis and clinical research, using general methods. PC-1 ID-6 To know the method of collecting animals anamnesis of life and disease. PC-1 ID-7 To know the factors of animal life that contribute to the occurrence of infectious and non-infectious diseases. PC-1 ID-8 To know the forms and rules for filling out the journal for the registration of sick animals and the animal's medical history, including in electronic form in accordance with the requirements of veterinary rules. PC-1 ID-9 To know the methods of animals' fixation during clinical examination. PC-1 ID-10 To know the technique of conducting an animal clinical study, using general methods, in accordance with the guidelines, instructions, rules for the diagnosis, prevention and treatment of animals. **PC-2. Development of an animal research program and conduction of clinical study, using special (instrumental) and laboratory methods to clarify the diagnosis.** PC-2 ID-1 To be able to study animals, using digital equipment and special (instrumental) methods, including endoscopy, probing, catheterization, radiography, electro cardiography, echography PC-2 ID-2 To be able to interpret and analyze data from special (instrumental) animal research methods to verify the diagnosis. PC-2 ID-3 To be able to determine the reaction of the cardiovascular system of animals to various loads by the method of functional tests. PC-2 ID-4 To be able to take samples of animal biological material for laboratory research. PC-2 ID-5 To be able to perform analytical preparation, storage of the studied biological material, transportation to the laboratory PC-2 ID-6 To be able to interpret and analyze data from laboratory animal research methods for diagnosis. PC-2 ID-7 To know the indication for the use of digital equipment, special (instrumental) and laboratory methods of animal research in accordance with the guidelines, instructions, rules for the diagnosis, prevention and treatment of animals PC-2 ID-8 To know the safe rules of operation with digital equipment, tools and equipment, used in special (instrumental) animal studies, including X-ray examinations. PC-2 ID-9To possess skills of the technique of the animal study, using digital equipment and special (instrumental) methods in accordance with methodological guidelines, instructions, rules for the diagnosis, prevention and treatment of animals.	5	2	4		6
5.	Examination of lymph nodes. Thermometry (hypothermia, hyperthermia, fever).		5	2	4	2	6
6.	Examination of the anterior respiratory organs	**GPC-1 Is able to determine the biological status, normal clinical signs of organs and systems of the animal body.**	5	2	3		6

7.	Lung examination (inspection, palpation, percussion, auscultation)	GPC-1 ID-1 To know: safety precautions and personal hygiene rules during the examination of animals, methods of its fixation; schemes of clinical examination of an animal and the procedure for examination individual body systems; methodology for diagnosis of the pathological process GPC-1 ID-2 To be able to: collect and analyze anamnesis data, conduct laboratory and functional studies, necessary to determine the animal biological status. GPC-1 ID-3 To possess practical skills: for conducting on its own a clinical examination of an animal, using classical research methods and digital technologies. **PC-1. Anamnesis of animal life and disease to identify the cause of disease, conduct a general clinical study of animals in order to establish a preliminary diagnosis and determine the ongoing research program** PC-1 ID-1To be able to collect and analyze information about the origin and purpose of animals, the method and conditions of husbandary, feeding (anamnesis of animal life), including use of sensor devices, mechanisms, sensors, tags, etc. PC-1 ID-2 To be able to collect and analyze information about the occurrence and manifestation of animals diseases, previously transmitted diseases, epizootological conditions (anamnesis of animal disease), with the use of sensor devices, mechanisms, sensors, tags, etc. PC-1 ID-3 To be able to fix animals to ensure safety during a clinical trial PC-1 ID-4 To be able to perform a clinical examination of animals, using common methods: examination, palpation, percussion, auscultation and thermometry. PC-1 ID-5 To be able to establish a preliminary diagnosis based on anamnesis analysis and clinical research, using general methods. PC-1 ID-6 To know the method of collecting animals anamnesis of life and disease. PC-1 ID-7 To know the factors of animal life that contribute to the occurrence of infectious and non-infectious diseases. PC-1 ID-8 To know the forms and rules for filling out the journal for the registration of sick animals and the animal's medical history, including in electronic form in accordance with the requirements of veterinary rules. PC-1 ID-9 To know the methods of animals' fixation during clinical examination. PC-1 ID-10 To know the technique of conducting an animal clinical study, using general methods, in accordance with the guidelines, instructions, rules for the diagnosis, prevention and treatment of animals.	5	2	8	2	12
8.	Respiratory pathology syndromes		5	2			6
	TOTAL FOR SEMESTER 5			**16**	**28**	**6**	**58**
9.	Heart examination (examination, percussion)	**GPC-1 Is able to determine the biological status, normal clinical signs of organs and systems of the animal body.** GPC-1 ID-1 To know: safety precautions and personal hygiene rules during the examination of animals, methods of its fixation; schemes of clinical examination of an animal and the procedure for examination individual body systems; methodology for diagnosis of the pathological process	6	2		2	8
10.	Auscultation of the heart		6	4	2		6
11	Vascular examination		6	2	2		4

12	Диагностика аритмий	GPC-1 ID-2 To be able to: collect and analyze anamnesis data, conduct laboratory and functional studies, necessary to determine the animal biological status. GPC-1 ID-3 To possess practical skills: for conducting on its own a clinical examination of an animal, using classical research methods and digital technologies. **PC-1. Anamnesis of animal life and disease to identify the cause of disease, conduct a general clinical study of animals in order to establish a preliminary diagnosis and determine the ongoing research program** PC-1 ID-2 To be able to collect and analyze information about the occurrence and manifestation of animals diseases, previously transmitted diseases, epizootological conditions (anamnesis of animal disease), with the use of sensor devices, mechanisms, sensors, tags, etc. PC-1 ID-3 To be able to fix animals to ensure safety during a clinical trial PC-1 ID-4 To be able to perform a clinical examination of animals, using common methods: examination, palpation, percussion, auscultation and thermometry. PC-1 ID-5 To be able to establish a preliminary diagnosis based on anamnesis analysis and clinical research, using general methods. PC-1 ID-6 To know the method of collecting animals anamnesis of life and disease. PC-1 ID-8 To know the forms and rules for filling out the journal for the registration of sick animals and the animal's medical history, including in electronic form in accordance with the requirements of veterinary rules. PC-1 ID-10 To know the technique of conducting an animal clinical study, using general methods, in accordance with the guidelines, instructions, rules for the diagnosis, prevention and treatment of animals. клинического исследования **PC-2. Development of an animal research program and conduction of clinical study, using special (instrumental) and laboratory methods to clarify the diagnosis.** PC-2 ID-1 To be able to study animals, using digital equipment and special (instrumental) methods, including endoscopy, probing, catheterization, radiography, electro cardiography, echography **ПК-2 Разработка программы исследований животных и проведение клинического исследования животных с использованием специальных (инструментальных) и лабораторных методов, в том числе для уточнения диагноза** PC-2 ID-10 To know the methods and techniques of administration diagnostic and radiopaque substances for the animal. PC-2 ID-11 To possess skills of the technique of setting functional tests for animals.	6	4		2	8
13	Functional methods for studying the cardiovascular system. Syndromes		6	2	2		6
14.	Feed and water intake study	**GPC-1 Is able to determine the biological status, normal clinical signs of organs and systems of the animal body.** GPC-1 ID-1 To know: safety precautions and personal hygiene rules during the examination of animals, methods of its fixation; schemes of clinical examination of an animal and the procedure for examination individual body systems; methodology for diagnosis of the pathological process	6	4	4		6

15.	Study of forestomach and abomasum in ruminants	GPC-1 ID-2 To be able to: collect and analyze anamnesis data, conduct laboratory and functional studies, necessary to determine the animal biological status. GPC-1 ID-3 To possess practical skills: for conducting on its own a clinical examination of an animal, using classical research methods and digital technologies. **PC-1. Anamnesis of animal life and disease to identify the cause of disease, conduct a general clinical study of animals in order to establish a preliminary diagnosis and determine the ongoing research program** PC-1 ID-1To be able to collect and analyze information about the origin and purpose of animals, the method and conditions of husbandary, feeding (anamnesis of animal life), including use of sensor devices, mechanisms, sensors, tags, etc. PC-1 ID-2 To be able to collect and analyze information about the occurrence and manifestation of animals diseases, previously transmitted diseases, epizootological conditions (anamnesis of animal disease), with the use of sensor devices, mechanisms, sensors, tags, etc. PC-1 ID-3 To be able to fix animals to ensure safety during a clinical trial PC-1 ID-4 To be able to perform a clinical examination of animals, using common methods: examination, palpation, percussion, auscultation and thermometry. PC-1 ID-5 To be able to establish a preliminary diagnosis based on anamnesis analysis and clinical research, using general methods. PC-1 ID-6 To know the method of collecting animals anamnesis of life and disease. PC-1 ID-7 To know the factors of animal life that contribute to the occurrence of infectious and non-infectious diseases. PC-1 ID-8 To know the forms and rules for filling out the journal for the registration of sick animals and the animal's medical history, including in electronic form in accordance with the requirements of veterinary rules. PC-1 ID-9 To know the methods of animals' fixation during clinical examination. PC-1 ID-10 To know the technique of conducting an animal clinical study, using general methods, in accordance with the guidelines, instructions, rules for the diagnosis, prevention and treatment of animals. истории болезни животного, в том числе, электронном виде в соответствии с требованиями ветеринарной отчетности **PC-2. Development of an animal research program and conduction of clinical study, using special (instrumental) and laboratory methods to clarify the diagnosis.** PC-2 ID-1 To be able to study animals, using digital equipment and special (instrumental) methods, including endoscopy, probing, catheterization, radiography, electro cardiography, echography PC-2 ID-2 To be able to interpret and analyze data from special (instrumental) animal research methods to verify the diagnosis. PC-2 ID-3 To be able to determine the reaction of the cardiovascular system of animals to various loads by the method of functional tests. PC-2 ID-4 To be able to take samples of animal biological material for laboratory research. PC-2 ID-5 To be able to perform analytical preparation, storage of the studied biological material, transportation to the laboratory PC-2 ID-6 To be able to interpret and analyze data from laboratory animal research methods for diagnosis. PC-2 ID-7 To know the indication for the use of digital equipment, special (instrumental) and laboratory	6	4	2	2	8

16.	Examination of the stomach and intestines	methods of animal research in accordance with the guidelines, instructions, rules for the diagnosis, prevention and treatment of animals PC-2 ID-8 To know the safe rules of operation with digital equipment, tools and equipment, used in special (instrumental) animal studies, including X-ray examinations. PC-2 ID-9To possess skills of the technique of the animal study, using digital equipment and special (instrumental) methods in accordance with methodological guidelines, instructions, rules for the diagnosis, prevention and treatment of animals. PC-2 ID-10 To know the methods and techniques of administration diagnostic and radiopaque substances for the animal. PC-2 ID-11 To possess skills of the technique of setting functional tests for animals. PC-2 ID-12 To know the methodology of sampling and analytical fullfilment of biological material samples for execution of laboratory analyses in accordance with the instructions and methodological documents, regulating the sampling of biological material **PC-12. Organization of the preventive clinical studies of animals, control of the veterinary and sanitary conditions and microclimate of livestock premises in accordance with the plan of antiepizootic measures, plan of the prevention of non-contagious animal diseases. plan of veterinary and sanitary measures** PC-12 ID-4 To be able to carry out clinical studies of animals, using digital technologies as part of the implementation of action plans for the prevention of animal diseases PC-12 ID-4 To be able to carry out clinical studies of animals, using digital technologies as part of the implementation of action plans for the prevention of animal diseases	6	4	4		8
17.	Liver examination. Main syndromes..		6	4	4		8

18.	Examination of the urinary system organs. Syndromes	**GPC-1 Is able to determine the biological status, normal clinical signs of organs and systems of the animal body.** GPC-1 ID-1 To know: safety precautions and personal hygiene rules during the examination of animals, methods of its fixation; schemes of clinical examination of an animal and the procedure for examination individual body systems; methodology for diagnosis of the pathological process GPC-1 ID-2 To be able to: collect and analyze anamnesis data, conduct laboratory and functional studies, necessary to determine the animal biological status. GPC-1 ID-3 To possess practical skills: for conducting on its own a clinical examination of an animal, using classical research methods and digital technologies. **PC-1. Anamnesis of animal life and disease to identify the cause of disease, conduct a general clinical study of animals in order to establish a preliminary diagnosis and determine the ongoing research program** PC-1 ID-1To be able to collect and analyze information about the origin and purpose of animals, the method and conditions of husbandary, feeding (anamnesis of animal life), including use of sensor devices, mechanisms, sensors, tags, etc. PC-1 ID-2 To be able to collect and analyze information about the occurrence and manifestation of animals diseases, previously transmitted diseases, epizootological conditions (anamnesis of animal disease), with the use of sensor devices, mechanisms, sensors, tags, etc. PC-1 ID-3 To be able to fix animals to ensure safety during a clinical trial PC-1 ID-4 To be able to perform a clinical examination of animals, using common methods: examination, palpation, percussion, auscultation and thermometry. PC-1 ID-5 To be able to establish a preliminary diagnosis based on anamnesis analysis and clinical research, using general methods. PC-1 ID-6 To know the method of collecting animals anamnesis of life and disease. PC-1 ID-7 To know the factors of animal life that contribute to the occurrence of infectious and non-infectious diseases. PC-1 ID-8 To know the forms and rules for filling out the journal for the registration of sick animals and the animal's medical history, including in electronic form in accordance with the requirements of veterinary rules. PC-1 ID-9 To know the methods of animals' fixation during clinical examination. PC-1 ID-10 To know the technique of conducting an animal clinical study, using general methods, in accordance with the guidelines, instructions, rules for the diagnosis, prevention and treatment of animals. **PC-2. Development of an animal research program and conduction of clinical study, using special (instrumental) and laboratory methods to clarify the diagnosis.** PC-2 ID-1 To be able to study animals, using digital equipment and special (instrumental) methods, including endoscopy, probing, catheterization, radiography, electro cardiography, echography PC-2 ID-2 To be able to interpret and analyze data from special (instrumental) animal research methods to verify the diagnosis. PC-2 ID-3 To be able to determine the reaction of the cardiovascular system of animals to various loads by the method of functional tests. PC-2 ID-4 To be able to take samples of animal biological material for laboratory research. PC-2 ID-5 To be able to perform analytical preparation, storage of the studied biological material, transportation to the laboratory PC-2 ID-6 To be able to interpret and analyze data from laboratory animal research methods for	6	4	4	2	6

19.	Study of the nervous system organs. Syndromes	diagnosis. PC-2 ID-7 To know the indication for the use of digital equipment, special (instrumental) and laboratory methods of animal research in accordance with the guidelines, instructions, rules for the diagnosis, prevention and treatment of animals PC-2 ID-8 To know the safe rules of operation with digital equipment, tools and equipment, used in special (instrumental) animal studies, including X-ray examinations. PC-2 ID-9To possess skills of the technique of the animal study, using digital equipment and special (instrumental) methods in accordance with methodological guidelines, instructions, rules for the diagnosis, prevention and treatment of animals. PC-2 ID-10 To know the methods and techniques of administration diagnostic and radiopaque substances for the animal. PC-2 ID-11 To possess skills of the technique of setting functional tests for animals. PC-2 ID-12 To know the methodology of sampling and analytical fullfilment of biological material samples for execution of laboratory analyses in accordance with the instructions and methodological documents, regulating the sampling of biological material	6	2	2		8
		TOTAL FOR SEMESTER 6	**34**	**26**	**8**	**76**	

6 THE LIST OF EDUCATIONAL AND METHODOLOGICAL SUPPORT FOR STUDENTS' SELF WORK

6.1. Guidelines for self -work

1. Methodological instructions for completing course work in the discipline "Clinical Diagnostics" for students in the specialty "Veterinary Medicine" / compiled by: S. P. Kovalev [etc.]; Ministry of Agriculture of the Russian Federation, SPbGAVM. - St. Petersburg: Publishing house SPbGAVM, 2015. - 27 p. – URL: https://clck.ru/Vnb8s (date of access: 09/04/2026). - Access mode: for authorization. users of the SPbSUVM EB.

2. Clinical diagnostics: guidelines for students of the veterinary faculty of distance learning / compiled by: S. P. Kovalev, V. A. Trushkin; Ministry of Agriculture of the Russian Federation, SPbGAVM. – St. Petersburg: Publishing house SPbGAVM, 2013. - 26 p.

3. Methodological recommendations for organizing independent work in the disciplines "Clinical Diagnostics", "Hematology", "Laboratory Diagnostics", "Instrumental Diagnostic Methods" for students studying in the specialty "Veterinary Medicine" / compiled by: S. P. Kovalev [etc. .]; Ministry of Agriculture, SPbGAVM. - St. Petersburg: Falcon Print, 2019. - 26 p. – URL: https://clck.ru/eYPBz (date of access: 09/04/2026). - Access mode: for authorization. users of the SPbSUVM EB.

6.2. Literature for self-work

1. Kesareva, E. A. Clinical interpretation of biochemical parameters of blood serum of dogs and cats / E. A. Kesareva, V. N. Denisenko. - Moscow: KolosS, 2011. - 29 p.

2. Kovalev, S. P. Clinical assessment of hematological studies in farm animals: guidelines / S. P. Kovalev; Ministry of Agriculture of the Russian Federation, SPbGAVM. – St. Petersburg: Publishing house SPbGAVM, 2004. - 40 p.

3. Zelenevsky, N.V. Workshop on veterinary anatomy: textbook: in 3 volumes. T. 1. Somatic systems / N. V. Zelenevsky. - St. Petersburg: ISOT: NIK, 2007. - 304 p.: ill. – URL: https://clck.ru/RozBq (date of access: 09/04/2026). - Access mode: for authorization. users of the SPbSUVM EB.

4. Zelenevsky, N.V. Workshop on veterinary anatomy: a textbook for university students. T. 2. Splanchnology and angiology / N. V. Zelenevsky. - 3rd ed., revised. and additional – St. Petersburg, Logos, 2006. - 160 p. - URL: https://clck.ru/R77Kh (access date 09/04/2026). - Access mode: for authorization. users of the SPbSUVM EB.

5. Zelenevsky, N.V. Workshop on veterinary anatomy: a textbook for university students. T. 3. Neurology. Sense organs. Features of the structure of poultry / N. V. Zelenevsky, A. A. Stekolnikov, K. V. Plemyashov; ed. N.V. Zelenevsky. - St. Petersburg: Logos, 2005. - 132 p. – URL: https://clck.ru/ebnFX (date of access: 09/04/2026). - Access mode: for authorization. users of the SPbSUVM EB.

7. THE LIST OF BASIC AND ADDITIONAL LITERATURE NECESSARY FOR THE EDUCATION OF THE DISCIPLINE

7.1. Basic literature

1. Clinical diagnostics with radiology: textbook / E. S. Voronin, G. V. Snoz, M. F. Vasiliev [etc.]; ed. E. S. Voronina. - Moscow: KolosS, 2006. - 509 p.: ill. - (Textbooks and study guides for university students).

2. Workshop on clinical diagnostics with radiology: textbook / E. S. Voronin, S. P. Kovalev, G. V. Snoz [etc.]; under general ed. E. S. Voronina, G. V. Snoza. - Moscow: INFRA-M, 2014. - 336 p.

7.2. Additional literature

1. Stekolnikov, A. A. X-ray diagnostics in veterinary medicine: textbook: [approved by the Ministry of Agriculture of the Russian Federation for university students] / A. A. Stekolnikov, S. P. Kovalev, M. A. Narusbaeva. – St. Petersburg: SpetsLit, 2016. - 379 p.

2. Microelementoses of farm animals: a textbook for students of veterinary faculties / S.P. Kovalev, A.P. Kurdeko, Shcherbakov Grigory Gavrilovich [and others]; S. P. Kovalev, A. P. Kurdeko, G. G. Shcherbakov [and others]; ed. S. P. Kovalev; Ministry of Agriculture of the Russian Federation, SPbGAVM. - St. Petersburg: SPbGAVM, 2013. - 132 p. - URL: https://clck.ru/ekrWA (date of access: 09/04/2026). - Access mode: for authorization. users of the SPbSUVM EB.

