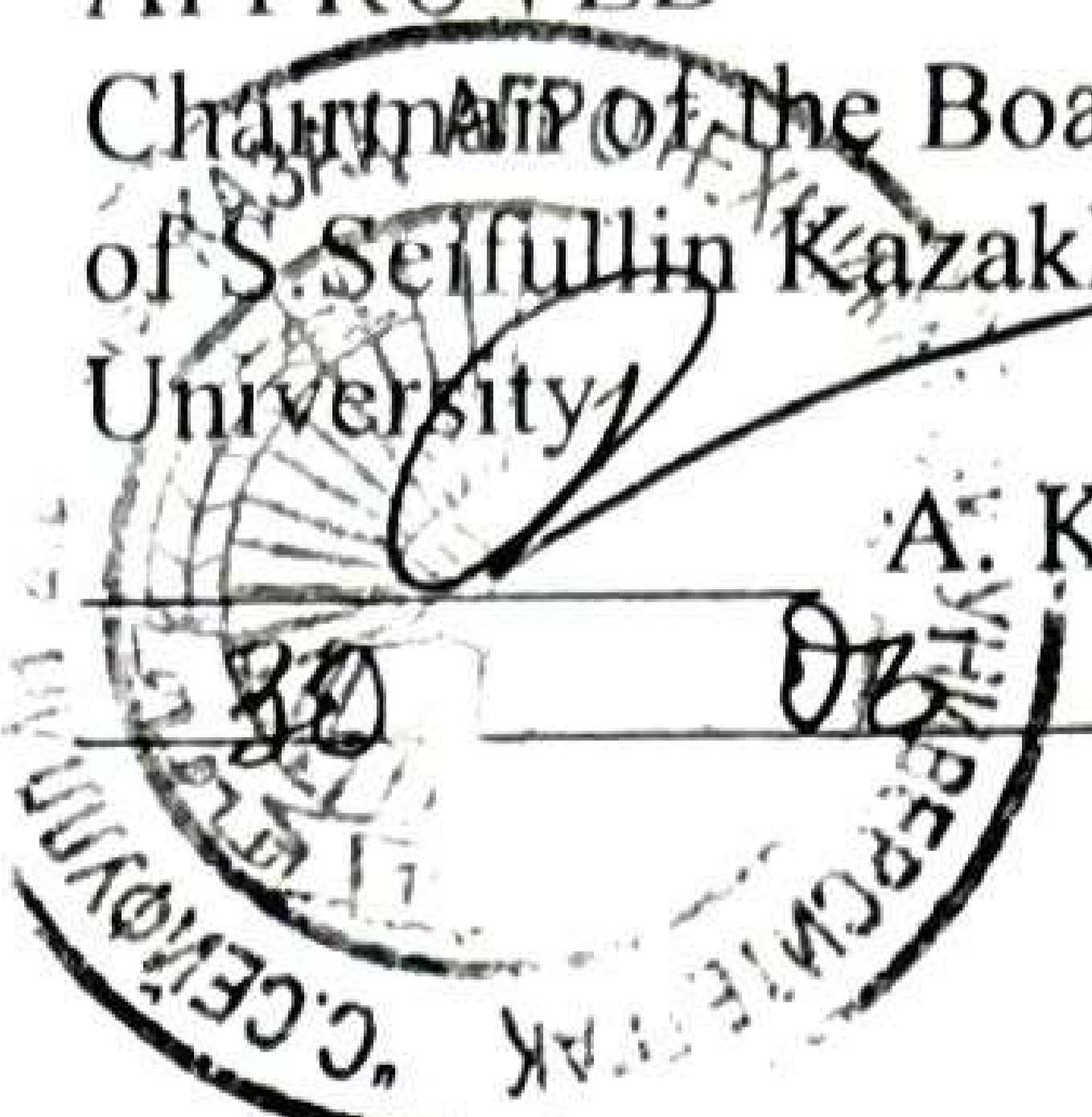


Ministry of Agriculture of the Republic of Kazakhstan  
Seifullin Kazakh Agro Technical University

Reviewed  
at the meeting of the  
University Council  
Protocol number 15  
30.05 2019