8. THE LIST OF RESOURCES OF THE INFORMATION AND TELECOMMUNICATION NETWORK "INTERNET" NECESSARY FOR EDUCATION OF THE DISCIPLINE

To prepare for laboratory classes and perform self-work, students can use the following online resources:

1. http://fsvps.ru The official website of the Federal Service for Veterinary and Phytosanitary Surveillance.
2. http://www.mcx.ru/ Official website of the Ministry of Agriculture
3. http://vetexpert.pro The portal "Veterinary expertise".
4. http://www.gost.ru Official website of the Federal Agency for Technical Regulation and Metrology.
5. http://www.kodeks.ru The electronic fund of normative documents "Code".
6. https://standartgost.ru An open database of GOST standards and other regulatory documents.
7. http://docs.cntd.ru Electronic fund of legal and regulatory and technical documentation

Electronic library systems

1. ELS "SPBGUVM"
2. Legal reference system "ConsultantPlus"
3. University information system "RUSSIA"
4. Full-text database POLPRED.COM
5. Scientific electronic Library ELIBRARY.RU
6. Russian Scientific Network
7. Full-text interdisciplinary database on agricultural and environmental sciences ProQuest AGRICULTURAL AND ENVIRONMENTAL SCIENCE DATABASE
8. Electronic books of the publishing house "Prospekt Nauki" http://prospektnauki.ru/ebooks/
9. Collection "Agriculture. Veterinary medicine" publishing house "Quadro" ELS "Elibris" publishing house "Quadro" https://elibrica.com/

9. METHODOLOGICAL GUIDELINES FOR STUDENTS ON EDUCATION OF THE DISCIPLINE

Methodological recommendations for students are a set of recommendations and explanations that allow them organize the process of studying this discipline optimally.

The content of methodological recommendations, as a rule, may include:

• Tips on planning and organizing the time needed to study the discipline. Description of the sequence of actions of the student, or the "scenario of studying the discipline".

Morning time is the most effective for academic work (from 8-14 hours), followed by afternoon time (from 16-19 hours) and evening time (from 20-24 hours). The most difficult material is recommended to be studied at the beginning of each time interval after rest. After 1.5 hours of work, a break is required (10-15 minutes), after 4 hours of work, the break should be 1

hour. Part of the scientific organization of labor is the master of the technique of mental labor. Normally, a student should devote about 10 hours a day to studying (6 hours at university, 4 hours at home).

The methodology of work when taking notes of oral presentations differs significantly from the methodology of work when taking notes of written sources.

By taking notes of written sources, the student has the opportunity to read again the desired passage of the text, reflect on it, highlight the main thoughts of the author, briefly formulate them, and then write them down. If necessary, he can also note his attitude to this point of view. Listening to the lecture, the student should transist most of the complexity of the above–mentioned works for another time, trying to use every minute to record the lecture, and not to comprehend it - there is no time left for this. Therefore, when taking notes of a lecture, it is recommended, to leave separate fields on each page for subsequent entries in addition to the summary.

After recording a lecture or making a summary of it, you should not leave work on the lecture material before preparing for the test. It is necessary to do as early as possible the work that accompanies takimg notes of written sources, the last could not be done during the recording of the lecture - read your notes, deciphering individual abbreviations, analyze the text, establish logical connections between its elements, in some cases show them graphically, highlight the main thoughts, mark issues, requiring additional processing, in particular, the teacher's consultations.

When working on the text of the lecture, the student should pay special attention to the problematic issues, raised by the teacher, during the lecture, as well as to his assignments and recommendations.

For each lecture, practical lesson and laboratory work, classification cod, topic, list of issues under consideration, volume in hours and links to recommended literature are provided. For classes conducted in interactive forms, its organizational form should be indicated: computer simulation, business or role-playing game, analysis of a specific situation, etc.

• Recommendations for preparing for practical classes

Practical (seminar) classes are an important part of the professional training of students. The main purpose of conducting practical (seminar) classes is to form students' analytical, creative thinking through the acquisition of practical skills. Practical classes are also conducted in order to deepen and consolidate the knowledge gained in lectures and in the process of independent work on normative documents, educational and scientific literature. For student, it is necessary, to study or repeat theoretical material on a given topic when preparing for a practical lesson for students.

When preparing for a practical lesson, the student is recommended to follow the following algorithm;

1) get acquainted with the plan of the upcoming lesson;

2) study the literature sources that have been recommended and familiarize yourself with the introductory notes to the relevant sections.

Methodological guidelines for practical (seminar) classes in the discipline, along with the work program and schedule of the educational process, refer to methodological documents that determine the level of organization and quality of the educational process.

The content of practical (seminar) classes is recorded in the working curricula of the disciplines in the sections "List of topics of practical (seminar) classes".

The most important component of any form of practical training are tasks. The basis of the task is an example that is understood from the standpoint of the theory developed in the lecture. As a rule, the main attention is paid to the formation of specific skills, which determines the content of students' activities - problem solving, laboratory work, clarification of categories and concepts of science, which are a prerequisite for correct thinking and speech.

• Practical (seminar) classes perform the following tasks:

- stimulate regular study of recommended literature, as well as attentive attitude to the lecture course;

- consolidate the knowledge gained in the process of lecture training and independent work on literature;

- expand the scope of professionally significant knowledge, skills, and abilities;

- allow you to verify the correctness of previously acquired knowledge;

- initiate skills of independent self-thinking, oral presentation;

- contribute to the free use of terminology;

-provide the teacher with the opportunity to systematically monitor the level of independent work of students.

Methodological guidelines for practical (seminar) classes on the discipline should be focused on modern business conditions, current regulatory documents, advanced technologies, the latest achievements of science, technology and practice, modern ideas about certain phenomena, the studied reality.

• Recommendations for working with literature.

Working with literature is an important stage of the student's self-work on mastering the subject, contributing not only to the consolidation of knowledge, but also to the expansion of horizons, mental abilities, memory, the ability to think, express and confirm personal hypotheses and ideas. In addition, the skills of research work necessary for further professional activityare developed.

When starting to study the literature on the topic, it is necessary to make notes, extracts, notes. It is mandatory to take notes of the works of theorists, which allow us to comprehend the theoretical basis of the study. For the rest, you can limit yourself to summary from the studied sources. All summaries and quotations must have the exact "return address" (author, title of the work, year of publication, page, etc.). It is advisable to write an abbreviated title of the question to which the extract or quotation refers. In addition, it is necessary to learn how to immediately compile a file of special literature and publications of sources, both proposed by the teacher and identified independently, as well as refer to bibliographic reference books, chronicles of journal articles, book chronicles, abstract journals. At the same time, publications of sources (articles, book titles, etc.) should be written on separate cards, which must be filled in according to the rules of bibliographic description (surname, initials of the author, title of the work. Place of publication, publisher, year of publication, number of pages, and for journal articles – the name of the journal, year of publication, page numbers). On each card, it is advisable to record the thought of the author of the book or a fact from this book on only one specific issue. If the work, even in the same paragraph or phrase, contains more judgments or facts on another issue, then they should be written out on a separate card. The presentation should be concise, accurate, without subjective assessments. On the back of the card, you can make your own notes about this book or article, its content, structure, on which sources it is written, etc.

• Explanations about working with control and test materials for the course, recommendations for completing homework.

Testing allows you to determine whether the actual behavior of the program corresponds to the expected one by performing a specially selected set of tests. A test is the fulfillment of certain conditions and actions necessary to verify the operation of the function under test or part of it. Each question in the discipline must be answered correctly by choosing one option.

10. EDUCATIONAL SOCIAL WORK

As part of the implementation of the discipline, educational work is carried out to form a modern scientific worldview and a system of basic values, the formation and development of spiritual and moral, civil and patriotic values, a system of aesthetic and ethical knowledge and values, attitudes of tolerant consciousness in society, the formation of students' need for work as the first vital necessity, the highest value and the main way to achieve success in life, to realize the social significance of your future profession.

11. THE LIST OF INFORMATION TECHNOLOGIES USED IN THE IMPLEMENTATION OF THE EDUCATIONAL PROCESS

11.1 Information technologies

For the educational process of the discipline is previewed the use of information technologies:

- **practical classes using multimedia;**
- **interactive technologies (dialogues, collective discussion on various topics for realization a particular educational and professional task);**
- **interaction with students via e - mail;**
- **community work in the electronic information and educational environment of St. Petersburg State University: https://spbguvm.ru/academy/eios/**

11.2. Software

The list of licensed and free- distributed software, including national programs

№ п/п	Technical and computer programs recommended by sections and topics of the program	License
1	MS PowerPoint	67580828
2	LibreOffice	free software
3	OS Alt Education	AAO.0022.00
4	ABIS " MARK-SQL"	02102014155
5	MS Windows 10	67580828
6	System Consult Plus	503/KJI
7	Android OS	free software

12. THE MATERIAL AND TECHNICAL BASE NECESSARY FOR THE IMPLEMENTATION OF THE DISCIPLINE EDUCATIONAL PROCESS.

The title of the discipline (module), practice in accordance with the curriculum	**The title of special rooms and rooms for self-work**	**Equipment of special rooms and rooms for self-work**
Clinical diagnostics	101 (196084, St. Petersburg, Chernigovskaya str., 5, lit.G) Classroom for lecture-type classes, seminar-type classes, group and individual consultations, ongoing monitoring and intermediate certification	*Specialized furniture*: desks, chairs *Technical training tools*: video projector, slide presentations on the parts of the discipline
	103 (196084, St. Petersburg, Chernigovskaya str., 5, lit.G) Classroom for lecture-type classes, seminar-type classes, group and individual consultations, ongoing monitoring and intermediate	*Specialized furniture*: desks, chairs *Technical training tools*: video projector, slide presentations on the parts of the discipline

	certification	
	109 (196084, St. Petersburg, Chernigovskaya str., 5, lit.G) Classroom for lecture-type classes, seminar-type classes, group and individual consultations, ongoing monitoring and intermediate certification	*Specialized furniture*: desks, chairs *Technical teaching aids: table scales, drying cabinet, tripods, KFK, microscopes.*
	206 Large reading room (196084, St. Petersburg, Chernigovskaya str., 5) Room for self-work	*Specialized furniture:* tables, chairs *Technical means of education:* computers connected to the Internet and access to an electronic information and educational environment
	214 Small reading room (196084, St. Petersburg, Chernigovskaya str., 5) Room for self-work	*Specialized furniture:* tables, chairs *Technical means of education:* computers connected to the Internet and access to an electronic information and educational environment
	324 Information Technology Department (196084, St. Petersburg, Chernigovskaya str., 5) Room for storage and preventive maintenance of educational equipment	*Specialized furniture: tables,* chairs, special equipment, materials and spare parts for preventive maintenance of technical training facilities
	Box No. 3 Carpentry workshop (196084, St. Petersburg, Chernigovsaya str., 5) Room for storage and preventive maintenance of educational equipment	*Specialized furniture: tables,* chairs, special equipment, materials and spare parts for preventive maintenance of technical training facilities

Developers:

Head of the department
of clinical diagnostics,
doctor of veterinary medicine, professor — Kovalev S.P.

Associate Professor of the Department of clinical diagnostics,
candidate of veterinary sciences — Trushkin V.A.

Annex 1

Ministry of Agriculture of the Russian Federation
Federal State Budgetary Educational Institution
of higher education
"Saint Petersburg State University of Veterinary Medicine"

Department of Clinical diagnostics

FUND OF ASSESMENT TOOLS
for the discipline
"Clinical diagnostics"

Level of higher education
SPECIALIST COURSE

Specialty 36.05.01 Veterinary medicine
Profile: «General clinical veterinary medicine»
Full-time education

Education starts in 2026

Saint Petersburg
2026

1. PASSPORT OF THE FUND OF ASSESMENT TOOLS

№	Acquired competence	Assessed modules of a discipline	Assesment tool
1	**GPC-1 Is able to determine the biological status, normal clinical signs of organs and systems of the animal body.** GPC-1 ID-1 To know: safety precautions and personal hygiene rules during the examination of animals, methods of its fixation; schemes of clinical examination of an animal and the procedure for examination individual body systems; methodology for diagnosis of the pathological process GPC-1 ID-2 To be able to: collect and analyze anamnesis data, conduct laboratory and functional studies, necessary to determine the animal biological status. GPC-1 ID-3 To possess practical skills: for conducting on its own a clinical examination of an animal, using classical research methods and digital technologies. **PC-1. Anamnesis of animal life and disease to identify the cause of disease, conduct a general clinical study of animals in order to establish a preliminary diagnosis and determine the ongoing research program** PC-1 ID-1To be able to collect and analyze information about the origin and purpose of animals, the method and conditions of husbandary, feeding (anamnesis of animal life), including use of sensor devices, mechanisms, sensors, tags, etc. PC-1 ID-2 To be able to collect and analyze information about the occurrence and manifestation of animals diseases, previously transmitted diseases, epizootological conditions (anamnesis of animal disease), with the use of sensor devices, mechanisms, sensors, tags, etc. PC-1 ID-3 To be able to fix animals to ensure safety during a clinical trial PC-1 ID-4 To be able to perform a clinical examination of animals, using common methods: examination, palpation, percussion, auscultation and thermometry.	Section 1. General diagnostics	Test, Control work
2	**GPC-1 Is able to determine the biological status, normal clinical signs of organs and systems of the animal body.** GPC-1 ID-1 To know: safety precautions and personal hygiene rules during the examination of animals, methods of its fixation; schemes of clinical examination of an animal and the procedure for examination individual body systems; methodology for diagnosis of the pathological process GPC-1 ID-2 To be able to: collect and analyze anamnesis data, conduct laboratory and functional studies, necessary to determine the animal biological status. GPC-1 ID-3 To possess practical skills: for conducting on its own a clinical examination of an animal, using	Section 2. Research of the cardiovascular system	Test, Control work

	classical research methods and digital technologies. **PC-1. Anamnesis of animal life and disease to identify the cause of disease, conduct a general clinical study of animals in order to establish a preliminary diagnosis and determine the ongoing research program** PC-1 ID-1To be able to collect and analyze information about the origin and purpose of animals, the method and conditions of husbandary, feeding (anamnesis of animal life), including use of sensor devices, mechanisms, sensors, tags, etc. PC-1 ID-2 To be able to collect and analyze information about the occurrence and manifestation of animals diseases, previously transmitted diseases, epizootological conditions (anamnesis of animal disease), with the use of sensor devices, mechanisms, sensors, tags, etc. PC-1 ID-3 To be able to fix animals to ensure safety during a clinical trial PC-1 ID-4 To be able to perform a clinical examination of animals, using common methods: examination, palpation, percussion, auscultation and thermometry. PC-1 ID-5 To be able to establish a preliminary diagnosis based on anamnesis analysis and clinical research, using general methods. PC-1 ID-6 To know the method of collecting animals anamnesis of life and disease. PC-1 ID-8 To know the forms and rules for filling out the journal for the registration of sick animals and the animal's medical history, including in electronic form in accordance with the requirements of veterinary rules. PC-1 ID-10 To know the technique of conducting an animal clinical study, using general methods, in accordance with the guidelines, instructions, rules for the diagnosis, prevention and treatment of animals. **PC-2. Development of an animal research program and conduction of clinical study, using special (instrumental) and laboratory methods to clarify the diagnosis.** PC-2 ID-1 To be able to study animals, using digital equipment and special (instrumental) methods, including endoscopy, probing, catheterization, radiography, electro cardiography, echography PC-2 ID-10 To know the methods and techniques of administration diagnostic and radiopaque substances for the animal. PC-2 ID-11 To possess skills of the technique of setting functional tests for animals.		
3	**GPC-1 Is able to determine the biological status, normal clinical signs of organs and systems of the animal body.** GPC-1 ID-1 To know: safety precautions and personal hygiene rules during the examination of animals, methods of its fixation; schemes of clinical examination of an animal and the procedure for examination individual body systems; methodology for diagnosis of the pathological process	Section 3. Respiratory examination	Test, Control work

	GPC-1 ID-2 To be able to: collect and analyze anamnesis data, conduct laboratory and functional studies, necessary to determine the animal biological status. GPC-1 ID-3 To possess practical skills: for conducting on its own a clinical examination of an animal, using classical research methods and digital technologies. **PC-1. Anamnesis of animal life and disease to identify the cause of disease, conduct a general clinical study of animals in order to establish a preliminary diagnosis and determine the ongoing research program** PC-1 ID-1To be able to collect and analyze information about the origin and purpose of animals, the method and conditions of husbandary, feeding (anamnesis of animal life), including use of sensor devices, mechanisms, sensors, tags, etc. PC-1 ID-3 To be able to fix animals to ensure safety during a clinical trial PC-1 ID-4 To be able to perform a clinical examination of animals, using common methods: examination, palpation, percussion, auscultation and thermometry PC-1 ID-5 To be able to establish a preliminary diagnosis based on anamnesis analysis and clinical research, using general methods. PC-1 ID-8 To know the forms and rules for filling out the journal for the registration of sick animals and the animal's medical history, including in electronic form in accordance with the requirements of veterinary rules. PC-1 ID-10 To know the technique of conducting an animal clinical study, using general methods, in accordance with the guidelines, instructions, rules for the diagnosis, prevention and treatment of animals. PC-2 ID-7 To know the indication for the use of digital equipment, special (instrumental) and laboratory methods of animal research in accordance with the guidelines, instructions, rules for the diagnosis, prevention and treatment of animals PC-1 ID-8 To know the forms and rules for filling out the journal for the registration of sick animals and the animal's medical history, including in electronic form in accordance with the requirements of veterinary rules. PC-1 ID-10 To know the technique of conducting an animal clinical study, using general methods, in accordance with the guidelines, instructions, rules for the diagnosis, prevention and treatment of animals. **PC-2. Development of an animal research program and conduction of clinical study, using special (instrumental) and laboratory methods to clarify the diagnosis.** PC-2 ID-1 To be able to study animals, using digital equipment and special (instrumental) methods, including endoscopy, probing, catheterization, radiography, electro cardiography, echography PC-2 ID-10 To know the methods and techniques of administration diagnostic and radiopaque substances for the animal. PC-2 ID-11 To possess skills of the technique of setting functional tests for animals.		

4	**GPC-1 Is able to determine the biological status, normal clinical signs of organs and systems of the animal body.** GPC-1 ID-1 To know: safety precautions and personal hygiene rules during the examination of animals, methods of its fixation; schemes of clinical examination of an animal and the procedure for examination individual body systems; methodology for diagnosis of the pathological process GPC-1 ID-2 To be able to: collect and analyze anamnesis data, conduct laboratory and functional studies, necessary to determine the animal biological status. GPC-1 ID-3 To possess practical skills: for conducting on its own a clinical examination of an animal, using classical research methods and digital technologies. **PC-1. Anamnesis of animal life and disease to identify the cause of disease, conduct a general clinical study of animals in order to establish a preliminary diagnosis and determine the ongoing research program** PC-1 ID-1To be able to collect and analyze information about the origin and purpose of animals, the method and conditions of husbandary, feeding (anamnesis of animal life), including use of sensor devices, mechanisms, sensors, tags, etc. PC-1 ID-2 To be able to collect and analyze information about the occurrence and manifestation of animals diseases, previously transmitted diseases, epizootological conditions (anamnesis of animal disease), with the use of sensor devices, mechanisms, sensors, tags, etc. PC-1 ID-3 To be able to fix animals to ensure safety during a clinical trial PC-1 ID-4 To be able to perform a clinical examination of animals, using common methods: examination, palpation, percussion, auscultation and thermometry. PC-1 ID-5 To be able to establish a preliminary diagnosis based on anamnesis analysis and clinical research, using general methods. PC-1 ID-6 To know the method of collecting animals anamnesis of life and disease. PC-1 ID-7 To know the factors of animal life that contribute to the occurrence of infectious and non-infectious diseases. PC-1 ID-8 To know the forms and rules for filling out the journal for the registration of sick animals and the animal's medical history, including in electronic form in accordance with the requirements of veterinary rules. PC-1 ID-9 To know the methods of animals' fixation during clinical examination. PC-1 ID-10 To know the technique of conducting an animal clinical study, using general methods, in accordance with the guidelines, instructions, rules for the diagnosis, prevention and treatment of animals. **PC-2. Development of an animal research program and conduction of clinical study, using special (instrumental) and laboratory methods to clarify the diagnosis.** PC-2 ID-1 To be able to study animals, using digital equipment and special (instrumental) methods, including	Section 4. Examination of the digestive organs	Test, Control work

	endoscopy, probing, catheterization, radiography, electro cardiography, echography PC-2 ID-2 To be able to interpret and analyze data from special (instrumental) animal research methods to verify the diagnosis. PC-2 ID-3 To be able to determine the reaction of the cardiovascular system of animals to various loads by the method of functional tests. PC-2 ID-4 To be able to take samples of animal biological material for laboratory research. PC-2 ID-5 To be able to perform analytical preparation, storage of the studied biological material, transportation to the laboratory PC-2 ID-6 To be able to interpret and analyze data from laboratory animal research methods for diagnosis. PC-2 ID-7 To know the indication for the use of digital equipment, special (instrumental) and laboratory methods of animal research in accordance with the guidelines, instructions, rules for the diagnosis, prevention and treatment of animals PC-2 ID-8 To know the safe rules of operation with digital equipment, tools and equipment, used in special (instrumental) animal studies, including X-ray examinations. PC-2 ID-9To possess skills of the technique of the animal study, using digital equipment and special (instrumental) methods in accordance with methodological guidelines, instructions, rules for the diagnosis, prevention and treatment of animals. PC-2 ID-10 To know the methods and techniques of administration diagnostic and radiopaque substances for the animal. PC-2 ID-11 To possess skills of the technique of setting functional tests for animals. PC-2 ID-12 To know the methodology of sampling and analytical fullfilment of biological material samples for execution of laboratory analyses in accordance with the instructions and methodological documents, regulating the sampling of biological material **PC-12. Organization of the preventive clinical studies of animals, control of the veterinary and sanitary conditions and microclimate of livestock premises in accordance with the plan of antiepizootic measures, plan of the prevention of non-contagious animal diseases. plan of veterinary and sanitary measures** PC-12 ID-4 To be able to carry out clinical studies of animals, using digital technologies as part of the implementation of action plans for the prevention of animal diseases		
5	**GPC-1 Is able to determine the biological status, normal clinical signs of organs and systems of the animal body.** GPC-1 ID-1 To know: safety precautions and personal hygiene rules during the examination of animals, methods of its fixation; schemes of clinical examination of an animal and the procedure for examination individual body systems; methodology for diagnosis of the pathological process	Section 5. Examination of the urinary system	Test, Control work

	GPC-1 ID-2 To be able to: collect and analyze anamnesis data, conduct laboratory and functional studies, necessary to determine the animal biological status. GPC-1 ID-3 To possess practical skills: for conducting on its own a clinical examination of an animal, using classical research methods and digital technologies. **PC-1. Anamnesis of animal life and disease to identify the cause of disease, conduct a general clinical study of animals in order to establish a preliminary diagnosis and determine the ongoing research program** PC-1 ID-1To be able to collect and analyze information about the origin and purpose of animals, the method and conditions of husbandary, feeding (anamnesis of animal life), including use of sensor devices, mechanisms, sensors, tags, etc. PC-1 ID-2 To be able to collect and analyze information about the occurrence and manifestation of animals diseases, previously transmitted diseases, epizootological conditions (anamnesis of animal disease), with the use of sensor devices, mechanisms, sensors, tags, etc. PC-1 ID-3 To be able to fix animals to ensure safety during a clinical trial PC-1 ID-4 To be able to perform a clinical examination of animals, using common methods: examination, palpation, percussion, auscultation and thermometry. PC-1 ID-5 To be able to establish a preliminary diagnosis based on anamnesis analysis and clinical research, using general methods. PC-1 ID-6 To know the method of collecting animals anamnesis of life and disease. PC-1 ID-7 To know the factors of animal life that contribute to the occurrence of infectious and non-infectious diseases. PC-1 ID-8 To know the forms and rules for filling out the journal for the registration of sick animals and the animal's medical history, including in electronic form in accordance with the requirements of veterinary rules. PC-1 ID-9 To know the methods of animals' fixation during clinical examination. PC-1 ID-10 To know the technique of conducting an animal clinical study, using general methods, in accordance with the guidelines, instructions, rules for the diagnosis, prevention and treatment of animals. **PC-2. Development of an animal research program and conduction of clinical study, using special (instrumental) and laboratory methods to clarify the diagnosis.** PC-2 ID-1 To be able to study animals, using digital equipment and special (instrumental) methods, including endoscopy, probing, catheterization, radiography, electro cardiography, echography PC-2 ID-2 To be able to interpret and analyze data from special (instrumental) animal research methods to verify the diagnosis. PC-2 ID-3 To be able to determine the reaction of the cardiovascular system of animals to various loads by the method of functional tests.	Section 6. Study of the nervous system Section 7. Complete examination of the animal	Test, Control work Course work

	PC-2 ID-4 To be able to take samples of animal biological material for laboratory research. PC-2 ID-5 To be able to perform analytical preparation, storage of the studied biological material, transportation to the laboratory PC-2 ID-6 To be able to interpret and analyze data from laboratory animal research methods for diagnosis. PC-2 ID-7 To know the indication for the use of digital equipment, special (instrumental) and laboratory methods of animal research in accordance with the guidelines, instructions, rules for the diagnosis, prevention and treatment of animals PC-2 ID-8 To know the safe rules of operation with digital equipment, tools and equipment, used in special (instrumental) animal studies, including X-ray examinations. PC-2 ID-9To possess skills of the technique of the animal study, using digital equipment and special (instrumental) methods in accordance with methodological guidelines, instructions, rules for the diagnosis, prevention and treatment of animals. PC-2 ID-10 To know the methods and techniques of administration diagnostic and radiopaque substances for the animal. PC-2 ID-11 To possess skills of the technique of setting functional tests for animals. PC-2 ID-12 To know the methodology of sampling and analytical fullfilment of biological material samples for execution of laboratory analyses in accordance with the instructions and methodological documents, regulating the sampling of biological material **PC-12. Organization of the preventive clinical studies of animals, control of the veterinary and sanitary conditions and microclimate of livestock premises in accordance with the plan of antiepizootic measures, plan of the prevention of non-contagious animal diseases. plan of veterinary and sanitary measures** PC-12 ID-4 To be able to carry out clinical studies of animals, using digital technologies as part of the implementation of action plans for the prevention of animal diseases		

List of assessment tools

№	Name of the assessment tool	Brief description of the assesment tool	Presentation of the assessment tool in the fund
1.	Seminar	A means of control is organized as a conversation between the teacher and the student on topics related to the discipline, and designed to clarify the amount of knowledge that students have on a certain module, topic, problem, etc. May be conducted in written form.	Questions on topics/modules of the discipline presented in relation to the competencies provided by the work program of the discipline
2.	Test	A system of standardized tasks, which allows to automate the assessment of students knowledge and skills	A fund of test assignments
3.	Report, Presentation	A product of a student's self work, which is presented as a public speech presenting the results of doing a research on a specific educational, practical, educational or scientific topic. May be done in PowerPoint presentation format	Topics of reports
4.	Course work	A product of the student's independent work, which is a complete written statement of the results obtained when examining an animal (educational and research work), where the author presents methods for studying organs and tissues, and also your own opinion about the patient's health status.	coursework topics
5	Exam	A means of monitoring the assimilation of educational material of the discipline as a whole.	Questions for the exam

2. INDICATORS AND CRITERIA FOR ASSESSING COMPETENCIES AT VARIOUS STAGES OF ITS FORMATION, DESCRIPTION OF ASSESSMENT SCALES

Planned results of competency acquaired	The level of development				Assesment tool
	Unsatisfactory	Satisfactory	Good	Exellent	
GPC-1 Is able to determine the biological status, normal clinical signs of organs and systems of the animal body.					
GPC-1 ID-1 To know: safety precautions and personal hygiene rules during the examination of animals, methods of its fixation; schemes of clinical examination of an animal and the procedure for examination individual body systems; methodology for diagnosis of the pathological process	The level of knowledge is below the minimum requirements, gross errors have occurred	The minimum acceptable level of knowledge, many minor errors have been made	The level of knowledge corresponds to the training program, several minor errors have been made	The level of knowledge corresponds to the training program, no errors have been made	Independent work, tests, colloquium.
GPC-1 ID-2 To be able to: collect and analyze anamnesis data, conduct laboratory and functional studies, necessary to determine the animal biological status.	Basic skills were not demonstrated in solving standard tasks, and gross errors occurred	Basic skills have been demonstrated, typical problems have been solved with minor errors, all tasks have been completed, but not in full	All the basic skills have been demonstrated, all the main tasks have been solved with minor errors, all the tasks have been completed in full, but some with flaws	All basic skills have been demonstrated, all main tasks have been solved with some minor flaws, all tasks have been completed in full	Independent work, tests, colloquium

GPC-1 ID-3 To possess practical skills: for conducting on its own a clinical examination of an animal, using classical research methods and digital technologies.	When solving standard problems basic skills were not demonstrated, gross errors occurred	There is a minimum set of skills to solve standard tasks with some shortcomings	When solving standard problems basic skills were not demonstrated with some flaws	Skills were demonstrated in solving non-standard tasks without errors and flaws	Independent work, tests, colloquium. Course work
PC-1. Anamnesis of animal life and disease to identify the cause of disease, conduct a general clinical study of animals in order to establish a preliminary diagnosis and determine the ongoing research program					
PC-1 ID-1To be able to collect and analyze information about the origin and purpose of animals, the method and conditions of husbandary, feeding (anamnesis of animal life), including use of sensor devices, mechanisms, sensors, tags, etc.	The level of knowledge is below the minimum requirements, gross errors have occurred	The minimum acceptable level of knowledge, many minor errors have been made	The level of knowledge corresponds to the training program, several minor errors have been made	The level of knowledge corresponds to the training program, no errors have been made	Seminar, Test, Report, Control work
PC-1 ID-2 To be able to collect and analyze information about the occurrence and manifestation of animals diseases, previously transmitted diseases, epizootological conditions (anamnesis of animal disease), with the use of sensor devices, mechanisms, sensors, tags, etc.	The level of knowledge is below the minimum requirements, gross errors have occurred	The minimum acceptable level of knowledge, many minor errors have been made	The level of knowledge corresponds to the training program, several minor errors have been made	Skills were demonstrated in solving non-standard tasks without errors and flaws	Independent work, tests, colloquium. Course work
PC-1 ID-3 To be able to fix animals to ensure safety during a clinical trial	Basic skills were not demonstrated in solving standard tasks, and gross errors occurred	The minimum acceptable level of knowledge, many minor errors have been made	The level of knowledge corresponds to the training program, several minor errors have been made	Skills were demonstrated in solving non-standard tasks without errors and flaws	Independent work, tests, colloquium. Course work

PC-1 ID-4 To be able to perform a clinical examination of animals, using common methods: examination, palpation, percussion, auscultation and thermometry.	Basic skills were not demonstrated in solving standard tasks, and gross errors occurred	Basic skills have been demonstrated, typical problems have been solved with minor errors, all tasks have been completed, but not in full	All the basic skills have been demonstrated, all the main tasks have been solved with minor errors, all the tasks have been completed in full, but some with flaws	All basic skills have been demonstrated, all main tasks have been solved with some minor flaws, all tasks have been completed in full	Independent work, tests, colloquium. Course work
PC-1 ID-5 To be able to establish a preliminary diagnosis based on anamnesis analysis and clinical research, using general methods.	When solving standard problems basic skills were not demonstrated, gross errors occurred	There is a minimum set of skills to solve standard tasks with some shortcomings	When solving standard problems basic skills were not demonstrated with some flaws	Skills were demonstrated in solving non-standard tasks without errors and flaws	Independent work, tests, colloquium. Course work
PC-1 ID-6 To know the method of collecting animals anamnesis of life and disease.	When solving standard problems basic skills were not demonstrated, gross errors occurred	Basic skills have been demonstrated, typical problems have been solved with minor errors, all tasks have been completed, but not in full	All the basic skills have been demonstrated, all the main tasks have been solved with minor errors, all the tasks have been completed in full, but some with flaws	All basic skills have been demonstrated, all main tasks have been solved with some minor flaws, all tasks have been completed in full	Independent work, tests, colloquium. Course work

PC-1 ID-7 To know the factors of animal life that contribute to the occurrence of infectious and non-infectious diseases.	When solving standard problems it is not basic skills demonstrated, there were rough errors	There is a minimum set of skills to solve standard tasks with some shortcomings	When solving standard problems basic skills were not demonstrated with some flaws	Skills were demonstrated in solving non-standard tasks without errors and flaws	Independent work, tests, colloquium. Course work
PC-1 ID-8 To know the forms and rules for filling out the journal for the registration of sick animals and the animal's medical history, including in electronic form in accordance with the requirements of veterinary rules.	When solving standard problems it is not basic skills demonstrated, there were rough errors	There is a minimum set of skills to solve standard tasks with some shortcomings	When solving standard problems basic skills were not demonstrated with some flaws	All basic skills have been demonstrated, all main tasks have been solved with some minor flaws, all tasks have been completed in full	Independent work, tests, colloquium. Course work
PC-1 ID-9 To know the methods of animals' fixation during clinical examination.	When solving standard problems it is not basic skills demonstrated, there were rough errors	There is a minimum set of skills to solve standard tasks with some shortcomings	When solving standard problems basic skills were not demonstrated with some flaws	Skills were demonstrated in solving non-standard tasks without errors and flaws	Independent work, tests, colloquium. Course work
PC-1 ID-10 To know the technique of conducting an animal clinical study, using general methods, in accordance with the guidelines, instructions, rules for the diagnosis, prevention and treatment of animals.	When solving standard problems it is not basic skills demonstrated, there were rough errors	There is a minimum set of skills to solve standard tasks with some shortcomings	When solving standard problems basic skills were not demonstrated with some flaws	All basic skills have been demonstrated, all main tasks have been solved with some minor flaws, all tasks have been completed in full	Independent work, tests, colloquium. Course work

PC-2. Development of an animal research program and conduction of clinical study, using special (instrumental) and laboratory methods to clarify the diagnosis.					
PC-2 ID-1 To be able to study animals, using digital equipment and special (instrumental) methods, including endoscopy, probing, catheterization, radiography, electro cardiography, echography	Basic skills were not demonstrated in solving standard tasks, and gross errors occurred	Basic skills have been demonstrated, typical problems have been solved with minor errors, all tasks have been completed, but not in full	All the basic skills have been demonstrated, all the main tasks have been solved with minor errors, all the tasks have been completed in full, but some with flaws	All basic skills have been demonstrated, all main tasks have been solved with some minor flaws, all tasks have been completed in full	Independent work, tests, colloquium.
PC-2 ID-2 To be able to interpret and analyze data from special (instrumental) animal research methods to verify the diagnosis.	Basic skills were not demonstrated in solving standard tasks, and gross errors occurred	Basic skills have been demonstrated, typical problems have been solved with minor errors, all tasks have been completed, but not in full	All the basic skills have been demonstrated, all the main tasks have been solved with minor errors, all the tasks have been completed in full, but some with flaws	All basic skills have been demonstrated, all main tasks have been solved with some minor flaws, all tasks have been completed in full	Independent work, tests, colloquium. Course work
PC-2 ID-3 To be able to determine the reaction of the cardiovascular system of animals to various loads by the method of functional tests.	Basic skills were not demonstrated in solving standard tasks, and gross errors occurred	Basic skills have been demonstrated, typical problems have been solved with minor errors, all tasks have been completed, but not in full	All the basic skills have been demonstrated, all the main tasks have been solved with minor errors, all the tasks have been completed in full, but some with flaws	All basic skills have been demonstrated, all main tasks have been solved with some minor flaws, all tasks have been completed in full	Independent work, tests, colloquium. Course work
PC-2 ID-4 To be able to take samples of animal biological material for laboratory	Basic skills were not demonstrated in	Basic skills have been demonstrated,	All the basic skills have been	All basic skills have been demonstrated, all	Independent work, tests, colloquium. Course work

research.	solving standard tasks, and gross errors occurred	typical problems have been solved with minor errors, all tasks have been completed, but not in full	demonstrated, all the main tasks have been solved with minor errors, all the tasks have been completed in full, but some with flaws	main tasks have been solved with some minor flaws, all tasks have been completed in full	
PC-2 ID-5 To be able to perform analytical preparation, storage of the studied biological material, transportation to the laboratory	Basic skills were not demonstrated in solving standard tasks, and gross errors occurred	Basic skills have been demonstrated, typical problems have been solved with minor errors, all tasks have been completed, but not in full	All the basic skills have been demonstrated, all the main tasks have been solved with minor errors, all the tasks have been completed in full, but some with flaws	All basic skills have been demonstrated, all main tasks have been solved with some minor flaws, all tasks have been completed in full	Independent work, tests, colloquium. Course work
PC-2 ID-6 To be able to interpret and analyze data from laboratory animal research methods for diagnosis.	The level of knowledge is below the minimum requirements, gross errors have occurred	The minimum acceptable level of knowledge, many minor errors have been made	The level of knowledge corresponds to the training program, several minor errors have been made	The level of knowledge corresponds to the training program, no errors have been made	Independent work, tests, colloquium. Course work
PC-2 ID-7 To know the indication for the use of digital equipment, special (instrumental) and laboratory methods of animal research in accordance with the guidelines, instructions, rules for the diagnosis, prevention and treatment of animals	The level of knowledge is below the minimum requirements, gross errors have occurred	The minimum acceptable level of knowledge, many minor errors have been made	The level of knowledge corresponds to the training program, several minor errors have been made	The level of knowledge corresponds to the training program, no errors have been made	Independent work, tests, colloquium. Course work

PC-2 ID-8 To know the safe rules of operation with digital equipment, tools and equipment, used in special (instrumental) animal studies, including X-ray examinations.	The level of knowledge is below the minimum requirements, gross errors have occurred	The minimum acceptable level of knowledge, many minor errors have been made	The level of knowledge corresponds to the training program, several minor errors have been made	All basic skills have been demonstrated, all main tasks have been solved with some minor flaws, all tasks have been completed in full	Independent work, tests, colloquium. Course work
PC-2 ID-9To possess skills of the technique of the animal study, using digital equipment and special (instrumental) methods in accordance with methodological guidelines, instructions, rules for the diagnosis, prevention and treatment of animals.	The level of knowledge is below the minimum requirements, gross errors have occurred	The minimum acceptable level of knowledge, many minor errors have been made	The level of knowledge corresponds to the training program, several minor errors have been made	The level of knowledge corresponds to the training program, no errors have been made	Independent work, tests, colloquium. Course work
PC-2 ID-10 To know the methods and techniques of administration diagnostic and radiopaque substances for the animal.	The level of knowledge is below the minimum requirements, gross errors have occurred	The minimum acceptable level of knowledge, many minor errors have been made	The level of knowledge corresponds to the training program, several minor errors have been made	The level of knowledge corresponds to the training program, no errors have been made	Independent work, tests, colloquium. Course work
PC-2 ID-11 To possess skills of the technique of setting functional tests for animals.	The level of knowledge is below the minimum requirements, gross errors have occurred	The minimum acceptable level of knowledge, many minor errors have been made	The level of knowledge corresponds to the training program, several minor errors have been made	The level of knowledge corresponds to the training program, no errors have been made	Independent work, tests, colloquium. Course work

PC-2 ID-12 To know the methodology of sampling and analytical fullfilment of biological material samples for execution of laboratory analyses in accordance with the instructions and methodological documents, regulating the sampling of biological material	The level of knowledge is below the minimum requirements, gross errors have occurred	The minimum acceptable level of knowledge, many minor errors have been made	The level of knowledge corresponds to the training program, several minor errors have been made	The level of knowledge corresponds to the training program, no errors have been made	Independent work, tests, colloquium. Course work
PC-12. Organization of the preventive clinical studies of animals, control of the veterinary and sanitary conditions and microclimate of livestock premises in accordance with the plan of antiepizootic measures, plan of the prevention of non-contagious animal diseases. plan of veterinary and sanitary measures					
PC-12 ID-4 To be able to carry out clinical studies of animals, using digital technologies as part of the implementation of action plans for the prevention of animal diseases	The level of knowledge is below the minimum requirements, gross errors have occurred	The minimum acceptable level of knowledge, many minor errors have been made	The level of knowledge corresponds to the training program, several minor errors have been made	The level of knowledge corresponds to the training program, no errors have been made	Independent work, tests, colloquium. Course work

3. A LIST OF CONTROL TASKS AND OTHER MATERIALS, NECESSARY FOR THE ASSESSMENT OF KNOWLEDGE, SKILLS AND WORK EXPERIENCE

3.1. Typical tasks for the current control of academic progress

3.2. Questions for colloquia

3.2.1. For the section "General diagnostics"

GPC-1 Is able to determine the biological status, normal clinical signs of organs and systems of the animal body.
GPC-1 ID-1 To know: safety precautions and personal hygiene rules during the examination of animals, methods of its fixation; schemes of clinical examination of an animal and the procedure for examination individual body systems; methodology for diagnosis of the pathological process
GPC-1 ID-2 To be able to: collect and analyze anamnesis data, conduct laboratory and functional studies, necessary to determine the animal biological status.
GPC-1 ID-3 To possess practical skills: for conducting on its own a clinical examination of an animal, using classical research methods and digital technologies.
PC-1. Anamnesis of animal life and disease to identify the cause of disease, conduct a general clinical study of animals in order to establish a preliminary diagnosis and determine the ongoing research program
PC-1 ID-1To be able to collect and analyze information about the origin and purpose of animals, the method and conditions of husbandary, feeding (anamnesis of animal life), including use of sensor devices, mechanisms, sensors, tags, etc.
PC-1 ID-2 To be able to collect and analyze information about the occurrence and manifestation of animals diseases, previously transmitted diseases, epizootological conditions (anamnesis of animal disease), with the use of sensor devices, mechanisms, sensors, tags, etc.
PC-1 ID-3 To be able to fix animals to ensure safety during a clinical trial
PC-1 ID-4 To be able to perform a clinical examination of animals, using common methods: examination, palpation, percussion, auscultation and thermometry.