APPROVED  
Chairman of the Board  
of S. Seifullin Kazakh Agro Technical  
University  
A. Kurishbayev  
2019



**EDUCATIONAL PROGRAM**  
«Veterinary Safety»

Code and classification of the field of education: 6B091 Veterinary Medicine  
Code and classification of training field: 6B091 Veterinary Medicine  
Code in the International Standard Classification of Education: 6B0841  
Qualification: Bachelor of Veterinary in the Educational Program  
"Veterinary Safety"  
Duration of study: 5 years  
Form of study: full-time

Nur-Sultan 2019



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The team of authors was approved by the order of JSC "Saken Seifullin Kazakh Agro Technical Research University"

№ 932-H from 12.12.2018; № 962-H from 28.12.2018; № 964-H from 28.12.2018

**Educational program " Veterinary safety "**

considered at the meeting of the department "Veterinary Medicine"

protocol № 8/16 from «21» 04 2023,

approved by the Faculty Council

protocol № 9 from «04» 05 2023

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Ministry of Agriculture of the Republic of Kazakhstan  
NCJSC «S.Seifullin Kazakh AgroTechnical Research University»

Considered at the meeting of the Academic  
Council of the University  
Protocol №  
from «    »    2023y.

APPROVE  
Chairman of the Management Board  
NCJSC «S.Seifullin Kazakh AgroTechnical  
Research University»

« \_\_\_\_\_ » \_\_\_\_\_ 2023 y.

**EDUCATIONAL PROGRAM**  
**«6B09101- Veterinary safety»**

Code and classification of the field of education: 6B09- Veterinary  
Code and classification of training areas: 6B091 - Veterinary  
Code in the International Standard Classification of Education: 6B0841  
Degree/qualification awarded: Bachelor of Veterinary Medicine in the educational program  
"Veterinary Safety"  
Duration of training: 5 years

Astana - 2023



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The team of authors was approved by the order of JSC " Saken Seifullin Kazakh Agro Technical Research University "

№ 932-H from 12.12.2018; № 962-H from 28.12.2018; № 964-H from 28.12.2018

**Educational program " Veterinary safety "**  
considered at the meeting of the department "Veterinary Medicine"  
protocol № 1 from «26» 08 2023,  
approved by the Faculty Council  
protocol № 1A from «27» 08 2023.

Dean of the Faculty of Veterinary Medicine and Animal Husbandry  
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Candidate of Veterinary Sciences, Associate Professor

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## **1 Passport of the educational program**

The educational program «Veterinary Safety» in the specialty 6B09 – «Veterinary Medicine» was developed in agreement with employers, taking into account the needs of the labor market, as well as in accordance with the National Qualifications Framework, the professional standard «Veterinary Medicine» agreed with the Dublin descriptors and the European Qualifications Framework. The educational program is designed on the basis of a modular system.

Awarded qualification «Veterinary Specialist» in the educational program 6B091 – «Veterinary Safety». Possibility of further continuing education in master's and doctoral studies.

### **1.1 Purpose of the educational program**

The goal of the educational program is to prepare specialists who are competitive in the labor market, have broad fundamental knowledge and practical experience, and are proficient in modern methods of diagnosing and treating animal diseases, taking into account the requirements of employers.

Main goals:

- prevention, diagnosis and treatment of animal diseases of various etiologies;
- veterinary and sanitary assessment of the quality of products and raw materials of animal origin;
- protection of the territory of the Republic of Kazakhstan from the introduction of infectious diseases from other countries;
- protection of the population from diseases common to humans and animals
- ability to work with scientific and technical information, using domestic and foreign experience in professional activities;
- formation of theoretical and practical knowledge, skills and abilities in professional activities.

### **1.2 Learning outcomes**

**PO 1.** To describe and link knowledge in the field of general education disciplines, to know general concepts about legal and anti-corruption culture, to determine the importance of principles and culture of academic integrity for the formation of a competent personality with high thinking potential, as well as to extract modern ideas in the professional activity's field of information structure

**PO 2.** To formulate the macro- and microorganisms' zoological systematics and morphological features of organs' and systems' structure, understand the essence of physiological and biochemical processes in the body of animals, possess methods of studying tissue cells and body systems, to know Latin grammar and the basics of Latin veterinary terminology.

**PO 3.** To explain the inheritance patterns of living organisms' signs changing and to master the biometric processing skills of primary material

**PO 4.** To interpret the role of microorganisms in the occurrence of pathological processes in animals, to explain the basics of immunology and serology, as well as the importance of the main epidemiological links.

**PO 5.** To apply knowledge the veterinary and sanitary standards in maintenance, feeding and exploitation of animals.

**PO 6.** To master the academic writing techniques, abstracting, compiling and processing research results.

**PO 7.** To understand the basic pharmacodynamic effects' mechanisms caused by medicinal substances, and to know the dosing and regulation of veterinary drug prescriptions.

**PO 8.** To learn the technology and hygiene rules of production of animal and plant products and veterinary and sanitary assessment of their quality.

**PO 9.** To formulate the main regularities of the systematization of animal species, to study the main methods of diagnosing diseases of infectious and invasive etiology, as well as to present the methodology of therapeutic and preventive measures for these pathologies of productive and non-productive animals.



**PO 10.** To formulate the theoretical and practical foundations of etiopathogenesis, therapeutic and preventive measures for non-infectious pathologies, ionizing radiation and poisoning diseases, to possess the laboratory diagnostics skills and to interpret obtained results

**PO 11.** To justify the choice of therapeutic measures for various pathologies, taking into account the physiological state and nature of the disease occurrence, to interpret pathological changes in organs and tissues in productive and non-productive animals.

**PO 12.** To analyze the animal organs and tissues' anatomical and physiological state, the diagnosis and elimination methods of various pathologies, to integrate the medical thinking into professional activity

**PO 13.** Evaluate information about the state of the environment and working conditions in the workplace, integrate the results of scientific research in the field of occupational safety and health, understand legislative regulations and the nomenclature of document management in veterinary medicine, provide economic justification for veterinary measures, be competent in matters of forensic examination.

**PO 14.** Formulate the theoretical and practical foundations of environmental protection, ensuring environmental well-being and veterinary safety of animals and products.

## **2 General characteristics of the educational program (relevance, features, competitive advantages, uniqueness, stakeholders, etc.)**

The educational program contains theoretical training, including the study of cycles of general education, basic and profile disciplines; professional practice, physical culture, etc. The volume of the educational program (EP) is 303 credits, including 263 credits of theoretical training, 24 credits of professional practice, 8 credits of physical culture, and 8 credits of final certification.

The relevance of the developed educational program (EP) lies in the fact that it is harmonized with the requirements of a standard curriculum and the competencies of a first-day graduate (veterinary specialist) The World Organization for Animal Health (OIE), which provides an opportunity to integrate the EP into the international veterinary educational space. The importance of the EP for the national economy is determined by the fact that it trains specialists for the labor market to ensure the veterinary, biological and food security of the country.

The peculiarity of the developed EP is that in terms of structure, consistency of training and components of disciplines, it is 60-70% coordinated with the training work programs of the world's leading universities in the field of veterinary education (Giessen University named after J. Liebig, University of California Davis, Toulouse National Veterinary School), which will contribute to the professional mobility of students.

The competitive advantages of this EP is that it was developed taking into account the specific proposals of the National Chamber of Entrepreneurs «Atameken», which provides training of specialists adapted to the requirements of regional labor markets in Kazakhstan.

The uniqueness of the EP makes it possible to create conditions for the comprehensive development of the personality of a future veterinary specialist with stable professional competencies, as well as capable of developing social partnership and entrepreneurship.

The regional territorial inspections of the Committee of Veterinary Control and Supervision of the Republic of Kazakhstan, the Republican Veterinary Laboratory, the National Reference Center of Veterinary Medicine, veterinary clinics, agricultural formations took part in the development of the EP.