1. General examination of the animal (list methods, describe in detail the examination of mucous membranes).
2. External palpation, its types.
3. Percussion, its types.
4. Changes in mucous membranes in various pathologies.
5. Palpation, its types
6. Skin research (research methods, physiological properties, describe in detail the study of moisture in different animal species)
7. Inspection. Classification and plan for describing pathological changes identified during examination.
8. Habitus. Describe in detail the study of physique and temperament.
9. Approach to animals, methods of restraining large animals (cattle and horses)
10. Determination of elasticity and odor of the skin, their changes in pathologies.
11. Methods of restraining small animals (sheep, goats, dogs, cats, rabbits and chickens)
12. Study of lymph nodes in different species of animals (what indicators are determined).
13. Auscultation, its types.
14. Study of mucous membranes (main indicators determined during the study).
15. Clinical trial plan

6. Habitus. Describe in detail the study of fatness and type of constitution.
17. Preliminary acquaintance with the sick animal (registration, anamnesis).
18. Study of body position in space, changes in pathologies.
19. Thermometry. Body temperature indicators in different animal species.
20. Study of lymph nodes in cattle (characterize each pair of lymph nodes).
21. Skin examination. Describe in detail the study of coat, temperature and skin color, as well as their changes in pathologies.
22. Percussion sounds.
23. Main indicators determined by palpation and their changes.
24. Pathological changes in the skin (list and give a brief description).
25. Working conditions in the clinic, basic requirements, rules of approach to animals.
26. Changes in body position in space, forced movements.

3.2.2. For the section "Research of the cardiovascular system"

GPC-1 Is able to determine the biological status, normal clinical signs of organs and systems of the animal body.
GPC-1 ID-1 To know: safety precautions and personal hygiene rules during the examination of animals, methods of its fixation; schemes of clinical examination of an animal and the procedure for examination individual body systems; methodology for diagnosis of the pathological process
GPC-1 ID-2 To be able to: collect and analyze anamnesis data, conduct laboratory and functional studies, necessary to determine the animal biological status.
GPC-1 ID-3 To possess practical skills: for conducting on its own a clinical examination of an animal, using classical research methods and digital technologies.
PC-1. Anamnesis of animal life and disease to identify the cause of disease, conduct a general clinical study of animals in order to establish a preliminary diagnosis and determine the ongoing research program
PC-1 ID-1To be able to collect and analyze information about the origin and purpose of animals, the method and conditions of husbandary, feeding (anamnesis of animal life), including use of sensor devices, mechanisms, sensors, tags, etc.
PC-1 ID-2 To be able to collect and analyze information about the occurrence and manifestation of animals diseases, previously transmitted diseases, epizootological conditions (anamnesis of animal disease), with the use of sensor devices, mechanisms, sensors, tags, etc.
PC-1 ID-3 To be able to fix animals to ensure safety during a clinical trial
PC-1 ID-4 To be able to perform a clinical examination of animals, using common methods: examination, palpation, percussion, auscultation and thermometry.
PC-1 ID-5 To be able to establish a preliminary diagnosis based on anamnesis analysis and clinical research, using general methods.
PC-1 ID-6 To know the method of collecting animals anamnesis of life and disease.
PC-1 ID-8 To know the forms and rules for filling out the journal for the registration of sick animals and the animal's medical history, including in electronic form in accordance with the requirements of veterinary rules.
PC-1 ID-10 To know the technique of conducting an animal clinical study, using general methods, in accordance with the guidelines, instructions, rules for the diagnosis, prevention and treatment of animals.
PC-2. Development of an animal research program and conduction of clinical study, using special (instrumental) and laboratory methods to clarify the diagnosis.
PC-2 ID-1 To be able to study animals, using digital equipment and special (instrumental) methods, including endoscopy, probing, catheterization, radiography, electro cardiography, echography
PC-2 ID-10 To know the methods and techniques of administration diagnostic and radiopaque substances for the animal.
PC-2 ID-11 To possess skills of the technique of setting functional tests for animals.

1. Study of the cardiac impulse in horses and dogs. The concept of cardiac impulse, research methods, main indicators determined during the study.
2. Weakening of heart sounds.
3. Characteristics of the pulse according to the degree of tension.
4. Study of cardiac impulse in cattle and pigs.

5. The concept of cardiac impulse, research methods, main indicators determined by palpation.
6. Increased heart sounds.
7. Study of arterial pulse in horses. Topography of the studied arteries, and the main indicators determined during the study.
8. Percussion of the cardiac region in cattle and pigs. Purpose, methodology and boundaries of the heart.
9. Split heart sounds.
10. Characteristics of the pulse according to the degree of filling.
11. Percussion of the heart region in horses. Purpose, technique, boundaries of the heart determined by percussion.
12. Extracardiac murmurs. Classification and their characteristics.
13. Characteristics of the pulse by the nature (shape) of the pulse wave.
14. Percussion of the heart area in dogs. Purpose, boundaries of the heart, sounds established by percussion.
15. Research plan for the cardiovascular system.
16. Cardiac murmurs, their classification.
17. Pathological changes during percussion of the heart area (changes in boundaries and percussion sound).
18. Auscultation of the heart in horses. Purpose, puncta optima.
19. The main indicators that are used when interpreting the ECG.
20. Endocardial murmurs. Their classification, characteristics. The main pathological conditions in which they are detected.
21. ECG, methodology.
22. Vein examination. Basic research methods. Vein congestion.
23. Change in cardiac impulse (position, strength, area of distribution, etc.).
24. Positive venous pulse. Characteristics, determination technique, causes of occurrence.
25. Vectorcardiography. Concept of the method, purpose of use.
26. Phonocardiography. Concept of the method. Characteristics of tones. Clinical significance.
27. Auscultation of the heart in pigs and dogs.
28. Venous pressure measurement. Measurement technique, its changes in pathologies.
29. Blood pressure measurement. Methodology. Basic standards for various animal species.
30. ECG in healthy animals. Characteristics of teeth and intervals.
31. False venous pulse (venous undulation). Characteristics, detection technique, reasons for its occurrence.
32. Percussion of the heart area in small cattle (target, borders of the heart).
33. Origin of heart sounds.
34. Study of arterial pulse in cattle. Topography of the studied vessels, indicators determined during pulse examination.
35. Pulse rate in various species of animals. Changes in heart rate in various diseases.
36. Change in P wave, PQ interval, Q wave.
37. Negative venous pulse. Characteristics, determination technique.

38. Study of arterial pulse in small cattle, pigs, dogs and cats. Topography of the studied vessels, indicators determined during the study. Characteristics of pulse by rhythm.
39. Changes in the R wave, ST interval and T wave.
40. Changes in blood pressure in various pathologies.
41. The concept of a normogram. Pravogramma, levogramma, characteristics and clinical significance. 42. Functional heart murmurs. Classification, reasons for their occurrence.
43. Study of venous pulse. Research methods. Classification of venous pulse.
44. Functional methods for studying the cardiovascular system.
45. Splitting and bifurcation of heart sounds
46. Characteristics of the arterial pulse based on the magnitude of the pulse wave.
47. Give a scheme for studying the cardiovascular system.
48. Describe the topography of the heart in horses and cattle.
49. How and for what purpose is the cardiac region examined? What is the normal state of this area, what changes can occur with pathology and with what diseases in particular?
50. What are the purposes of palpation of the cardiac region, what do they pay attention to? Describe the cardiac impulse in healthy animals and indicate its possible changes in pathology.
51. What changes in the properties of the cardiac impulse can occur in pathology, what are the causes of these changes and in what diseases are they observed?
52. What is the purpose of percussion of the cardiac region? Name the boundaries of the heart in healthy horses and cattle and their possible deviations in pathology.
53. What changes in the boundaries of the heart occur in pathology? What are the causes of these changes and in what diseases are they observed?
54. What percussion sounds are found in the cardiac region in horses and cattle normally, what is this connected with, and what changes can occur in pathology?
55. What changes in normal percussion sounds in the cardiac region in horses and cattle can occur in pathology, what are the reasons for the formation of these sounds and in what diseases are they observed?
56. What properties of heart sounds are paid attention to when listening to the heart: what are these properties in healthy animals and what changes can occur in pathology?
57. What is the strength of heart sounds in healthy animals and what changes can occur in pathology??
58. How should one listen to the heart to determine the strength of both heart sounds and one of them? What changes in the strength of these sounds occur? In what cases, after cardiac auscultation, is a change in the strength of one or another heart sound noted? In what diseases are these changes in the strength of heart sounds observed, and what is the reason for this?
59. What are the disturbances in the continuity of heart sounds (express this in syllables)? What are the causes of these disturbances, and in what diseases are they observed?

60. What is the clarity of heart sounds in healthy animals? What changes in this clarity occur in pathology, and in what diseases in particular are they observed?
61. What is the meaning of the expression: homogeneous and heterogeneous heart sounds (explain this using musical sounds). What is the homogeneity of heart sounds in healthy animals: what disturbances in this homogeneity occur in pathology?
62. Draw a diagram of the structure of the heart and label all its sections, valves, and openings.
63. Classify heart murmurs.
64. Name the 8 simple heart defects.
65. In which vessels is the pulse examined in different animal species?
66. What pulse characteristics are examined?
67. What is meant by pulse quality?
68. Where and how is the venous pulse examined?
69. What functional tests are used in examining the cardiovascular system?

3.2.3. For the section "Study of the respiratory system"

GPC-1 Is able to determine the biological status, normal clinical signs of organs and systems of the animal body.
GPC-1 ID-1 To know: safety precautions and personal hygiene rules during the examination of animals, methods of its fixation; schemes of clinical examination of an animal and the procedure for examination individual body systems; methodology for diagnosis of the pathological process
GPC-1 ID-2 To be able to: collect and analyze anamnesis data, conduct laboratory and functional studies, necessary to determine the animal biological status.
GPC-1 ID-3 To possess practical skills: for conducting on its own a clinical examination of an animal, using classical research methods and digital technologies.
PC-1. Anamnesis of animal life and disease to identify the cause of disease, conduct a general clinical study of animals in order to establish a preliminary diagnosis and determine the ongoing research program
PC-1 ID-1To be able to collect and analyze information about the origin and purpose of animals, the method and conditions of husbandary, feeding (anamnesis of animal life), including use of sensor devices, mechanisms, sensors, tags, etc.
PC-1 ID-3 To be able to fix animals to ensure safety during a clinical trial
PC-1 ID-4 To be able to perform a clinical examination of animals, using common methods: examination, palpation, percussion, auscultation and thermometry
PC-1 ID-5 To be able to establish a preliminary diagnosis based on anamnesis analysis and clinical research, using general methods.
PC-1 ID-8 To know the forms and rules for filling out the journal for the registration of sick animals and the animal's medical history, including in electronic form in accordance with the requirements of veterinary rules.
PC-1 ID-10 To know the technique of conducting an animal clinical study, using general methods, in accordance with the guidelines, instructions, rules for the diagnosis, prevention and treatment of animals.
PC-2 ID-7 To know the indication for the use of digital equipment, special (instrumental) and laboratory methods of animal research in accordance with the guidelines, instructions, rules for the diagnosis, prevention and treatment of animals
PC-1 ID-8 To know the forms and rules for filling out the journal for the registration of sick animals and the animal's medical history, including in electronic form in accordance with the requirements of veterinary rules.
PC-1 ID-10 To know the technique of conducting an animal clinical study, using general methods, in accordance with the guidelines, instructions, rules for the diagnosis, prevention and treatment of animals.
1. Study plan of the anterior respiratory system.
2. Study of exhaled air (main indicators determined during the study and their changes in pathology). 3. Topographic percussion of the lungs in large and small cattle (purpose, technique, posterior border of the lungs).

4. Study of nasal discharge, their characteristics in healthy animals, and their changes in pathology
5. Topographic percussion of the lungs in horses, dogs and pigs (purpose, technique, posterior border of the lungs).
6. Study of the nasal openings and nasal mucosa (their changes in pathology).
7. Comparative percussion (technique). Changes in the boundaries of the lungs due to pathology.
8. Study of the paranasal sinuses and air sacs in monoungulates (topography, research methods).
9. Auscultation of the lungs (purpose, technique in various animals).
10. Examination of the larynx and trachea.
11. Basic breathing sounds during auscultation of the lungs. Their characteristics in different animal species.
12. Examination of cough, thyroid gland and sputum.
13. Change in percussion sound in pathology
14. Indicators determined during examination of the chest.
15. Study of respiratory rate (its change in pathology).
16. Changes in vesicular respiration in pathology.
17. Dyspnea, their characteristics, clinical significance.
18. Extrapulmonary noises.
19. Respiratory arrhythmias. Their classification, clinical significance.
20. Functional methods for studying the respiratory system.
21. Shape of the chest, its changes in pathology. Palpation of the chest.
22. Results of chest percussion in cattle.
23. Results of chest percussion in horses and pigs.
24. Results of chest percussion in carnivores.
25. Results of percussion and auscultation in lobar pneumonia.
26. Bronchopulmonary murmurs (their classification and clinical significance).
27. Plegafony (purpose and technique).
28. Type of breathing, strength and symmetry of breathing movements. Their changes in pathology. 29. Results of percussion and auscultation for pleurisy.
30. Graphic methods for studying the respiratory system.
31. Results of percussion and auscultation for pleurisy.
32. Test puncture of the chest (purpose and technique).
33. Results of percussion and auscultation in bronchopneumonia.

3.2.4. For the section "Study of the digestive system"

GPC-1 Is able to determine the biological status, normal clinical signs of organs and systems of the animal body.

GPC-1 ID-1 To know: safety precautions and personal hygiene rules during the examination of animals, methods of its fixation; schemes of clinical examination of an animal and the procedure for examination individual body systems; methodology for diagnosis of the pathological process

GPC-1 ID-2 To be able to: collect and analyze anamnesis data, conduct laboratory and functional studies, necessary to determine the animal biological status.
GPC-1 ID-3 To possess practical skills: for conducting on its own a clinical examination of an animal, using classical research methods and digital technologies.
PC-1. Anamnesis of animal life and disease to identify the cause of disease, conduct a general clinical study of animals in order to establish a preliminary diagnosis and determine the ongoing research program
PC-1 ID-1To be able to collect and analyze information about the origin and purpose of animals, the method and conditions of husbandary, feeding (anamnesis of animal life), including use of sensor devices, mechanisms, sensors, tags, etc.
PC-1 ID-2 To be able to collect and analyze information about the occurrence and manifestation of animals diseases, previously transmitted diseases, epizootological conditions (anamnesis of animal disease), with the use of sensor devices, mechanisms, sensors, tags, etc.
PC-1 ID-3 To be able to fix animals to ensure safety during a clinical trial
PC-1 ID-4 To be able to perform a clinical examination of animals, using common methods: examination, palpation, percussion, auscultation and thermometry.
PC-1 ID-5 To be able to establish a preliminary diagnosis based on anamnesis analysis and clinical research, using general methods.
PC-1 ID-6 To know the method of collecting animals anamnesis of life and disease.
PC-1 ID-7 To know the factors of animal life that contribute to the occurrence of infectious and non-infectious diseases.
PC-1 ID-8 To know the forms and rules for filling out the journal for the registration of sick animals and the animal's medical history, including in electronic form in accordance with the requirements of veterinary rules.
PC-1 ID-9 To know the methods of animals' fixation during clinical examination.
PC-1 ID-10 To know the technique of conducting an animal clinical study, using general methods, in accordance with the guidelines, instructions, rules for the diagnosis, prevention and treatment of animals.
PC-2. Development of an animal research program and conduction of clinical study, using special (instrumental) and laboratory methods to clarify the diagnosis.
PC-2 ID-1 To be able to study animals, using digital equipment and special (instrumental) methods, including endoscopy, probing, catheterization, radiography, electro cardiography, echography
PC-2 ID-2 To be able to interpret and analyze data from special (instrumental) animal research methods to verify the diagnosis.
PC-2 ID-3 To be able to determine the reaction of the cardiovascular system of animals to various loads by the method of functional tests.
PC-2 ID-4 To be able to take samples of animal biological material for laboratory research.
PC-2 ID-5 To be able to perform analytical preparation, storage of the studied biological material, transportation to the laboratory
PC-2 ID-6 To be able to interpret and analyze data from laboratory animal research methods for diagnosis.
PC-2 ID-7 To know the indication for the use of digital equipment, special (instrumental) and laboratory methods of animal research in accordance with the guidelines, instructions, rules for the diagnosis, prevention and treatment of animals
PC-2 ID-8 To know the safe rules of operation with digital equipment, tools and equipment, used in special (instrumental) animal studies, including X-ray examinations.
PC-2 ID-9To possess skills of the technique of the animal study, using digital equipment and special (instrumental) methods in accordance with methodological guidelines, instructions, rules for the diagnosis, prevention and treatment of animals.
PC-2 ID-10 To know the methods and techniques of administration diagnostic and radiopaque substances for the animal.
PC-2 ID-11 To possess skills of the technique of setting functional tests for animals.
PC-2 ID-12 To know the methodology of sampling and analytical fullfilment of biological material samples for execution of laboratory analyses in accordance with the instructions and methodological documents, regulating the sampling of biological material
PC-12. Organization of the preventive clinical studies of animals, control of the veterinary and sanitary conditions and microclimate of livestock premises in accordance with the plan of antiepizootic measures, plan of the prevention of non-contagious animal diseases. plan of veterinary and sanitary measures
PC-12 ID-4 To be able to carry out clinical studies of animals, using digital technologies as part of the implementation of action plans for the prevention of animal diseases
1. Study of the scar. Topography, research methods.
2. The smell, consistency, shape of feces in healthy animals, their changes in pathology.
3. Grid study. Topography, tests for traumatic reticulitis.
4. Chewing disorder.
5. Study of the book. Topography, basic research methods (auscultation, palpation, percussion, inspection).
6. Study of appetite. Appetite disorder in various pathologies.