## **3 Competence model (portrait) graduate:**

*students should have the following key competencies:*

- possess basic knowledge of natural science (socio-humanitarian and economic) disciplines that contribute to the formation of a highly educated person with a broad outlook and a culture of thinking;

- be able to formulate and practically solve problems in the field of veterinary medicine, the preservation and maintenance of animal and human health, use information technologies in the field of professional activity, teach in educational institutions, successfully carry out research and production activities



- possess the skills to acquire new knowledge necessary for daily professional activity and continuing education in the master's degree.

Learning outcomes are expressed through competencies and are designed based on Dublin descriptors

### **3.1 Areas of professional activity**

A specialist in this field should be prepared for:

- protection of animals from diseases and their treatment;
- diagnostics, prevention and treatment of infectious, invasive and non-infectious diseases of animals, birds and fish bred in farms of various directions and forms of ownership;
- protection of public health from diseases common to animals and humans;
- conducting veterinary and sanitary examination of animal products;
- development and circulation of medicines for animals;
- protection of the environment from pathogens transmitted through sick animals and corpses of fallen animals;
- protection of the territory of the state from the introduction and spread of infectious and exotic diseases from other states;

### **3.2 Types of professional activity**

The types of professional activity are:

- medical;
- production and technological;
- organizational and managerial;
- experimental research;
- scientific research;
- project;
- educational.
- military veterinary service;
- all types of economic entities of agricultural production;
- circuses, racetracks, associations engaged in breeding breeding animals;
- veterinary hospitals, veterinary pharmacies, laboratories, zoos, nature reserves;
- institutions of the state veterinary service;
- slaughterhouses, animal burial grounds, vehicles for transporting animals, premises for keeping animals;

### **3.3 General education competencies**

Disciplines of the mandatory component of the GED cycle:

- aimed at the formation of ideological, civil and moral positions of the future specialist, competitive on the basis of possession of information and communication technologies.
- form skills of self-development and education throughout life;
- upon completion of the study of compulsory disciplines of the GED cycle , the student is able to:

- evaluate the surrounding reality on the basis of worldview positions formed by knowledge of the fundamentals of philosophy.

- to argue their own assessment of everything that is happening in the social and industrial spheres;

The disciplines of the University component and (or) the component of the choice of the GED cycle amount to at least 5 academic credits, which are aimed at developing students' competencies in the field of economics and law, the basics of anti-corruption culture, ecology and life safety, as well as entrepreneurship skills, research methods.

Descriptors reflect learning outcomes that characterize students' abilities to:

1) demonstrate knowledge and understanding in the field of study based on advanced knowledge in the field of study;



- 2) apply knowledge and understanding at a professional level, formulate arguments and solve problems of the studied area;
- 3) to collect and interpret information for the formation of judgments taking into account social, ethical and scientific considerations;
- 4) apply theoretical and practical knowledge to solve educational, practical and professional tasks in the field under study;
- 5) learning skills necessary for independent continuation of further education in the field of study;
- 6) know the methods of scientific research and academic writing and apply them in the field under study;
- 7) apply knowledge and understanding of facts, phenomena, theories and complex dependencies between them in the field under study;
- 8) understand the importance of the principles and culture of academic integrity.

### **3.4 Basic competencies**

The programs of disciplines and modules of the BD and PD cycles are interdisciplinary and multidisciplinary in nature, providing training of veterinary specialists at the junction of a number of fields of knowledge.

The EP ensures that graduates acquire basic competencies that meet the requirements of the OIE for specialists. The trajectory of the EP provides for the training of graduates in special competencies in the field of treatment, prevention and control of diseases of various animal etiologies, food hygiene, pharmacy, animal welfare, national and international veterinary legislation and ethics.

Graduates receive practical competencies in the field of organization of veterinary services, veterinary inspection and certification, food safety, risk methodology, analysis of scientific research, ensuring the safe trade of animals and animal products in business.