7. Study of chewing, swallowing, and their disorders in various pathologies.
8. Book puncture. The purpose of the technique.
9. Study of abomasum. Topography, general research methods, probing techniques
10. Determination of the digestive ability of gastric juice pepsin. Clinical significance
11. Examination of the esophagus. Topography, research methods. Probing (purpose, technique in different animals).
12. Laboratory examination of gastric juice (list). Definition of gastric leukopedesis (describe).
13. Study of the stomach in different species of animals. Topography, basic research methods.
14. Determination of stool pH, stool color in healthy animals, changes in diseases.
15. Abdominal examination.
16. Macroscopic examination of feces (study of physical properties: color, smell, quantity, consistency, shape, impurities)
17. Study of the intestines in cattle. Topography, basic research methods.
18. Obtaining gastric juice from horses using the method of A.M. Smirnov.
19. Examination of the oral cavity (mucous membrane, teeth, tongue and gums).
20. Technique of opening the mouth in different species of animals.
21. Taking stool samples and laboratory testing (list the main studies).
22. Examination of the pharynx. Topography, research methods (external and internal examination). 23. Determination of bilirubin in blood serum. Method, clinical significance.
24. Chemical examination of feces (determination of pH, occult blood, protein, bile pigments). Clinical significance.
25. Study of the liver in cattle. Topography, research by general methods.
26. Microscopic examination of stool. Clinical significance.
27. Study of the spleen in horses and cattle. Topography, basic research methods
28. Pigment metabolism.
29. Examination of the intestines in horses and dogs. Topography. Basic research methods.
30. Study of appetite, its changes?
31. Examination of the stomach in monogastric animals?
32. Thirst and its assessment?
33. Liver examination?
34. Examination of the oral cavity?
35. Abomasum examination?
36. Evaluation of the act of eating food?
37. Grid Study?
38. Study of the intestines in different animal species?
39. Rectal examination in cattle?

40. Rectal examination in horses?
41. Examination of the esophagus?
42. Examination of the pharynx?
43. Book research?
44. Research on chewing gum?
45. Study of the act of defecation?
46. Burp Researchers?
47. Assessing rumination?
48. Assessment of vomiting?
49. Examination of the stomach in monogastric patients?
50. Examination of the pharynx?
51. Study of the intestines and bowel movements?
52. Features of liver examination in horses?
53. Appetite as a sign of gastrointestinal pathology?
54. What is the cause of traumatic reticulitis?
55. Signs characteristic of inflammation of the pharynx?
56. Signs characteristic of dental damage?
57. Technique for gastric probing in monogastric patients?
58. Signs characterizing pharyngeal blockage?
59. Study of the proventriculus in polygastric animals?
60. What is a ruminogram?
61. Method of performing abdomenocentesis in animals

3.2.5. For the section "Examination of the urinary and nervous systems"

GPC-1 Is able to determine the biological status, normal clinical signs of organs and systems of the animal body.

GPC-1 ID-1 To know: safety precautions and personal hygiene rules during the examination of animals, methods of its fixation; schemes of clinical examination of an animal and the procedure for examination individual body systems; methodology for diagnosis of the pathological process

GPC-1 ID-2 To be able to: collect and analyze anamnesis data, conduct laboratory and functional studies, necessary to determine the animal biological status.

GPC-1 ID-3 To possess practical skills: for conducting on its own a clinical examination of an animal, using classical research methods and digital technologies.

PC-1. Anamnesis of animal life and disease to identify the cause of disease, conduct a general clinical study of animals in order to establish a preliminary diagnosis and determine the ongoing research program

PC-1 ID-1To be able to collect and analyze information about the origin and purpose of animals, the method and conditions of husbandary, feeding (anamnesis of animal life), including use of sensor devices, mechanisms, sensors, tags, etc.

PC-1 ID-2 To be able to collect and analyze information about the occurrence and manifestation of animals diseases, previously transmitted diseases, epizootological conditions (anamnesis of animal disease), with the use of sensor devices, mechanisms, sensors, tags, etc.

PC-1 ID-3 To be able to fix animals to ensure safety during a clinical trial

PC-1 ID-4 To be able to perform a clinical examination of animals, using common methods: examination, palpation, percussion, auscultation and thermometry.

PC-1 ID-5 To be able to establish a preliminary diagnosis based on anamnesis analysis and clinical research, using general methods.
PC-1 ID-6 To know the method of collecting animals anamnesis of life and disease.
PC-1 ID-7 To know the factors of animal life that contribute to the occurrence of infectious and non-infectious diseases.
PC-1 ID-8 To know the forms and rules for filling out the journal for the registration of sick animals and the animal's medical history, including in electronic form in accordance with the requirements of veterinary rules.
PC-1 ID-9 To know the methods of animals' fixation during clinical examination.
PC-1 ID-10 To know the technique of conducting an animal clinical study, using general methods, in accordance with the guidelines, instructions, rules for the diagnosis, prevention and treatment of animals.

PC-2. Development of an animal research program and conduction of clinical study, using special (instrumental) and laboratory methods to clarify the diagnosis.

PC-2 ID-1 To be able to study animals, using digital equipment and special (instrumental) methods, including endoscopy, probing, catheterization, radiography, electro cardiography, echography
PC-2 ID-2 To be able to interpret and analyze data from special (instrumental) animal research methods to verify the diagnosis.
PC-2 ID-3 To be able to determine the reaction of the cardiovascular system of animals to various loads by the method of functional tests.
PC-2 ID-4 To be able to take samples of animal biological material for laboratory research.
PC-2 ID-5 To be able to perform analytical preparation, storage of the studied biological material, transportation to the laboratory
PC-2 ID-6 To be able to interpret and analyze data from laboratory animal research methods for diagnosis.
PC-2 ID-7 To know the indication for the use of digital equipment, special (instrumental) and laboratory methods of animal research in accordance with the guidelines, instructions, rules for the diagnosis, prevention and treatment of animals
PC-2 ID-8 To know the safe rules of operation with digital equipment, tools and equipment, used in special (instrumental) animal studies, including X-ray examinations.
PC-2 ID-9To possess skills of the technique of the animal study, using digital equipment and special (instrumental) methods in accordance with methodological guidelines, instructions, rules for the diagnosis, prevention and treatment of animals.
PC-2 ID-10 To know the methods and techniques of administration diagnostic and radiopaque substances for the animal.
PC-2 ID-11 To possess skills of the technique of setting functional tests for animals.
PC-2 ID-12 To know the methodology of sampling and analytical fullfilment of biological material samples for execution of laboratory analyses in accordance with the instructions and methodological documents, regulating the sampling of biological material

1. Microscopy of urine sediment (organized).
2. Examination of deep sensitivity and deep reflexes.
3. Paralysis. Classification and characteristics.
4. Chemical analysis of urine (list the parameters determined, describe in detail the examination of bile pigments and ketone bodies, and their clinical significance).
5. Changes in the spinal column in various diseases.
6. Microscopy of unorganized urine sediment.
7. Dyspnea in various pathologies.
8. Examination of superficial sensitivity. List its types and describe in detail the examination of pain and tactile sensitivity.
9. Changes in sensitivity.
10. Changes in the physical properties of urine in various pathologies.
11. Examination of the visual organs. Methods and procedure for examination.
12. Examination of the kidneys in small animals. Renal topography in dogs, pigs, and sheep. Basic examination methods.
13. Study of animal behavior and its changes in various pathologies.
14. Study of the kidneys in cattle. Topography, research methods.

15. Study of hearing, smell, taste and their changes in various diseases.
16. Hyperkinesis (convulsions). Classification and their characteristics. Main diseases associated with convulsions.
17. Determination of protein in urine and its clinical significance.
18. Study of the physical properties of urine.
19. Study of the motor system. Main indicators characterizing its condition.
20. Changes in the eyelids, eyeball, and pupillary response to light in various diseases.
21. Determination of sugar in urine. Clinical significance.
22. Study of reflexes. Classification. Describe superficial reflexes in detail.
23. Determination of ketone bodies and urine pH. Clinical significance.
24. Examination of the autonomic nervous system (pharmacological and reflex methods).
25. Changes in daily urine output (polyuria, oliguria, anuria) in various pathologies.
26. Obtaining urine from different animal species. Methods for obtaining preserved urine.
27. Examination of cerebrospinal fluid (CSF).
28. Examination of the skull and spinal column. Basic examination methods.
29. Determination of blood pigments and bilirubin in urine. Clinical significance.

3.3. Coursework Topics

Coursework Topics for Competency Assessment

GPC-1 Is able to determine the biological status, normal clinical signs of organs and systems of the animal body.
GPC-1 ID-1 To know: safety precautions and personal hygiene rules during the examination of animals, methods of its fixation; schemes of clinical examination of an animal and the procedure for examination individual body systems; methodology for diagnosis of the pathological process
GPC-1 ID-2 To be able to: collect and analyze anamnesis data, conduct laboratory and functional studies, necessary to determine the animal biological status.
GPC-1 ID-3 To possess practical skills: for conducting on its own a clinical examination of an animal, using classical research methods and digital technologies.
PC-1. Anamnesis of animal life and disease to identify the cause of disease, conduct a general clinical study of animals in order to establish a preliminary diagnosis and determine the ongoing research program
PC-1 ID-1To be able to collect and analyze information about the origin and purpose of animals, the method and conditions of husbandary, feeding (anamnesis of animal life), including use of sensor devices, mechanisms, sensors, tags, etc.
PC-1 ID-2 To be able to collect and analyze information about the occurrence and manifestation of animals diseases, previously transmitted diseases, epizootological conditions (anamnesis of animal disease), with the use of sensor devices, mechanisms, sensors, tags, etc.
PC-1 ID-3 To be able to fix animals to ensure safety during a clinical trial
PC-1 ID-4 To be able to perform a clinical examination of animals, using common methods: examination, palpation, percussion, auscultation and thermometry.
PC-1 ID-5 To be able to establish a preliminary diagnosis based on anamnesis analysis and clinical research, using general methods.
PC-1 ID-6 To know the method of collecting animals anamnesis of life and disease.
PC-1 ID-7 To know the factors of animal life that contribute to the occurrence of infectious and non-infectious diseases.

Sample list of coursework assignments

1. Clinical study of an animal (cow).
2. Clinical study of an animal (horse).

3. Clinical study of an animal (sheep).
4. Clinical study of an animal (pig).
5. Clinical study of an animal (goat).
6. Clinical study of an animal (dog).
7. Clinical study of an animal (cat).
8. Clinical study of an animal (rabbit).

3.4. Tests

GPC-1 Is able to determine the biological status, normal clinical signs of organs and systems of the animal body.
Competency Indicators:
GPC-1 ID-1 To know: safety precautions and personal hygiene rules during the examination of animals, methods of its fixation; schemes of clinical examination of an animal and the procedure for examination individual body systems; methodology for diagnosis of the pathological process.
GPC-1 ID-2 To be able to: collect and analyze anamnesis data, conduct laboratory and functional studies, necessary to determine the animal biological status.
GPC-1 ID-3 To possess practical skills: for conducting on its own a clinical examination of an animal, using classical research methods and digital technologies.

CLOSED-CASE TASKS

Combined-type tasks with multiple-choice selection

GPC-1 ID-1 To know: safety precautions and personal hygiene rules during the examination of animals, methods of its fixation; schemes of clinical examination of an animal and the procedure for examination individual body systems; methodology for diagnosis of the pathological process.

Task 1.

Read the text and choose the correct answer.

Harms forceps are used for:
1. nasal septum fixation.
2. knee fold fixation.
3. fetal extraction from the birth canal.
4. castration of stallions.

Answer: 1

Task 2.

Read the text and choose the correct answer.

A muzzle is used to secure the head of:
1. cats.
2. dogs.
3. rabbits.

4. guinea pigs.
Answer: 2

Task 3.

Read the text and choose the correct answer.

Habits are:
1. an animal's appearance.
2. an animal's character.
3. the condition of its skin.
4. its medical history.
Answer: 1

Task 4.

Read the text and choose the correct answers.

The maxillary sinuses are accessible for examination in:
1. Rabbits.
2. Large dogs.
3. Large cats.
4. All animals.
Answer: 2, 3

Task 5.

Read the text and choose the correct answers.

Which parts of the thyroid gland should be examined?
1. Wings
2. Isthmus
3. Lobes
4. Head
Answer: 2, 3

Closed-ended assignments for establishing compliance

GPC-1 ID-2 To be able to: collect and analyze anamnesis data, conduct laboratory and functional studies, necessary to determine the animal biological status.

Task 6.

Read the text and match.

Match the research methods with the necessary instruments: for each position in the first column, select the corresponding position from the second column.

Methods	**Инструменты**

A	Percussion	1	Maximum thermometer
B	Auscultation	2	Laryngoscope
C	Measuring body temperature	3	Phonendoscope
D	Examination of the larynx	4	Plessimeter

Write the selected numbers in the table under the corresponding letters.

A	B	C	D

Answer: A4B3C1D2.

Task 7.

Read the text and match the words.

Match the terms: for each position in the first column, match the corresponding position in the second column.

Terms		**Terms**	
A	papule	1	tubercle
B	vesicle	2	pustule
C	pustule	3	bubble
D	tuberculosis	4	Knot

Write the selected numbers in the table under the corresponding letters.

A	B	C	D

Ответ: A4B3C2D1.

Task 8.

Read the text and match.

Match the animal species with its normal body temperature: for each position in the first column, match the corresponding position in the second column.

Animal species		**Body temperature**	
A	Cat	1	32,1 – 38,1
B	Rabbit	2	37,5 – 39,0
C	Dog	3	38,0 – 39,5
D	Rat	4	37,5–39,5

Write the selected numbers in the table under the corresponding letters.

A	B	C	D

Answer: A3B4C2D1.

Task 9.

Read the text and match.

Match the term and its definition: for each position in the first column, match the corresponding position in the second column:

	Terms		Definition
A	Ataxia	1	Drooping of the upper eyelid
B	Tetanus	2	Tonic muscle cramps of the whole body
C	Paralysis	3	Impaired coordination of movement
D	Ptosis	4	Complete loss of sensation and ability to move

Write the selected numbers in the table under the corresponding letters.

A	B	C	D

Answer: A3B2C4D1.

Task 10.

Read the text and match the words.

Match the syndrome with its clinical manifestations. For each word in the left column, match it with the word in the right column.

	Syndromes		Manifestation
A	Jaundice	1	Pollakiuria, isuria, stranguria
B	Acute heart failure	2	Ictericity, skin itching, nervous system disorder
C	Diarrhoeal syndrome	3	Cyanosis, tachycardia, pulmonary edema
D	Bladder Syndrome	4	Exicosis, diarrhea, increased peristalsis

Write the selected numbers in the table under the corresponding letters.

A	B	C	D

Answer: A2B3C4D1.

Closed-ended tasks to establish a sequence

GPC-1 ID-3 To possess practical skills: for conducting on its own a clinical examination of an animal, using classical research methods and digital technologies.

Task 11.

Read the text and establish a sequence.

Arrange the stages of the clinical examination of the animal in the correct sequence. Write down the numbers in the correct order.

1. additional (laboratory and instrumental);
2. general (habit, visible mucous membranes, skin, lymph nodes, thermometry);
3. registration.

4. special (study of body systems);
5. anamnesis.

Answer:3,5,2,4,1

Task 12.

Read the text and establish a sequence.

Arrange the stages of fibrinous pneumonia in chronological order. Write down the numbers in the correct sequence of its stages.

1. active hyperemia.
2. permissions.
3. gray hepatization.
4. red hepatitis.

Answer: 1,4,3,2

Task 12.

Read the text and establish a sequence.

Arrange the stages of fibrinous pneumonia in chronological order. Write down the numbers in the correct sequence of its stages.

1. active hyperemia.
2. permissions.
3. gray hepatization.
4. red hepatitis.

Answer: 1,4,3,2

Task 14.

Read the text and establish a sequence.

Arrange the actions in chronological sequence when performing comparative chest percussion. Indicate the numbers of correct answers in chronological order:

1. upper third of the chest.
2. the middle third of the chest.
3. lower third of the chest.

Answer: 2,1,3

Task 15.

Read the text and establish a sequence.

Arrange the occurrence of the components of the first heart sound in chronological order. Indicate the numbers of correct answers in chronological order:

1. The sound of the atrioventricular valve leaflets slamming shut.
2. the sound of vibration of the walls of the aorta and pulmonary artery in systole.

3. The sound of contraction of the atrial muscles.
4. The sound of ventricular muscle contraction.

Answer: 3,4,1,2

OPEN-ENDED JOB

Task 16.

Read the text of the task and write down a detailed reasoned answer.

List what physiological properties of the visible mucous membranes are determined during a general examination of the animal.

Answer: color, moisture, overlaps, swelling, integrity. Normally, visible mucous membranes should be pale pink, without swelling, intact, of moderate moisture - shiny, without overlaps.

Task 17.

Read the text of the task and write down a detailed reasoned answer.

Give a detailed answer on how skin color can change in various pathologies of the body.

Answer: pallor or anemia – in various forms of anemia (blood loss, hemolysis, impaired hemoglobin synthesis); cyanosis or cyanosis – in heart failure, respiratory failure; jaundice or ictericity – with jaundice (mechanical or obturation, hemolytic, parenchymatous), redness of two types: hyperemic – with inflammatory processes, due to increased arterial blood flow; hemorrhagic – in hemorrhages.

Task 18.

Read the text and write down a detailed reasoned answer.

Give a complete description of the technique for studying proprioceptive sensitivity, including deep pain sensitivity.

Answer: To assess deep sensitivity, an uncomfortable posture is created for the animal – the limb is moved as far to the side as possible, the limbs are placed crosswise, pushed while moving, and held along an inclined surface. During these manipulations, the coordination of the actions of the muscles is assessed, the animal quickly takes a comfortable position. With impaired sensitivity, the animal remains standing in an uncomfortable position, falls over, and loses coordination of movements. Deep pain sensitivity is tested by strong compression of bones or tendons, while the animal must show a painful reaction, give a sound signal - vocalization, or show aggression. In the absence of deep pain sensitivity, the animal does not pay attention to manipulations.

Task 19.

Read the text and give a detailed reasoned answer

List pathological changes in vesicular respiration.

Answer: Weakened vesicular breathing occurs with thickening of the chest wall, alveolar emphysema, the presence of fluid in the pleural cavity, narrowing of the airways. Increased vesicular breathing is observed with a thin chest wall, with damage to the respiratory center, accompanied by a sharper, shorter breath (hyperventilation). Hard vesicular breathing is heard on inhalation and exhalation in bronchitis, bronchial asthma (bronchial constriction). Variegated vesicular respiration is accompanied by listening to both physiological vesicular respiration and its pathological types over the lungs.

Task 20.

Read the text and write down a detailed reasoned answer.

List the main clinical signs of a blockage of the bile duct in a dog.

Answer: lethargy (apathy), decreased appetite, ictericity of the mucous membranes, discoloration of feces.

PC-1. Anamnesis of animal life and disease to identify the cause of disease, conduct a general clinical study of animals in order to establish a preliminary diagnosis and determine the ongoing research program.

Competency indicators:

PC-1 ID-1To be able to collect and analyze information about the origin and purpose of animals, the method and conditions of husbandary, feeding (anamnesis of animal life), including use of sensor devices, mechanisms, sensors, tags, etc.

PC-1 ID-2 To be able to collect and analyze information about the occurrence and manifestation of animals diseases, previously transmitted diseases, epizootological conditions (anamnesis of animal disease), with the use of sensor devices, mechanisms, sensors, tags, etc.

PC-1 ID-3 To be able to fix animals to ensure safety during a clinical trial.

PC-1 ID-4 To be able to perform a clinical examination of animals, using common methods: examination, palpation, percussion, auscultation and thermometry.

PC-1 ID-5 To be able to establish a preliminary diagnosis based on anamnesis analysis and clinical research, using general methods.

PC-1 ID-6 To know the method of collecting animals anamnesis of life and disease.

PC-1 ID-8 To know the forms and rules for filling out the journal for the registration of sick animals and the animal's medical history, including in electronic form in accordance with the requirements of veterinary rules.

PC-1 ID-10 To know the technique of conducting an animal clinical study, using general methods, in accordance with the guidelines, instructions, rules for the diagnosis, prevention and treatment of animals.

CLOSED QUESTS

Combined tasks with a choice of one/more correct answers from the proposed options

PC-1 ID-1To be able to collect and analyze information about the origin and purpose of animals, the method and conditions of husbandary, feeding (anamnesis of animal life), including use of sensor devices, mechanisms, sensors, tags, etc.

Task 1.

Read the text and choose the correct answer.

Pronounced jaundice of the mucous membranes is noted with:

1. acute hepatitis.
2. volvulus.
3. pyelonephritis.
4. chronic alveolar pulmonary emphysema.

Answer: 1

Task 2.

Read the text and choose the correct answer.

Hyperpyretic fever is manifested by the following sign:

1. Body temperature is 0.5°C higher than normal.
2. Body temperature is 2.1°C higher than normal.

3. Body temperature is 1.1°C higher than normal.
4. Body temperature is 3.1°C higher than normal.
Answer: 4

PC-1 ID-2 To be able to collect and analyze information about the occurrence and manifestation of animals diseases, previously transmitted diseases, epizootological conditions (anamnesis of animal disease), with the use of sensor devices, mechanisms, sensors, tags, etc.

Task 3.

Read the text and choose the correct answer.

To diagnose heart defects, the following research method is used:
1. percussion.
2. auscultation.
3. inspection.
4. palpation.
Answer: 2

Task 4.

Read the text and choose the correct answers.

A pounding heart impulse is noted in dogs with:
1. physical overload.
2. acute myocarditis.
3. myocardial dystrophy.
4. cardiomegaly.
Answer: 1, 2

PC-1 ID-3 To be able to fix animals to ensure safety during a clinical trial.

Task 5.

Read the text and choose the correct answers.

Tonic cramps include:
1. tetanus.
2. teak.
3. trismus;
4. convulsions.
Answer: 1, 3

Closed Matching Jobs

Task 6.

Read the text and establish a match.

Establish a correspondence between the types of pathological breath sounds and their diagnostic features: for each position of the first column, select the corresponding position from the second column.

Breath sounds		**Features**	
A	Crepitus	1	It is heard mainly on exhalation
B	Pathological bronchial respiration	2	Listened to on inhalation
C	Crepitus wheezing	3	It is heard on inhalation and exhalation
D	Wet wheezing	4	Heard over the area of vesicular respiration

Write the selected numbers in the table under the corresponding letters.

A	B	C	D

Answer: A2B4C1D3.

PC-1 ID-4 To be able to perform a clinical examination of animals, using common methods: examination, palpation, percussion, auscultation and thermometry.

Task 7.

Read the text and establish a match.

Match the terms to their definitions: for each position in the first column, select the corresponding position from the second column

Terms		**Definition**	
A	Trismus	1	Clonic contractions of individual muscle groups
B	Crump	2	Tonic contractions of the muscles of the limbs
C	Tremor	3	Clonic contractions of the muscles of the head and limbs
D	Teak	4	Tonic contractions of the masticatory muscles

Write the selected numbers in the table under the corresponding letters.

A	B	C	D

Answer: A4B2C3D1.

Task 8.

Read the text and establish a match.

Establish a correspondence between the main method of research and the method of its implementation: for each position of the first column, select the corresponding position from the second column.

Research method		**Method of implementation**	
A	Inspection	1	Palpation, tactile analyzer
B	Palpation	2	Listening, auditory analyzer

C	Percussion	3	Visualization with the Visual Analyzer
D	Auscultation	4	Making a sound by tapping a part of the body

Write the selected numbers in the table under the corresponding letters.

A	B	C	D

Answer: A3B1C4D2.

PC-1 ID-5 To be able to establish a preliminary diagnosis based on anamnesis analysis and clinical research, using general methods.

Task 9.

Read the text and establish a match.

Establish a correspondence between the type of palpation and the method of its implementation: for each position of the first column, select the corresponding position from the second column:

	Type of palpation		Method of implementation
A	Bimanual	1	It is performed with a fist or palm
B	Candidate	2	It is performed with straight fingers, which are placed perpendicular to the organ under study
C	Penetrating	3	It is performed with sliding movements of the fingertips.
D	Surface	4	It is done with two hands

Write the selected numbers in the table under the corresponding letters.

A	B	C	D

Answer: A4B1C2D3.

Task 10.

Read the text and establish a match.

Establish a correspondence between the types of skin edema and their etiological factors. For each position given in the left column, select the corresponding position from the right column.

Type of edema		Etiological factors	
A	Cachexial edema	1	Kidney pathologies
B	Congestive edema	2	Heart pathologies
C	Nephrotic edema	3	Lack of protein in the body (hypoproteinemia)
D	Collateral edema	4	Inflammation of deep-lying tissues or organs

Write the selected numbers in the table under the corresponding letters.

A	B	C	D

Answer: A3B2C1D4.

PC-1 ID-8 To know the forms and rules for filling out the journal for the registration of sick animals and the animal's medical history, including in electronic form in accordance with the requirements of veterinary rules.

Closed-type sequencing tasks

Task 11.

Read the text and establish a sequence.

Arrange in the correct sequence the areas of the excitation impulse passage through the conduction system of the heart. Write down the numbers in the correct order.

1. purkinje fibers.
2. bundle of His.
3. atrioventricular node.
4. sinus node.
5. bundle legs.

Answer:4,3,2,5,1

Task 12.

Read the text and establish a sequence.

Arrange the stages of depression of the central nervous system in the correct sequence in the order of weight. Write down the numbers in the correct sequence of its stages.

1. coma.
2. stupor.
3. apathy.
4. sopor.

Answer: 3,2,4,1

PC-1 ID-5 To be able to establish a preliminary diagnosis based on anamnesis analysis and clinical research, using general methods.

Task 13.

Read the text and establish a sequence.

Arrange in chronological sequence the actions during the plegaphony. Write down the numbers in the correct order.

1. analysis of the result.
2. collection of anamneses.
3. auscultation and percussion.
4. tracheal percussion.

Answer: 2,3,4,1

Task 14.

Read the text and establish a sequence.

Arrange in chronological sequence the actions when conducting a functional test with water load. Indicate the numbers of correct answers in chronological order:

1. Accounting for diuresis.
2. Collection of anamneses.
3. Oral administration of water at a dose of 100 ml/kg of body weight.
4. Weighing the animal.

Answer: 2.4.3.1

ID-8PK-1 Know the forms and rules for filling out the register for registration of sick animals and the animal's medical history, including electronic form in accordance with the requirements of veterinary reporting.

Task 15.

Read the text and establish a sequence.

Indicate the sequence of types of nasal discharge in the order of aggravation of the pathological process. Indicate the numbers of correct answers in chronological order:

1. purulent.
2. serous.
3. mucous membranes.
4. gangrenous.

Answer: 2.3,1,4

OPEN-ENDED JOB

Task 16.

Read the text of the task and write down a detailed reasoned answer.

List the main groups of causes of acute kidney failure in dogs and cats. Write down a detailed reasoned answer.

Answer: prerenal (associated with impaired blood flow to the kidneys); renal (associated with impaired filtration in the vascular glomeruli of the kidneys); postrenal (associated with impaired outflow of urine from the renal pelvis).

ID-9PK-1 Know the methods of fixing animals during their clinical examination.

Task 17.

Read the text of the task and write down a detailed reasoned answer.

List which breathing sounds are classified as basic (physiological). Write down a detailed reasoned answer.

Answer: laryngeal breathing, tracheal breathing, physiological bronchial breathing, vesicular (alveolar) breathing.

Task 18.

Read the text and write down a detailed reasoned answer.

List which points of best audibility of the valves (*puncta optima*) are listened to during the examination of the heart.

Answer: bicuspid valve, tricuspid valve, semilunar valve of the aorta, semilunar valve of the pulmonary artery.

PC-1 ID-10 To know the technique of conducting an animal clinical study, using general methods, in accordance with the guidelines, instructions. rules for the diagnosis, prevention and treatment of animals.

Task 19.

Read the text and give a detailed reasoned answer

List the possible types of percussion sounds established during percussion of organs.

Answer: clear pulmonary, blunt, blunt, tympanic, box, the sound of a cracked pot, metallic.

Task 20.

Read the text and write down a detailed reasoned answer.

List the condition of which organs are evaluated in dogs when examining the anterior part of the respiratory system, Answer: nasal cavity, paranasal sinuses, larynx, trachea.

PC-2. Development of an animal research program and conduction of clinical study, using special (instrumental) and laboratory methods to clarify the diagnosis.

Competency indicators:

PC-2 ID-1 To be able to study animals, using digital equipment and special (instrumental) methods, including endoscopy, probing, catheterization, radiography, electro cardiography, echography.

PC-2 ID-2 To be able to interpret and analyze data from special (instrumental) animal research methods to verify the diagnosis.

PC-2 ID-3 To be able to determine the reaction of the cardiovascular system of animals to various loads by the method of functional tests.

PC-2 ID-4 To be able to take samples of animal biological material for laboratory research.

PC-2 ID-5 To be able to perform analytical preparation, storage of the studied biological material, transportation to the laboratory.

PC-2 ID-6 To be able to interpret and analyze data from laboratory animal research methods for diagnosis.

PC-2 ID-7 To know the indication for the use of digital equipment, special (instrumental) and laboratory methods of animal research in accordance with the guidelines, instructions, rules for the diagnosis, prevention and treatment of animals.

PC-2 ID-8 To know the safe rules of operation with digital equipment, tools and equipment, used in special (instrumental) animal studies, including X-ray examinations.

PC-2 ID-9To possess skills of the technique of the animal study, using digital equipment and special (instrumental) methods in accordance with methodological guidelines, instructions, rules for the diagnosis, prevention and treatment of animals.

PC-2 ID-10 To know the methods and techniques of administration diagnostic and radiopaque substances for the animal.

PC-2 ID-11 To possess skills of the technique of setting functional tests for animals.

PC-2 ID-12 To know the methodology of sampling and analytical fullfilment of biological material samples for execution of laboratory analyses in accordance with the instructions and methodological documents, regulating the sampling of biological material.

CLOSED QUESTS

Combined tasks with a choice of one correct/several answers from the proposed options

PC-2 ID-1 To be able to study animals, using digital equipment and special (instrumental) methods, including endoscopy, probing, catheterization, radiography, electro cardiography, echography.

Task 1.

Read the text and choose the correct answer.

Cessation of breathing is:

1. dyspnea.
2. polypnea.
3. allotriophagy;
4. apnea.

Answer: 4

Task 2.

Read the text and choose the correct answer.

Bulimia is:

1. perversion of appetite.
2. eating feces.
3. gluttony.
4. refusal to feed.

Answer: 3

PC-2 ID-2 To be able to interpret and analyze data from special (instrumental) animal research methods to verify the diagnosis.

Task 3.

Read the text and choose the correct answer.

Kidneys in cats are examined:

1. palpation.
2. inspection.
3. percussion.
4. auscultation.

Answer: 1

Task 4.

Read the text and choose the correct answers.

Variants of curvature of the spinal column include:

1. kyphosis.
2. lordosis.
3. scoliosis.

4. arthrosis.
Answer: 1. 2, 3

PC-2 ID-3 To be able to determine the reaction of the cardiovascular system of animals to various loads by the method of functional tests.

Task 5.

Read the text and choose the correct answers.

Surface reflexes include:
1. Cough
2. Knee
3. Sneezing
4. Anal
Answer: 1, 3, 4

Closed Matching Jobs

PC-2 ID-4 To be able to take samples of animal biological material for laboratory research.

Task 6.

Read the text and establish a match.

Match the terms and their definitions: for each position in the first column, select the corresponding position from the second column.

Terms		**Definitions**	
A	Pollakiuria	1	Incontinence
B	Stranguria	2	Urinary retention in the bladder
C	Ishuria	3	Painful urination
D	Enuresis	4	Frequent urination during the day

Write the selected numbers in the table under the corresponding letters.

A	B	C	D

Ответ: A4B3C2D1

PC-2 ID-5 To be able to perform analytical preparation, storage of the studied biological material, transportation to the laboratory.

Task 7.

Read the text and establish a match.

Establish a correspondence between the type of animal and its respiratory rate in the norm: for each position of the first column, select the corresponding position from the second column.

Animal species		**Respiratory rate**	
A	Cat	1	50-60
B	Guinea pig	2	100 – 150

C	Dog	3	14 – 24
D	Rabbit	4	20–30

Write the selected numbers in the table under the corresponding letters.

A	B	C	D

Ответ: A4B3C2D1.

PC-2 ID-6 To be able to interpret and analyze data from laboratory animal research methods for diagnosis.

Task 8.

Read the text and establish a match.

Establish a correspondence between the type of physiological breathing sounds and the area of their hearing in cattle: for each position of the first column, select the corresponding position from the second column.

Breath sounds		**Listening Area**	
A	Laryngeal breathing	1	Над трахеей
B	Tracheal breathing	2	In the area of the first three intercostals
C	Physiological bronchial respiration	3	Over most of the percussive triangle of the lungs
D	Vesicular respiration	4	Above the larynx

Write the selected numbers in the table under the corresponding letters.

A	B	C	D

Answer: A4B1C2D3

PC-2 ID-7 To know the indication for the use of digital equipment, special (instrumental) and laboratory methods of animal research in accordance with the guidelines, instructions, rules for the diagnosis, prevention and treatment of animals.

Task 9.

Read the text and establish a match.

Establish a correspondence between the clinical sign and the etiological factor: for each position of the first column, select the corresponding position from the second column:

	Clinical signs		**Etiological factors**
A	Hyperemia	1	Local acute inflammatory process
B	Cyanosis	2	Obstructive jaundice
C	Anemia	3	Venous congestion in the great circulation
D	Ictericity	4	Blood loss

Write the selected numbers in the table under the corresponding letters.

A	B	C	D

Answer: A1B3C4D2.

Task 10.

Read the text and establish a match.

Establish a correspondence between the species of animal and its normal arterial pulse rate. For each position given in the left column, select the corresponding position from the right column.

Animal species		Pulse Rate	
A	Cat	1	110 – 130
B	Rat	2	120 – 200
C	Dog	3	70 - 120
D	Rabbit	4	260–600

Write the selected numbers in the table under the corresponding letters.

A	B	C	D

Answer: A1B4C3D2.

Closed-type sequencing tasks

PC-2 ID-8 To know the safe rules of operation with digital equipment, tools and equipment, used in special (instrumental) animal studies, including X-ray examinations.

Task 11.

Read the text and establish a sequence.

Arrange in the correct sequence the degree of fatness of the animal as the adipose tissue increases. Write down the numbers in the correct order.

1. obesity.
2. satisfactory.
3. good;
4. cachexia;

Answer: 4,2,3,1

Task 12.

Read the text and establish a sequence.

Arrange the results of auscultation of the lungs in chronological order as fibrinous pneumonia develops. Write down the numbers in the correct sequence of its stages.

1. hard vesicular breathing.
2. wheezing.
3. absence of vesicular breathing.
4. crepitus.

Answer: 1,4,2,3

PC-2 ID-9To possess skills of the technique of the animal study, using digital equipment and special (instrumental) methods in accordance with methodological guidelines, instructions, rules for the diagnosis, prevention and treatment of animals.

Task 13.

Read the text and establish a sequence.

Arrange in chronological sequence the order of clinical examination of the urinary system in dogs and cats. Write down the numbers in the correct order.

1. Bladder examination.
2. Examination of the act of urination.
3. Examination of the urethra.
4. Examination of the kidneys.

Answer: 2,4,1,3

PC-2 ID-10 To know the methods and techniques of administration diagnostic and radiopaque substances for the animal.

Task 14.

Read the text and establish a sequence.

Arrange the results of pulmonary percussion in chronological order as fibrinous pneumonia develops. Indicate the numbers of correct answers in chronological order:

1. dull sound.
2. tympanic sound.
3. dull sound.

Answer: 2,3,1

Task 15.

Read the text and establish a sequence.

Arrange in chronological sequence the order of actions for the examination of superficial lymph nodes in animals. Indicate the numbers of correct answers in chronological order:

1. biopsy.
2. inspection.
3. palpation.
4. collection of anamneses.

Answer: 4,2,3,1

OPEN-ENDED JOB

PC-2 ID-11 To possess skills of the technique of setting functional tests for animals.

Task 16.

Read the text of the task and write down a detailed reasoned answer.

List the main pathologies that can lead to isuria in dogs and cats.

Answer: blockage of the urethra by concrements, spasm of the sphincter of the bladder, obturation of the urethra by a neoplasm, compression of the urethra by an enlarged prostate gland (in males)

Task 17.

Read the text of the task and write down a detailed reasoned answer.

List the physiological indicators of the skin determined during the general examination of the animal.

Answer: condition of the coat, color, elasticity, temperature, humidity, smell.

PC-2 ID-12 To know the methodology of sampling and analytical fullfilment of biological material samples for execution of laboratory analyses in accordance with the instructions and methodological documents, regulating the sampling of biological material.

Task 18.

Read the text and write down a detailed reasoned answer.

List which visible mucous membranes are to be examined.

Answer: conjunctiva, mucous membrane of the mouth, nose, vagina.

Task 19.

Read the text and give a detailed reasoned answer

Indicate the criteria by which the animal's fatness is assessed.

Answer: Pay attention to bony protrusions (shoulder blades, ribs, spinous processes of the vertebrae, maculae, ischial tubercles) and the degree of development of subcutaneous adipose tissue.

Task 20.

Read the text and write down a detailed reasoned answer.

List what characteristics are determined during the examination of superficial lymph nodes.

Answer: size, shape, consistency, nature of the surface, soreness, local temperature.

PC-12. Organization of the preventive clinical studies of animals, control of the veterinary and sanitary conditions and microclimate of livestock premises in accordance with the plan of antiepizootic measures, plan of the prevention of non-contagious animal diseases. plan of veterinary and sanitary measures.

PC-12 ID-4 To be able to carry out clinical studies of animals, using digital technologies as part of the implementation of action plans for the prevention of animal diseases.

CLOSED QUESTS

Combined tasks with a choice of one/more correct answers from the proposed options

PC-12 ID-4 To be able to carry out clinical studies of animals, using digital technologies as part of the implementation of action plans for the prevention of animal diseases.

Task 1.

When conducting a clinical examination of an animal, indicate the correct sequence of physical research methods:

1. Palpation, examination, percussion, auscultation
2. Anamnesis, examination, palpation, auscultation, percussion

3. Examination, palpation, percussion, auscultation
4. Examination, auscultation, palpation, percussion

Answer: 3

Task 2.

When measuring a dog's body temperature over 41°C, fever is called:
1. Low-grade
2. Moderately elevated
3. High
4. Excessively high
5. Hyperpyretic

Answer: 5

Task 3.

Renal edema is characterized by:
1. Localization on only one limb
2. localization on the thoracic extremities, more in the evening
3. Manifest themselves mainly in the morning
4. Localization on the facial part of the skull
5. Localization only on the pelvic limbs

Answer: 3.4

Task 4.

Symptoms of acute bleeding in the stomach are:
1. vascular collapse.
2. vomiting the color of coffee grounds.
3. hypotension.
4. vomiting food eaten

Answer: 1,2,4

Task 5.

Read the text and choose the correct answers.