### **3.5 Professional competencies**

The specialist must:

*have an idea:*

- about modern factors in the development of the disease; general principles of studying the etiology, pathogenesis of diseases, diagnosis, treatment and prognosis, development of disease prevention measures;

*To know:*

theoretical bases of classification, specifics of etiology and symptoms, modern diagnostic methods, effective methods of prevention and treatment of animal diseases;

*be able to:*

to carry out diagnostics, differential diagnostics, treatment and prevention of diseases; to draw up a protocol of pathoanatomic autopsy;

*have skills:*

- clinical examination of animals, diagnosis;
- treatment and prevention of diseases of animals, birds and fish;
- transportation, reception and delivery of slaughter animals and birds for slaughter;

*be competent:*

--in the field of diagnosis, treatment and prevention of animal diseases.

### **4 Bases of passing professional practices**

The educational program «Veterinary Safety» includes 4 types of practices that are conducted in parallel with theoretical training or in a separate period.

- 1) Educational practice in the BD cycle;
- 2) Educational and clinical practice in the BD cycle;
- 3) Production practice in the PD cycle;
- 4) Pre-graduate practice in the PD cycle.



Educational practice - veterinary clinic of Saken Seifullin Kazakh Agro Technical Research University, medical and diagnostic centers, veterinary hospitals of Astana, Republican Veterinary Laboratory.

Educational and clinical practice: agricultural formations of Akmola, Karaganda, Almaty, Kostanay, North Kazakhstan, Turkestan regions.

Industrial, pre-graduate practices - agricultural formations of all regions of the Republic of Kazakhstan, district veterinary stations, veterinary hospitals.



## 5 Structure of the Bachelor's degree program

№	Name of cycles and disciplines	Total labor intensity	
		in academic hours	in academic credits
1	2	3	4
<b>1</b>	<b>Cycle of general education disciplines (GED)</b>	<b>1680</b>	<b>56</b>
	<b>Required component</b>	<b>1530</b>	<b>51</b>
	History of Kazakhstan	150	5
	Philosophy	150	5
	Foreign language	300	10
1)	Kazakh (Russian) language	300	10
	Information and Communication Technologies (in English)	150	5
	Political Science and Sociology	120	4
	Cultural studies and psychology.	120	4
	Physical Culture	240	8
<b>2)</b>	<b>University component and (or) optional component</b>	<b>150</b>	<b>5</b>
	Economics/ Law and Anti-corruption culture/ Ecology/ Life Safety /Entrepreneurship/ Methods of scientific research/	150	5
<b>2</b>	<b>Cycle of basic disciplines (BD)</b>	<b>4530</b>	<b>119</b>
1)	University component	<b>3150</b>	<b>105</b>
	Anatomy of animals and birds	300	10
	Latin veterinary terminology	120	4
	Professionally-oriented (foreign) language	90	3
	Cytology, embryology and histology	150	5
	Animal husbandry	150	5
	Bioorganic chemistry	150	5
	Veterinary genetics	150	5
	Veterinary microbiology and Immunology	150	5
	Private microbiology	150	5
	Veterinary Virology	150	5
	Animal Physiology Animal	150	5
	Biochemistry	150	5
	Clinical diagnostics of animals	150	5
	Feeding animals	150	5
	Veterinary Pharmacology	150	5
	Clinical pharmacology with toxicology	150	5
	Pathological physiology	150	5
	Pathological anatomy of animals	300	10
	Veterinary hygiene and sanitation	150	5
<b>2)</b>	<b>Component of choice (BD)</b>	<b>420</b>	<b>14</b>
	Animal welfare and ethology	90	3
	<b>Herd Health Management</b>		
	Zoology	90	3
	Zoogeography		
	Veterinary Radiobiology	90	3
	Radiation safety of animals		