What refers to primary skin rashes:
1. Pustula
2. Rumen
3. Papule

4. Petechiae
5. Vesicle

Answer: 1.3,4,5

Closed Matching Jobs

Task 6.

Read the question and establish a match.

In palpation in sick animals, the registration of the consistency of a particular tissue is of diagnostic importance: Establish a correspondence between the results of palpation of a particular tissue; For each position of the first column, select the corresponding position from the second column.

Tissue or organ		**Palpation results**	
A	Frontal sinus (bony base)	1	Soft
B	Subcutaneous emphysema	2	Hard
C	Swelling of the dewlap	3	Dense
D	Lymph nodes	4	crepitating
F	Cervical part of the esophagus	5	Testovata

Write down the selected numbers under the corresponding letters in the table.

A	B	C	D	F

Answer: A2B4C5D3F1.

Task 7.

Read the question and establish a match.

In case of pulmonary percussion, which sound will correspond to which pathology: for each position of the first column, select the corresponding position from the second column.

Rumen and its parts		**Percussive sound**	
A	Box sound	1	An area of the lungs filled with exudate
B	Metallic sound	2	Emphysema of the lungs
C	Dull sound	3	Large cavity in the lungs
D	Dull sound	4	Large cavity connected to the bronchus
F	The sound of a cracked pot	5	Pulmonary edema

Write down the selected numbers under the corresponding letters in the table.

A	B	C	D	F

Answer: A2B3C1D5F4.

Task 8.

Read the question and establish a match.

During auscultation of lung tissue, it is possible to listen to various respiratory sounds in healthy and sick animals. Match: For each position in the first column, select the corresponding position from the second column.

Condition of lung tissue		Breath noise	
A	Healthy Animal	1	Dry low, bass, humming, buzzing crackles
B	The presence of exudate on the walls of the alveoli	2	Breathing is not heard
C	The presence of liquid secretion in the small bronchi and bronchioles	3	Vesicular respiration
D	Bronchitis	4	Crepitus
F	Atelectasis of the lobe of the lung	5	Fine-bubble wet crackles

Write down the selected numbers under the corresponding letters in the table.

A	B	C	D	F

Answer: A3B4C5D1F2.

Task 9.

Read the text and establish a match. When examining the quality of the pulse, its characteristics are determined

Map your heart rate properties to your heart rate characteristics:

	Pulse Quality		characteristic
A	filling	1	saltatorial
B	voltage	2	full
C	height	3	elastic
D	form	4	high

Write down the selected numbers under the corresponding letters:

A	B	C	D

Answer: A2B3C4D1.

Task 10.

Read the text and establish a match.

When examining the act of urination, changes in it may occur. Establish a correspondence between changes in the act of urination and animal diseases. For each position given in the left column, select the corresponding position from the right column.

Changes in the act of urination		Disease	
A	Pollakisuria	1	Acute jade
B	Anuria	2	Urolithiasis
C	Ishuria	3	Dyspepsia

D	Stranguria	4	Postpartum paresis
F	Oligokisuria	5	Cystitis

Write down the selected numbers under the corresponding letters in the table.

A	B	C	D	F

Answer: A5B1C4D2F3.

Closed-type sequencing tasks

Task 11.

Establish a sequence in the examination of the digestive system in animals.

1. Examination of the act of defecation.
2. Examination of the pharynx and esophagus.
3. Examination of the stomach.
4. Intestinal examination.
5. Liver examination.
6. Examination of the oral cavity
7. Feeding and drinking

Answer: 7,6,2,3,4,5,1

Task 12.

Establish the sequence of stages of medical examination in animals in terms of prevention of diseases of non-contagious etiology.

1. Prophylactic
2. Diagnostic
3. Healing
4. Organizational and economic

Answer: 2,3,1,4

Task 13.

Establish the stages of the urinary system examination plan in the correct sequence.

1. Examination of the urethra
2. Examination of the ureters
3. Urine test
4. Kidney examination
5. Bladder examination
6. Examination of the act of urination

Answer: 4,2,5,1,3,6

Task 14.

Establish the sequence of examination of the digestive system in dogs and cats.

1. Examination of the stomach.
2. Examination of the oral cavity,
3. Study of food intake and drinking.
4. Intestinal examination.
5. Examination of the act of defecation.

Answer: 3,2,1,4,5

Task 15.

Establish the sequence of conducting a general examination of animals

1. Examination of the visible mucous membranes
2. Superficial lymph node examination
3. Skin examination
4. Definition of habit
5. Thermometry

Answer: 4,1,3,2,5

OPEN-ENDED JOB

Task 16.

Give a detailed answer on the study of a dog with bronchopneumonia.

Answer: It is necessary to consider the data of examination, palpation, percussion and auscultation.

Task 17.

Justify the need for an endoscopic examination if gastric ulcer is suspected in carnivores. Give a detailed reasoned answer.

.Answer: Lack of appetite, the presence of frequent vomiting in the patient even for small portions of food, brown vomiting, pain on palpation of the stomach area.

Task 18.

Write down a detailed reasoned answer. In arrhythmia of what genesis, electrocardiography is indicated to make a final diagnosis.

Answer: Arrhythmias associated with impaired automaticity, arrhythmias associated with impaired myocardial excitability, arrhythmias associated with impaired impulse conduction.

Task 19.

Give a detailed reasoned answer. Describe the main characteristics of arterial pulse and its clinical significance.

Answer: Pulse rate (tachycardia, bradycardia), rhythm (arrhythmias), quality (filling, tension, pitch and character) are examined

Task 20.
Write down a detailed reasoned answer: On auscultation of the heart, the presystolic gallop rhythm is recorded. Explain the reason for this.
Answer: slowing of the passage of the impulse from the atria to the ventricles due to its delay in the atrioventricular node.

3.5. Standard assignments for midterm assessment

3.5.1. Test questions

GPC-1 Is able to determine the biological status, normal clinical signs of organs and systems of the animal body.
GPC-1 ID-1 To know: safety precautions and personal hygiene rules during the examination of animals, methods of its fixation; schemes of clinical examination of an animal and the procedure for examination individual body systems; methodology for diagnosis of the pathological process
GPC-1 ID-2 To be able to: collect and analyze anamnesis data, conduct laboratory and functional studies, necessary to determine the animal biological status.
GPC-1 ID-3 To possess practical skills: for conducting on its own a clinical examination of an animal, using classical research methods and digital technologies.
PC-1. Anamnesis of animal life and disease to identify the cause of disease, conduct a general clinical study of animals in order to establish a preliminary diagnosis and determine the ongoing research program
PC-1 ID-1To be able to collect and analyze information about the origin and purpose of animals, the method and conditions of husbandary, feeding (anamnesis of animal life), including use of sensor devices, mechanisms, sensors, tags, etc.
PC-1 ID-2 To be able to collect and analyze information about the occurrence and manifestation of animals diseases, previously transmitted diseases, epizootological conditions (anamnesis of animal disease), with the use of sensor devices, mechanisms, sensors, tags, etc.
PC-1 ID-3 To be able to fix animals to ensure safety during a clinical trial
PC-1 ID-4 To be able to perform a clinical examination of animals, using common methods: examination, palpation, percussion, auscultation and thermometry.

a) General Diagnostics

1. What is clinical diagnostics as a science? What does each word in its name mean?
2. What is the subject and method of clinical diagnostics as an academic discipline?
3. What does each element of clinical diagnostics study?
4. Name the main stages in the development of clinical diagnostics, from Hippocrates to the present day.
5. What types of diagnoses are used in clinical diagnostics?
6. Name the Russian scientists who have made the greatest contribution to the development of clinical diagnostics.
7. What are the achievements of each Russian scientist who has made the greatest contribution to the development of clinical diagnostics.
8. Provide a brief description of the current state (level of development) of clinical diagnostics. 9. What are the main directions for the further development of clinical diagnostics.
10. Why is clinical diagnostics, like all biological sciences, not precise?
11. What are the main types of work of a veterinarian in production?
12. What is recorded in the outpatient journal when registering animals?
13. What is the clinical significance of registering these animals?
14. Name at least three diseases common to animals of different species and ages.
15. What is anamnesis and what types of anamnesis are there?

16. What questions are asked of the animal owner when collecting anamnesis morbi?
17. What questions are asked of the animal owner when collecting anamnesis vitae?
18. What is the clinical significance of anamnesis?
19. What are the rules for a doctor's approach to animals?
20. What are the rules for a doctor's handling of animals?
21. What are the methods for restraining horses.
22. What are the methods for restraining cattle.
23. What are the methods for restraining small animals and birds.
24. Classify animal examination methods.
25. What are the general animal examination methods?
26. How should animals be properly examined, and what should be considered?
27. What is the clinical significance of examining an animal?
28. Classify animal palpation methods.
29. What should be considered during palpation using different methods?
30. What is the clinical significance of animal palpation?
31. What is animal percussion, and what are its purposes?
32. What are the rules for animal percussion?
33. Which animal organs are percussed?
34. What are the disadvantages of percussion as a method of animal examination?
35. What is the clinical significance of percussion?
36. What is animal auscultation: which organs are most often auscultated, and what is considered?
37. What are the rules for animal auscultation?
38. Describe (what they resemble, what is the sound intensity detected during auscultation) the heart, lungs, and gastrointestinal tract.
39. What is the clinical significance of animal auscultation as a method of animal examination? 40. What is thermometry and what are the different methods of animal thermometry?
41. What is the difference between a maximum mercury thermometer and what is the reason for this?
42. Indicate the body temperature of healthy horses, cattle, small cattle, pigs, and dogs.
43. What changes in body temperature occur and in what diseases?
44. Classify fevers by the degree of temperature increase and the duration of the pathological process.
45. What is the clinical significance of animal thermometry as a method of examination?

B). To the section "Respiratory system studies"

PC-1. Anamnesis of animal life and disease to identify the cause of disease, conduct a general clinical study of animals in order to establish a preliminary diagnosis and determine the ongoing research program

PC-1 ID-1To be able to collect and analyze information about the origin and purpose of animals, the method and conditions of husbandary, feeding (anamnesis of animal life), including use of sensor devices, mechanisms, sensors, tags, etc.
PC-1 ID-3 To be able to fix animals to ensure safety during a clinical trial
PC-1 ID-4 To be able to perform a clinical examination of animals, using common methods: examination, palpation, percussion, auscultation and thermometry.
PC-1 ID-5 To be able to establish a preliminary diagnosis based on anamnesis analysis and clinical research, using general methods.
PC-1 ID-7 To know the factors of animal life that contribute to the occurrence of infectious and non-infectious diseases.
PC-1 ID-8 To know the forms and rules for filling out the journal for the registration of sick animals and the animal's medical history, including in electronic form in accordance with the requirements of veterinary rules.
PC-1 ID-10 To know the technique of conducting an animal clinical study, using general methods, in accordance with the guidelines, instructions, rules for the diagnosis, prevention and treatment of animals.

1. Examination of the larynx and trachea?
2. Respiratory rhythm and the relationship between inspiratory and expiratory phases in animals? 3. Extrapulmonary breath sounds?
4. Percussion boundaries of the lungs in dogs?
5. Changes in percussion sound with comparative percussion?
6. Examination of the nasal mucosa in animals: normal and abnormal?
7. Cough and its characteristics. Classification?
8. Dyspnea and its types?
9. Palpation of the chest?
10. Examination of the paranasal sinuses?
11. Auscultation of the chest?
12. Comparative percussion?
13. Examination of the thyroid gland?
14. Breath sounds and their classification?
15. Percussion of the chest, upper boundary of the percussion field?
16. Types of breathing and their meaning?
17. Pathological changes in vesicular breathing?
18. Plegophony and its meaning?
19. Bronchopulmonary pathological breath sounds?
20. Inspection and palpation of the larynx and trachea?
21. Strength and symmetry of respiratory movements?
22. Cough and its meaning?
23. Chest shape and pathological changes?
24. Wheezing and its types?
25. Functional tests in the examination of the respiratory system?
26. Enlarged lung borders?
27. Plegophony and its meaning?

28. Decreased lung borders?
29. Respiratory arrhythmias?
30. Posterior border of the lungs in cattle?
31. Respiratory system examination plan.
32. Posterior lung border in small cattle.
33. Respiratory rate, influencing factors?
34. Posterior lung border in a camel?
35. Percussion boundaries of the lungs in a horse?
36. Examination of the paranasal sinuses?
37. Nasal discharge: normal and pathological?
38. Examination of the air sacs?
39. Measuring respiratory rate?
40. Examination of the upper respiratory tract?
41. Percussion boundaries of the lungs in a horse?
42. Decreased lung borders?
43. Evaluation of exhaled air?
44. Increased lung borders?
45. Breathing patterns, normal and pathological?
46. Comparative percussion?
47. Percussion boundaries of the lungs in a pig?
48. Wheezes: types and meaning?
49. Criteria for assessing the nostrils in animals?
50. Pathological breath sounds?

3.2.2. Exam questions

GPC-1 Is able to determine the biological status, normal clinical signs of organs and systems of the animal body.

GPC-1 ID-1 To know: safety precautions and personal hygiene rules during the examination of animals, methods of its fixation; schemes of clinical examination of an animal and the procedure for examination individual body systems; methodology for diagnosis of the pathological process

GPC-1 ID-2 To be able to: collect and analyze anamnesis data, conduct laboratory and functional studies, necessary to determine the animal biological status.

GPC-1 ID-3 To possess practical skills: for conducting on its own a clinical examination of an animal, using classical research methods and digital technologies.

PC-1. Anamnesis of animal life and disease to identify the cause of disease, conduct a general clinical study of animals in order to establish a preliminary diagnosis and determine the ongoing research program

PC-1 ID-1To be able to collect and analyze information about the origin and purpose of animals, the method and conditions of husbandary, feeding (anamnesis of animal life), including use of sensor devices, mechanisms, sensors, tags, etc.

PC-1 ID-2 To be able to collect and analyze information about the occurrence and manifestation of animals diseases, previously transmitted diseases, epizootological conditions (anamnesis of animal disease), with the use of sensor devices, mechanisms, sensors, tags, etc.
PC-1 ID-3 To be able to fix animals to ensure safety during a clinical trial
PC-1 ID-4 To be able to perform a clinical examination of animals, using common methods: examination, palpation, percussion, auscultation and thermometry.
PC-1 ID-5 To be able to establish a preliminary diagnosis based on anamnesis analysis and clinical research, using general methods.
PC-1 ID-6 To know the method of collecting animals anamnesis of life and disease.
PC-1 ID-7 To know the factors of animal life that contribute to the occurrence of infectious and non-infectious diseases.
PC-1 ID-8 To know the forms and rules for filling out the journal for the registration of sick animals and the animal's medical history, including in electronic form in accordance with the requirements of veterinary rules.
PC-1 ID-9 To know the methods of animals' fixation during clinical examination.
PC-1 ID-10 To know the technique of conducting an animal clinical study, using general methods, in accordance with the guidelines, instructions, rules for the diagnosis, prevention and treatment of animals.
PC-2. Development of an animal research program and conduction of clinical study, using special (instrumental) and laboratory methods to clarify the diagnosis.
PC-2 ID-1 To be able to study animals, using digital equipment and special (instrumental) methods, including endoscopy, probing, catheterization, radiography, electro cardiography, echography
PC-2 ID-2 To be able to interpret and analyze data from special (instrumental) animal research methods to verify the diagnosis.
PC-2 ID-3 To be able to determine the reaction of the cardiovascular system of animals to various loads by the method of functional tests.
PC-2 ID-4 To be able to take samples of animal biological material for laboratory research.
PC-2 ID-5 To be able to perform analytical preparation, storage of the studied biological material, transportation to the laboratory
PC-2 ID-6 To be able to interpret and analyze data from laboratory animal research methods for diagnosis.
PC-2 ID-7 To know the indication for the use of digital equipment, special (instrumental) and laboratory methods of animal research in accordance with the guidelines, instructions, rules for the diagnosis, prevention and treatment of animals
PC-2 ID-8 To know the safe rules of operation with digital equipment, tools and equipment, used in special (instrumental) animal studies, including X-ray examinations.
PC-2 ID-9To possess skills of the technique of the animal study, using digital equipment and special (instrumental) methods in accordance with methodological guidelines, instructions, rules for the diagnosis, prevention and treatment of animals.
PC-2 ID-10 To know the methods and techniques of administration diagnostic and radiopaque substances for the animal.
PC-2 ID-11 To possess skills of the technique of setting functional tests for animals.
PC-2 ID-12 To know the methodology of sampling and analytical fullfilment of biological material samples for execution of laboratory analyses in accordance with the instructions and methodological documents, regulating the sampling of biological material
PC-12. Organization of the preventive clinical studies of animals, control of the veterinary and sanitary conditions and microclimate of livestock premises in accordance with the plan of antiepizootic measures, plan of the prevention of non-contagious animal diseases. plan of veterinary and sanitary measures
PC-12 ID-4 To be able to carry out clinical studies of animals, using digital technologies as part of the implementation of action plans for the prevention of animal diseases

1. The history of clinical diagnostics and the role of domestic and foreign scientists in the development of this discipline.
2. Disease symptoms and their classification. The concept of syndromes. Semiotics.
3. The concept of diagnosis. Types of diagnosis.
4. The concept of prognosis.
5. General and special (instrumental and laboratory) research methods.
6. Clinical study plan.
7. Preliminary information about animals (registration, anamnesis).
8. Anamnesis and its importance in diagnosing animal diseases.
9. Habitus, its definition and importance in disease recognition.

10. Examination of visible mucous membranes (physiological properties, pathological changes). 11. Examination of the fur and hair coat in mammals, plumage in birds, skin, and subcutaneous tissue. Clinical significance.
12. Examination of superficial lymph nodes, clinical significance.
13. Thermometry. Body temperature ranges in healthy animals. Fevers. Stages of fever. Clinical significance. The concept of hyperthermia, hypothermia, and homeothermia.
14. Inspection and palpation of the cardiac region. Cardiac impulse (mechanism of formation, localization). Changes in cardiac impulse.
15. Cardiac percussion technique. Normal limits of cardiac dullness in different animal species and changes.
16. Cardiac auscultation, its types and technique. Systolic murmurs, their origin and properties. 17. Heart sounds, their origin and characteristics. Locations for auscultation of sounds in different animals.
18. Strengthening and weakening of heart sounds.
19. Prolongation, splitting, and bifurcation of heart sounds (tripartite rhythm).
20. Classification of heart murmurs.
21. Properties of heart murmurs (consistency, phase, puncta optima, intensity).
22. Characteristics of organic and functional heart murmurs.
23. Functional murmurs, their origin and properties.
24. Diastolic murmurs, their origin. Clinical significance.
25. Endocardial heart murmurs, their origin and properties.
26. Pericardial heart murmurs, their origin and properties.
27. Pleuropericardial heart murmurs, their origin and properties.
28. Auscultation and percussion findings in pericarditis.
29. Classification of cardiac arrhythmias. Methods for diagnosing cardiac rhythm disorders.
30. Heart rhythm disorders associated with impaired automaticity (respiratory arrhythmia, sinus arrhythmia, sinus tachycardia, sinus bradycardia). Diagnostic methods.
31. Heart rhythm disorders associated with impaired excitability (extrasystoles, paroxysmal tachycardia, atrial fibrillation). Diagnostic methods.
32. Heart rhythm disorders associated with impaired impulse conduction along the conduction system (sinoauricular block, bundle branch block). Diagnostic methods.
33. Heart rhythm disorders associated with impaired myocardial contractility (pulsus alternans). Diagnostic methods.
34. Study of arterial pulse in various animal species.
35. Pulse frequency, rhythm, and quality (intensity, volume, and character of the pulse wave). Clinical significance.
36. Determining arterial blood pressure and its changes (hypertension, hypotension).
37. Determining venous blood pressure and its changes.
38. Examination of peripheral veins and types of venous pulse.
39. Pathognomonic symptoms of heart defects.

40. Functional methods of examining the cardiovascular system and their significance. Domrachev's and Opperman-Sinev's running tests, and Sharabrin's breath-hold auscultation test. Determining blood flow velocity and ECG changes.
41. Circulatory Failure Syndrome
42. Heart Failure Syndrome
43. Compensatory and Decompensatory Processes in Circulatory Failure
44. Symptoms of Heart Failure
45. Acute Heart Failure Syndrome
46. Chronic Heart Failure Syndrome
47. Vascular Insufficiency Syndrome
48. Heart Defects
49. Pericardial Insufficiency Syndrome
50. Methods of Examining the Anterior Respiratory Tract
51. Examination of Nasal Discharge and Exhaled Air
52. Examination of the Nasal Cavity, Paranasal Cavities, and Air Sacs
53. Cough, Its Properties and Clinical Evaluation
54. Main Symptoms of Vascular Insufficiency and Its Diagnosis
55. Examination of the Larynx, Trachea, and Thyroid Gland
56. Determining the Shape, Volume, and Mobility of the Chest. Clinical Significance
57. Frequency, rhythm, strength, and symmetry of respiratory movements, their changes, and diagnostic significance.
58. The concept of dyspnea, its form, and clinical significance.
59. Respiratory rhythm disorders, diagnostic significance.
60. Classification of respiratory sounds.
61. Pathological breath sounds - bronchial and amphoric breathing, wheezing, crackling rales, crepitations, splashing sounds, gurgling sounds, pleural friction rubs, their origin and clinical evaluation.
62. Auscultation of the lungs, basic (physiological) breath sounds, their origin and changes - general and vicarious amplification, attenuation, absence.
63. Theory of the origin of respiratory sounds and their classification.
64. Accessory respiratory sounds - bronchial and amphoric, wheezing, crepitant wheezing, crepitation, splashing noise, gurgling noise, pleural friction rub, their origin and clinical evaluation.
65. Palpation and percussion of the chest. Types of percussion. Theory of the origin of percussion sound.
66. Data from chest examination in pulmonary emphysema.
67. Sound during percussion of the lungs and the boundaries of the percussion field of the lungs in different animal species, percussion technique by area.
68. Diagnostic value of changes in pulmonary percussion sound (dull, dull, tympanic, box-like, cracked pot, with a metallic tint).

69. Respiratory diseases accompanied by changes in percussion sound on the chest.
70. Changes in percussion sound in pleurisy.
71. Changes in percussion sound in pneumonia.
72. Changes in lung boundaries in pathological processes in the lungs.
73. Changes in percussion sound in pulmonary emphysema.
74. Clinical examination data of the lungs in small and large focal bronchopneumonia.
75. Tracheal percussion, pneumography, rhinography. Changes in percussion sound in diseases of the lungs and pleura. Conditions for the appearance of dull, dull, tympanic, boxy, metallic percussion sounds, and the sound of a cracked pot.
76. Auscultation of the chest in fibrinous (croupous) pneumonia and exudative pleurisy. A trial puncture of the chest and clinical examination of fluid obtained from the chest cavity.
77. The main syndromes in diseases of the respiratory system: inflammation of the mucous membrane of the nose, paranasal sinuses, larynx, trachea, lungs, lung expansion, lung collapse, fluid accumulation in the chest cavity.
78. Syndromes of damage to the nose, larynx, and trachea
79. Syndrome of damage to the bronchi
80. Syndrome of damage to the paranasal sinuses
81. Syndrome of damage to the lungs
82. Syndrome of respiratory failure
83. Syndrome of infiltrative consolidation of pulmonary tissue
84. Syndrome of damage to the pleura
85. Syndrome of accumulation of fluid in the pleural cavity
86. Appetite, food and water intake, chewing, swallowing and their disorders.
87. Belching, chewing, vomiting. Analysis of vomitus.
88. Examination of the oral cavity, pharynx, and esophagus. Crop in birds.
89. Methods for examining the abdomen to determine the condition of the abdominal organs in different animals.
90. Methods for examining the rumen.
91. Methods for examining the reticulum in ruminants.
92. Methods for examining the omasum and abomasum in ruminants.
93. Examination of the stomach in animals.
94. Methods for examining the intestines in different animal species (inspection, palpation, percussion, auscultation, radiography, rectoscopy).
95. Techniques and methods for external palpation of the intestines in small animals and internal palpation in large animals.
96. Defecation and its disorders.
97. Rectal examination of large animals, its clinical significance.
98. Methods for examining the liver. Syndromes in liver disease (jaundice, soreness, digestive disorders).

99. Methods for examining the kidneys in different animal species.
100. Diuresis disorders - polyuria, oliguria, anuria, nocturia.
101. Urination disorders - pollakisuria, oliguria, ischuria, stranguria, enuresis.
102. The most important symptoms in lesions of the mucous membrane of the mouth, pharynx, forestomachs of ruminants, stomach and intestines, as well as the peritoneum.
103. Features of catheterization and cystoscopy of the bladder in animals of different species and sexes.
104. Methods for examining the urinary tract - ureters, bladder, urethra in animals of different species and sexes.
105. Urinary syndrome
106. Edema syndrome in kidney pathologies
107. Nephrotic hypertension syndrome
108. Nephrotic syndrome
109. Acute and chronic renal failure syndrome
110. Bladder and urethral syndrome
111. Functional kidney examination methods: Zemnitsky test, water load test, concentration test, indigo carmine test.
112. Animal behavioral disorders - depression, agitation (apathy, stupor, sopor, coma).
113. Examination of the skull and spinal column.
114. Methods for examining the sensory organs in animals, the concept of ptosis, exophthalmos, endophthalmos, miosis, mydriasis, papilla congestion, optic nerve atrophy.
115. Study of various types of skin sensitivity (pain, tactile, temperature), its disorders (hyperesthesia, hypoesthesia, anesthesia, hyperalgesia, analgesia, tachypersesthesia, tachyposthesia, tachypesthesia, thermohypersthesia, thermoanesthesia).
116. Study of muscle-articular (deep) sensitivity and its changes.
117. Visceral-cutaneous reflexes (pain reflection). The importance of Zakharyin-Ged zones in the diagnosis of diseases of internal organs.
118. Study of superficial reflexes (skin and mucous membranes), deep (knee, Achilles), their changes and diagnostic value.
119. Methods of studying the autonomic nervous system - the method of reflexes: oculocardiac, orbital, ear-cardiac, Sharabrin reflex, etc.; pharmacologist method - pilocarpine, atropine, and other tests.
120. Convulsions, hyperkinesias (clonic - convulsions, tremors, tics, fibrillary twitching; tonic - contracture of the neck, trismus, cramping, tetanus)
121. Study of muscle tone and its changes (rigidity, hypotension)
122. Paresis, paralysis (peripheral, central, monoplegia, hemiplegia, paraplegia). Diagnostic value of studying the electrical excitability of muscles and nerves.
123. Cerebral anemia syndrome
124. Cerebral hyperemia syndrome
125. Brain and meningeal damage syndrome
126. Brain concussion and contusion syndrome

127. Spinal cord damage syndrome
128. Liver failure syndrome
129. Hepatorenal and hepatoencephalic syndromes
130. Hepatic coma syndrome
131. Cytolysis syndrome in liver damage
132. Inflammatory syndrome in liver damage
133. Dyspeptic syndrome in young animals
134. Diarrheal syndrome 1
135. Indigestion syndrome
136. Gastric and intestinal bleeding syndrome
137. Ascitic syndrome

4. METHODOLOGICAL MATERIALS DEFINING THE PROCEDURES FOR ASSESSING KNOWLEDGE, SKILLS AND ABILITIES AND WORK EXPERIENCE CHARACTERIZING THE STAGES OF COMPETENCE FORMATION

4.1. Criteria for evaluating students' knowledge during the knowledge survey (written survey)

Mark "**excellent**" - the student clearly expresses his point of view on the issues under consideration, giving appropriate examples.
Mark "**good**" - the student admits some errors in the answer
The mark «**satisfactory**" - the student discovers gaps in knowledge of the basic educational and normative material.
The mark "**unsatisfactory**" - the student discovers significant gaps in knowledge of the basic provisions of the discipline, the inability to obtain the correct solution to a specific practical problem with the help of a teacher.

4.2. Criteria for evaluating students' knowledge during testing

The test result is evaluated on a percentage rating scale. Each student is offered a set of test tasks of 25 questions:
The mark "**excellent**" is 25-22 correct answers.
The mark "**good**" is 21-18 correct answers.
The mark "**satisfactory**" is 17-13 correct answers.
The mark "**unsatisfactory**" is less than 13 correct answers

4.3. Criteria for evaluating students' knowledge in the preparation of reports

The mark "**excellent**" - the problem is identified and its relevance is justified; an analysis of various points of view on the problem under consideration is made and one's own position is logically stated; conclusions are formulated, the topic is fully disclosed, the volume is maintained; the requirements for external design are met, the basic requirements for the report are fulfilled.

The mark "**good**" - mistakes have been made. In particular, there are inaccuracies in the presentation of the material; there is no logical consistency in judgments; the volume of the report is not maintained; there are omissions in the design, there are significant deviations from the requirements for the presentation of materials.

The mark "**satisfactory**" - the topic is only partially covered; factual errors were made in the content of the report; there are no conclusions, the topic of the report is not disclosed.

The mark "**unsatisfactory**" - there is a significant misunderstanding of the problem or the report is not submitted.

1.4. Criteria for evaluating students' knowledge when checking control papers

1.5.

The mark "**excellent**" - the problem is identified and its relevance is justified; an analysis of various points of view on the problem under consideration is made and one's own position is logically stated; conclusions are formulated, the topic is fully disclosed, the volume is maintained; the requirements for external design are met, the basic requirements for the abstract are fulfilled

The mark is "**good**" - mistakes have been made. In particular, there are inaccuracies in the presentation of the material; there is no logical consistency in judgments; the volume of the abstract is not maintained; there are omissions in the design, there are significant deviations from the requirements for abstracting.

The mark "**satisfactory**" - the topic is only partially covered; factual errors were made in the content of the abstract; there are no conclusions, the topic of the abstract is not disclosed

The mark "**unsatisfactory**" - there is a significant misunderstanding of the problem or the abstract is not presented at all.

4.5. Criteria of knowledge during the test

The mark "**accepted** " must correspond to the parameters of any of the positive ratings ("excellent", "good", "satisfactory").

The mark "**not accepted** " rating should correspond to the parameters of the "unsatisfactory" rating.

The mark "excellent" – all types of educational work provided for in the curriculum have been completed. The student demonstrates the compliance of knowledge, skills, and abilities with the indicators given in the tables, operates with acquired knowledge, skills, and applies them in situations of increased complexity. At the same time, inaccuracies, difficulties in analytical operations, transfer of knowledge and skills to new, non-standard situations may be allowed.

The mark "good" – all types of educational work provided for in the curriculum have been completed. The student demonstrates the compliance of knowledge, skills, and abilities with the indicators given in the tables, operates with acquired knowledge, skills, and applies them in

standard situations. At the same time, minor errors, inaccuracies, difficulties in analytical operations, transfer of knowledge and skills to new, non-standard situations may be made.

Mark "satisfactory" – one or more types of educational work provided for in the curriculum have not been completed. The student demonstrates incomplete compliance of knowledge, skills, and abilities with the indicators given in the tables, significant errors are made, a partial lack of knowledge, skills, and skills is manifested in a number of indicators, the student experiences significant difficulties in operating with knowledge and skills when transferring them to new situations. –

The mark «unsatisfactory" – the types of educational work provided for in the curriculum have not been completed. demonstrates incomplete compliance of knowledge, skills, and abilities given in the tables of indicators, significant errors are made, a lack of knowledge, skills, and skills is manifested for a large number of indicators, the student experiences significant difficulties in operating knowledge and skills when transferring them to new situations

4.6. Criteria of knowledge during the examination

The mark "excellent" – all types of educational work provided for in the curriculum have been completed. The student demonstrates the compliance of knowledge, skills, and abilities with the indicators given in the tables, operates with acquired knowledge, skills, and applies them in various situations of increased complexity. At the same time, inaccuracies, difficulties in analytical operations, transfer of knowledge and skills to new, non-standard situations may be allowed. –

The mark "good" – all types of educational work provided for in the curriculum have been completed. The student demonstrates the compliance of knowledge, skills, and abilities with the indicators given in the tables, operates with acquired knowledge, skills, and applies them in standard situations. At the same time, minor errors, inaccuracies, difficulties in analytical operations, transfer of knowledge and skills to new, non-standard situations can be made.

Mark "satisfactory" – one or more types of educational work provided for in the curriculum have not been completed. The student demonstrates incomplete compliance of knowledge, skills, and abilities with the indicators given in the tables, significant errors are made, a partial lack of knowledge, skills, and skills are manifested in a number of indicators, the student experiences significant difficulties in operating with knowledge and skills when transferring them to new situations.

The mark "unsatisfactory" – the types of educational work provided for in the curriculum have not been completed. demonstrate incomplete compliance of knowledge, skills, and abilities given in the tables of indicators, significant errors are made, a lack of knowledge, skills, and skills are manifested for a large number of indicators, the student experiences significant difficulties in operating with knowledge and skills when transferring them to new situations.

5. ACCESSIBILITY AND QUALITY OF EDUCATION FOR DISABLED PEOPLE

If necessary, persons with disabilities and persons with disabilities are given additional, time to prepare an answer for the test.

When conducting the procedure for evaluating the learning outcomes of disabled people and persons with disabilities, their own technical means can be used.

The procedure for evaluating the learning outcomes of disabled people and persons with disabilities in the discipline provides for the provision of information in forms adapted to the limitations of their health and perception of information:

For people with visual impairments:	– in printed form in enlarged font; – in the form of an electronic document.
For people with hearing impairments:	– in printed form; – in the form of an electronic document.
For people with disorders of the musculoskeletal system:	– in printed form, the device; – in the form of an electronic document.

When conducting the procedure for evaluating the learning outcomes of disabled people and persons with disabilities in the discipline, it ensures that the following additional requirements are met, depending on the individual characteristics of the students:

a) instructions on the procedure for conducting the assessment procedure are provided in an accessible form (orally, in writing);

b) an accessible form of assignment of assessment tools (in printed form, in printed form in enlarged font, in the form of an electronic document, assignments are read out by the teacher);

c) an accessible form of providing answers to tasks (written on paper, a set of answers on a computer, orally).

If necessary, for students with disabilities and the disabled, the procedure for evaluating the results of training in the discipline can be carried out in several stages.

The procedure for evaluating the learning outcomes of disabled people and persons with disabilities is allowed using distant learning technologies.

Program abstract of the discipline
B1.O.28 "Clinical diagnostics "
specialty 36.05.01 Veterinary Medicine
Profile: «General clinical veterinary medicine»

The purpose of mastering the discipline: learn to recognize and examine a sick animal, summarize the results obtained, evaluate the characteristics of the animal's body depending on environmental, technological and other conditions.

Position of the discipline in the curriculum: Discipline B1.O.28 "Clinical Diagnostics" is a mandatory discipline of the federal state educational standard of higher education in the specialty 36.05.01 "Veterinary Medicine" (specialty level). Mastered in the 5th and 6th semester of full-time study; 6th and 7th semester on part-time and part-time basis; in the 4th year - correspondence course.

Requirements for the results of mastering the discipline: The graduate of the discipline should form the following competencies:

GPC-1 Is able to determine the biological status, normal clinical signs of organs and systems of the animal body.

GPC-1 ID-1 To know: safety precautions and personal hygiene rules during the examination of animals, methods of its fixation; schemes of clinical examination of an animal and the procedure for examination individual body systems; methodology for diagnosis of the pathological process
GPC-1 ID-2 To be able to: collect and analyze anamnesis data, conduct laboratory and functional studies, necessary to determine the animal biological status.
GPC-1 ID-3 To possess practical skills: for conducting on its own a clinical examination of an animal, using classical research methods and digital technologies.

PC-1. Anamnesis of animal life and disease to identify the cause of disease, conduct a general clinical study of animals in order to establish a preliminary diagnosis and determine the ongoing research program

PC-1 ID-1To be able to collect and analyze information about the origin and purpose of animals, the method and conditions of husbandary, feeding (anamnesis of animal life), including use of sensor devices, mechanisms, sensors, tags, etc.
PC-1 ID-2 To be able to collect and analyze information about the occurrence and manifestation of animals diseases, previously transmitted diseases, epizootological conditions (anamnesis of animal disease), with the use of sensor devices, mechanisms, sensors, tags, etc.
PC-1 ID-3 To be able to fix animals to ensure safety during a clinical trial
PC-1 ID-4 To be able to perform a clinical examination of animals, using common methods: examination, palpation, percussion, auscultation and thermometry.
PC-1 ID-5 To be able to establish a preliminary diagnosis based on anamnesis analysis and clinical research, using general methods.
PC-1 ID-6 To know the method of collecting animals anamnesis of life and disease.
PC-1 ID-7 To know the factors of animal life that contribute to the occurrence of infectious and non-infectious diseases.
PC-1 ID-8 To know the forms and rules for filling out the journal for the registration of sick animals and the animal's medical history, including in electronic form in accordance with the requirements of veterinary rules.
PC-1 ID-9 To know the methods of animals' fixation during clinical examination.
PC-1 ID-10 To know the technique of conducting an animal clinical study, using general methods, in accordance with the guidelines, instructions, rules for the diagnosis, prevention and treatment of animals.

PC-2. Development of an animal research program and conduction of clinical study, using special (instrumental) and laboratory methods to clarify the diagnosis.

PC-2 ID-1 To be able to study animals, using digital equipment and special (instrumental) methods, including endoscopy, probing, catheterization, radiography, electro cardiography, echography
PC-2 ID-2 To be able to interpret and analyze data from special (instrumental) animal research methods to verify the diagnosis.
PC-2 ID-3 To be able to determine the reaction of the cardiovascular system of animals to various loads by the method of functional tests.
PC-2 ID-4 To be able to take samples of animal biological material for laboratory research.
PC-2 ID-5 To be able to perform analytical preparation, storage of the studied biological material, transportation to the laboratory
PC-2 ID-6 To be able to interpret and analyze data from laboratory animal research methods for diagnosis.
PC-2 ID-7 To know the indication for the use of digital equipment, special (instrumental) and laboratory methods of animal research in accordance with the guidelines, instructions, rules for the diagnosis, prevention and treatment of animals
PC-2 ID-8 To know the safe rules of operation with digital equipment, tools and equipment, used in special (instrumental) animal studies, including X-ray examinations.
PC-2 ID-9To possess skills of the technique of the animal study, using digital equipment and special (instrumental) methods in accordance with methodological guidelines, instructions, rules for the diagnosis, prevention and treatment of animals.
PC-2 ID-10 To know the methods and techniques of administration diagnostic and radiopaque substances for the animal.
PC-2 ID-11 To possess skills of the technique of setting functional tests for animals.
PC-2 ID-12 To know the methodology of sampling and analytical fullfilment of biological material samples for execution of laboratory analyses in accordance with the instructions and methodological documents, regulating the sampling of biological material
PC-12. Organization of the preventive clinical studies of animals, control of the veterinary and sanitary conditions and microclimate of livestock premises in accordance with the plan of antiepizootic measures, plan of the prevention of non-contagious animal diseases. plan of veterinary and sanitary measures
PC-12 ID-4 To be able to carry out clinical studies of animals, using digital technologies as part of the implementation of action plans for the prevention of animal diseases

To achieve such goal, it is necessary to solve the following tasks:
Clinical diagnostics as a subject consists of three main sections, closely related to each other: medical diagnostic technique, semiotics and medical logic, diagnostic methods. Of great importance are students' mastery of clinical, laboratory and instrumental methods of researching farm animals, gaining experience in identifying symptoms and syndromes, and the ability to analyze a situation in order to make a diagnosis. As a result of mastering the discipline, the student prepares for the following types of activities, in accordance with the educational standard of Federal State Educational Standard of Higher Education 36.05.01 "Veterinary Medicine": medical; expert control; scientific and educational.

The complexity of the discipline is: 252 academic hours (7 credits).
Final control of the discipline: test, course work, exam.