	Laboratory diagnostics in veterinary medicine Laboratory work in veterinary medicine	150	5
<b>3</b>	<b>Cycle of profile disciplines (PD)</b>	<b>2793</b>	<b>96</b>
<b>1)</b>	<b>University component</b>	<b>1980</b>	<b>66</b>
	Veterinary epidemiology	300	10
	Internal diseases of animals	270	9
	Veterinary obstetrics and gynecology	270	9
	Parasitology and invasive animal diseases	300	10
	Veterinary and sanitary examination	300	10
	Operative surgery.	150	5
	General surgery	150	5
	Private surgery	120	4
	Organization of veterinary business.	120	4
	<b>Cycle of profile disciplines component of choice</b>	<b>813</b>	<b>30</b>
	Veterinary Orthopedics and ophthalmology Veterinary Anesthesiology	90	3
	Forensic examination. Forensic Thanatology.	90	3
	Scientific basis of animal breeding biotechnology. Biotechnics of animal reproduction	90	3
	Infectious diseases of carnivores Infectious diseases of fish and bees	90	3
	Invasive diseases of carnivores Invasive diseases of fish and bees	90	3
	Practical therapy of carnivores Practical therapy	150	5
	Obstetrics of carnivorous animals Diseases of female genital organs	150	5
	Carnivorous Animal Surgery Practical surgery	150	5
	Biometrics in veterinary medicine Bioinformatics	90	3
<b>2</b>	<b>Professional practice</b>	<b>720</b>	<b>24</b>
	Educational practice	150	5
	Educational and clinical practice	150	5
	Production practice	360	12
	Pre-graduate practice	60	2
<b>4</b>	<b>Additional types of training (ATT)</b>		
<b>5</b>	<b>Final certification</b>	<b>240</b>	<b>8</b>
<b>1)</b>	Writing and defending a thesis, graduation project or preparing and passing a comprehensive exam	240	8
	<b>Total</b>	<b>9090</b>	<b>303</b>



Approve

Chairman of the Academic Council  
NJSC "Seifullin KATIUS "

Tireuov K.M.

« 29 » 05 2023 y.

**ACADEMIC CALENDAR**  
for 2023-2024 academic year  
by levels of training  
(BACHELOR)

1	Presentation week, registration for disciplines	I course August 28 - 31
2	<b>I semester</b>	<b>September 1 - December 15</b>
3	<i>Constitution day</i>	<i>August 30</i>
4	Knowledge Day	September 1
5	<i>Republic Day</i>	<i>October 25</i>
6	<i>Independence Day</i>	<i>December 16</i>
7	Exam session	December 18 - 29
8	Passing FX	December 18 -29
9	<i>New Year's Holiday</i>	<i>January 1, 2</i>
10	Holidays	January 1-26
11	<b>II semester</b>	<b>January 29 to May 10</b>
12	<i>International Women's Day</i>	<i>March 8</i>
13	<i>Holiday Nauryz</i>	<i>March 21,22,23</i>
14	<i>Holiday of unity of the people of Kazakhstan</i>	<i>May 1</i>
15	<i>Defender of the Fatherland Day</i>	<i>May 7</i>
16	<i>Victory Day</i>	<i>May 9</i>
17	Exam session	from May 13 to May 24
18	Passing FX	May 13 - 31
19	Registration for the summer semester	May 27 - 31
20	Final examination	until June 30
21	Summer semester	from June 3 to July 12
22	Holidays	from May 27 to August 31
23	<i>Capital Day</i>	<i>July 6</i>
	Practice*	

Approved by the Academic Council of NJSC «S. Seifullin KATIUS»,  
protocol № 16, 29.05. 2023 y.

*Note:* If it coincides with a weekend or a holiday, the lesson begins on the next working day.

\* Types and terms of professional practice are determined by the working Curriculum of Educational Programs.



























2	Base requirements(BS)	13 5	24	0	0	4050	34 5	675	30	0	72 0	444	1836	Academic period					Number of hours	Number of weeks				
														5	15	18	23	29		21	5	5	12	2
	Core subjects(BS/CS)	24	0	0	720	0	0	0	0	0	72 0	0	0	1	0	3	0	5	12	2				
	University component(BS/UC)	10 0	21	0	3000	30 0	615	30	30	0	400	1655	15	22	24	15	5	0	0	0				
	Electives(BS/ES)	11	3	0	330	45	60	0	0	0	44	181	3	0	5	3	0	0	0	0				
3	Profession requirements(VRS)	10 1	23	0	3030	36 0	600	0	0	0	404	1666	0	0	0	10	25	25	18	20				
	Core subjects(VRS/CS)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
	University component(VRS/UC)	68	14	0	2040	22 5	420	0	0	0	272	1123	0	0	0	10	25	19	9	5				
	Electives(VRS/ES)	33	9	0	990	13 5	180	0	0	0	132	543	0	0	0	0	0	6	9	15				
	Total on curriculum	29 2		4	8760	79 5	130 5	48	0	0	72 0	1072	4388	30	30	31	30	30	30	22				
4	Additional courses																							
5	Module of final certification (MoFC)									8														
	Total including FCS									300														

Examinations (semester)\* - The final form of control on Physical Culture and types of professional practice is a differentiated credit.

The modular curriculum is made in accordance with the standard curriculum of the speciality (approved by the Order of the MES RK from 16.08.2013 № 343). State obligatory standards of education (approved by the Order of the Ministry of Education and Science of the Republic of Kazakhstan from 23.08.2012 № 1080), modular educational programme of the speciality. The modular curriculum was considered and approved at the meeting of the methodical commission of the faculty, Protocol № 20\_\_

**Director of Department of Academic Affairs**  
**Deputy Director of the Department of Academic Affairs**

**Жургенов Жакенбай Сарсенбаевич**

**Dean of the faculty**

**Акибеков Оркен Султанхамитович**

**Head of the Department**

**Муханбеткалиев Ерсын Ергазыевич**







15	16	17	18	19	20	21	22	23	Total on curriculum	Weekly average workload at hours	Total credits per semester	Total exams per semester	Total term paper and projects	4	4.1	Total on practice	Total
BS	BS	BS	BS	BS	BS	BS	BS	BS									
EP 2240	FOA 2209	FAFA 2268	VM 2212	CDWR 2231	VSEOPQGBA FF 2206	TSAVASEOMA DP 2270	VASSEIT 2271	VCATBAT 2241									
CS	ES	ES	UC	UC	ES	ES	ES	ES									
1	5	1	2	2	2	2	2	2									
150	150	150															
30	30	30															
20	20	20															
30	30	30															
180	120	180	150	150	150	150	150	117	110	39.0	66.0	13.0	0.0				
30	0	0	0	0	0	0	0	0	0	7.0	0.0						
20	20	20															
30	30	30															
26	4	26	26	4	26	4	26	4	26	26	4	26	4	26	4	26	4
198	0	198	198	0	198	0	198	0	198	198	0	198	0	198	0	198	0
132		132	132		132		132		132	132		132		132		132	
66.0		66.0	66.0		66.0		66.0		66.0	66.0		66.0		66.0		66.0	
13.0		13.0	13.0		13.0		13.0		13.0	13.0		13.0		13.0		13.0	
0.0		0.0	0.0		0.0		0.0		0.0	0.0		0.0		0.0		0.0	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
198	0	198	198	0	198	0	198	0	198	198	0	198	0	198	0	198	0
21	5	21	21	5	21	5	21	5	21	21	5	21	5	21	5	21	5
0		0	0		0		0		0	0		0		0		0	
117	110	117	117	110	117	110	117	110	117	117	110	117	110	117	110	117	110
13	4	13	13	4	13	4	13	4	13	13	4	13	4	13	4	13	4
5		5	5		5		5		5	5		5		5		5	
78		78	78		78		78		78	78		78		78		78	
30		30	30		30		30		30	30		30		30		30	
85		85	85		85		85		85	85		85		85		85	
20		20	20		20		20		20	20		20		20		20	
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**Matrix of achievability of the generated learning outcomes in the educational program using academic disciplines**

№	Name of the discipline	Brief description of the discipline (30-50 words)	Number of credits	Generated learning outcomes (codes)													
				PO1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PO 13	PO 14
<b>University component</b>																	
1	Anatomy of animals and birds 1	Studies the general patterns of the structure of the animal body, determines the departments and directions of the animal body. Examines the sections of osteology, syndesmology, myology, dermatology.	5		V												
2	Anatomy of animals and birds 2	Studies the patterns of the structure of the internal organs of animals and the features of topographic data depending on the species. Describes the structure of the digestive, respiratory, urinary, endocrine, immune and reproductive systems of animals. Describes the structure of internal organs and systems. Studies the anatomy of birds.	5		V												
3	Latin veterinary terminology	Examines the issues of reading words and phrases of the Latin language in compliance with the rules, the	4	V													



		<p>use of Latin veterinary terminology in professional activities, the implementation of orthographic correct spelling of anatomical and histological and clinical terms. Application knowledge of Latin terminology . Latin alphabet, classification of medical and veterinary terms, rules of lexical and grammatical minimum of veterinary profile; application knowledge of the main characteristics of the part of speech of the Latin language</p>	3	V						
4	Professionally-oriented foreign language	<p>To form the professional foreign language speech of future specialists to increase the level of professional competence, proficiency in a professional foreign language for the implementation of written and oral information exchange, further development of speech activity. Rules of speech behavior in accordance with situations of professional communication, depending on the style and nature of communication in the social, household and academic spheres.</p>	3	V						



















		animal diseases, modern clinical and laboratory methods of systems and organs research. Forms competencies in the methods of X-ray diagnostics: fluoroscopy, radiography, computed tomography, fluorography																		
15	Feeding of agricultural animals	Studies the importance and role of animal feeding in the production of animal products, assessment of the nutritional value of feed, methods of zootechnical analysis of feed. Forms skills for the purpose and selection of the correct, normalized feeding of animals, taking into account the type, breed, age, productivity.	5							V										
16	Veterinary Pharmacology	Studies the subject and tasks of veterinary pharmacology, classification of medicinal substances, general patterns of interaction of medicinal substances with the biobiosubstantiation of the body, as well as pharmacokinetics, pharmacodynamics of medicinal products. Establishes the nature of substances that depress and excite the central nervous	5																	



17	Clinical pharmacology with toxicology	system (analeptics, mainly stimulating the function of the cerebral cortex, medulla oblongata and spinal cord, general ionizing substances).	Studies substances that change the sensitivity of afferent nerve endings, lowering and increasing the sensitivity of afferent nerve endings, acting on individual physiological processes in the body, cardiac glycosides and vasodilating substances, diuretics, substances acting on blood, uterine agents acting on liver function, as well as medicinal substances acting on metabolic processes.	5																																																														
18	Pathological physiology	Studies the general patterns of the development of pathological processes in the body of animals in various diseases: general nosology, thanatology, general etiology, the effect of environmental factors, general pathogenesis, the influence of heredity, age constitution, resistance, reactivity on the development of pathology. inflammatory, dystrophic, necrobiotic, necrotic, tumor processes and	5																																																															



















		infectious diseases of animals and carrying out recreational activities.													
31	Veterinary epidemiology 2	Studies infectious diseases of ruminants, horses, pigs, young animals and birds, pathogens, epizootological data, pathogenesis of diseases, clinical manifestations, pathoanatomic changes. Teaches the skills of modern methods of diagnosis, treatment and organization of preventive and antiepidemiologic measures.	5		V			V		V			V	V	
32	Internal diseases of animals 1	Studies issues of general prevention and therapy for internal diseases, modern methods and means of physiotherapy, therapeutic techniques, as well as private pathology of diseases of the cardiovascular, respiratory and digestive systems. Forms the skills of developing the abilities of medical thinking and practical skills of conducting medical examinations, analysis and interpretation of research results, diagnosis, treatment and prevention of internal diseases of animals.	5	V				V		V		V	V		



33	Internal diseases of animals 2	<p>Studies the problems of general prevention and therapy of internal diseases of animals, modern methods and means of physiotherapy, methods of treatment, as well as individual pathologies of diseases of the cardiovascular, respiratory and digestive systems. Develops skills in conducting a dispensary examination of animals, analysis and interpretation of research results, the development of medical thinking and practical skills in the diagnosis, treatment and Prevention of internal diseases of animals.</p>	4		V				V				V	V	V	V		
34	Veterinary obstetrics, gynecology 1	<p>Studies anatomical features and functions of reproductive organs of farm animals, specific features of the structure and function of the mammary gland of females of different animal species, the necessary conditions for the normal course of pregnancy, childbirth and the postpartum period. Forms the skills of diagnosis, prevention and treatment of pathology of the genitals of farm animals.</p>	5		V				V				V	V	V			







































