

**MINISTRY OF AGRICULTURE OF THE REPUBLIC OF KAZAKHSTAN
S. SEIFULLIN KAZAKH AGROTECHNICAL UNIVERSITY**

Considered

at the meeting of the
Academic Council
S. Seifullin KATU
Minutes № 19
31.08. 2022

«Confirm»

Chairman of the Board
NJSC "S. Seifullin Kazakh
agrotechnical university"

« 31 » 08 2022



**EDUCATIONAL PROGRAM
«8D08201 Animal Science»»**

Code and classification of the field of education: 8D08 Agriculture and bioresources
Code and classification of direction of personnel training: 8D082 Animal husbandry
Code in the International Standard Classification of Education: 8D0811
Degree/qualification awarded: Doctor of Philosophy PhD in the educational program
"Animal Science"

Period of study: 3 years (scientific and pedagogical direction)

The author's team:

1. Full name-academic degree, title, position, place of work

Bostanova Saule Kuanyshpekovna, candidate in agricultural sciences, assoc. professor, Head of "Technology of production and processing of livestock products" department

Saginbayeva Makhabat Borashevna, candidate in agricultural sciences, assoc. professor of "Technology of production and processing of livestock products" department

Amantay Saltanat, PhD, senior teacher of "Technology of production and processing of livestock products" department

Isabekova Saltanat Aitymovna, candidate in agricultural sciences, senior teacher of "Technology of production and processing of livestock products" department

Mukhametzharova Ilmira Ermekovna, Master in agricultural sciences, assistant of "Technology of production and processing of livestock products" department

Saginbayev Azamat Kuandykovich, candidate in agricultural sciences, Executive Director of the Republican Chamber of Dairy and Combined Breeds of Cattle

The team of authors was approved by the order of the AO "S. Seifullin KATU" № 932 H from 12.12.2018 (order with changes № 517-H from 4.10.2022).

Educational program "Animal Science"

Educational program 8D08201 "Animal Science" considered at the meeting of the department "Technology of production and processing of livestock products"

Minutes № 1 of 24.08., 2022

approved by the "Veterinary and animal husbandry technology" Faculty Council

Minutes № 1 of 24.08., 2022

The content of the educational program

№	Name of the component	Page (recommended volume)
1.	Passport of the educational program	4
2.	General characteristics of the educational program	4
3.	Competence model (portrait) graduate	5
4.	The base of passing professional practices	6
5.	Structure of the educational program	6
6.	Appendix 1. Academic Calendar	8
7.	Appendix 2. Working curriculum	10
8.	Appendix 3. Matrix of achievability of the formed learning outcomes according to the educational program with the help of academic disciplines	13

1.1 Passport of the educational program

1.2 Purpose of the educational program

Training of highly professional scientific personnel to carry out managerial, research and teaching activities aimed at ensuring breeding and selection, reproduction of farm animals, in the field of livestock production technology.

1.2 Educational outcome

ON 1. To demonstrate systemic understanding the methods of critical analysis and to master skills for evaluation of modern scientific achievements, to analyze and synthesize critically the main ideas in scientific texts; to evaluate critically any incoming information, regardless of the source. To facilitate advancement in an academic and professional context of modern scientific achievements and results of operations to address research and practical problems, including interdisciplinary areas, conducting a patent search; intellectual property protection; communicate their knowledge and achievements to colleagues, the scientific community and the general public, apply knowledge in working with laws and other regulations in conducting a scientific experiment.

ON 2. To demonstrate the ability to design, implement and adapt an essential research process in the field of theoretical and methodological foundations of scientific research; modeling and development of scientific writing indicators. Critically analyze and evaluate scientific processing and scientometric data, building the structure and methodology of writing a scientific article.

ON 3. To contribute with own original research to solve problems of reproduction and selection of farm animals. To demonstrate the ability to implement and adapt methods in the field of selection.

ON 4. To demonstrate systemic understanding the organization and control of the full feeding of animals; to demonstrate the ability to implement and adapt as an organizer of strengthening the feed base of livestock and providing a highly productive livestock with all the necessary energy, protein, mineral and vitamin feed and feed additives, ensuring good health and high productivity. To analyze critically, evaluate and synthesize detailed norms for the energy and nutrient needs of highly productive animals and to apply their knowledge and achievements in the preparation of scientifically based comprehensively balanced diets for farm animals from available feeds.

ON 5. To analyze, to evaluate the main problems of development in livestock production in Kazakhstan, to facilitate advancement in an academic and professional context the latest achievements in the development of intensive technology for the production of livestock products in order to increase production efficiency, improve living conditions, and use valuable genetic resources based on our own breeding base.

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

The educational program was developed in accordance with the National Qualifications Framework and Professional Standards, according to the State Educational Standard approved by the Ministry of Education and Science of the Republic of Kazakhstan №604 dated October 31, 2018.

The educational program includes theoretical training, including basic and profile

disciplines in the amount of 45 credits, including disciplines of the university component and component of choice, also practical training in the amount of 20 credits. 123 credits are planned for research work, 12 credits for final certification. In total, for 3 years of study, a doctoral student must master 180 credits.

3 Competence model (portrait) graduate

PhD in this field should be prepared for:

- scientific and research activities in the field of animal husbandry and poultry farming;

- pedagogical activity in agricultural universities;

- implementation of scientific and production activities: in livestock, poultry farms of various forms of ownership; at enterprises processing livestock products and raw materials;

- in the organization, planning and direct implementation of a complex of works to improve breed and productive qualities, as well as the organization of quality control, marketing and marketing of livestock products.

3.1 Areas of professional activity

- The sphere of professional activity

The sphere of professional activity of the PhD of the educational program "Animal Science" are: scientific and research, educational organizations, public service, breeding and genetics in animal husbandry, evaluation and selection of animals for breeding purposes; carrying out breeding and selection works; creation of new breeds and intra-breed types of animals; organization and holding of exhibitions and auctions of farm animals and poultry; organization of export and import of breeding animals.

3.2 Types of professional activity

PhD in field of education 8D08 - "Agriculture and bioresources" in personnel training direction 8D082 – "Animal husbandry" can perform following professional activities types:

Professional activity subject

PhD's professional activities subjects:

- scientific, research;

- pedagogical;

- production, management;

- organizational, technological;

Professional activity types:

- scientific, research development; design, survey work, scientific, organizational activities in various animal, poultry farming fields;

- pedagogical activity in agricultural universities;

- management activities, performance of management, marketing tasks in animal husbandry field;

- feed production, procurement organization, feed needs calculation, feed composition and quality chemical analysis;

- development, preparation of selection, breeding works plans.

3.3 General education competencies

The third level descriptors within the Comprehensive European Qualifications Framework for Higher Education Area (EQRF) shall reflect learning outcomes that

characterize the learner's abilities:

1) to demonstrate a systematic understanding of the field of study, skills and research methods used in this field;

2) demonstrate the ability to think, design, implement and adapt the essential research process with a scientific approach;

3) to contribute by own original research to the expansion of the boundaries of the scientific field, which deserves publication at the national or international level;

4) critically analyze, evaluate and synthesize new and complex ideas;

5) to communicate their knowledge and achievements to colleagues, the scientific community and the general public;

6) to promote the advancement in the academic and professional context of the technological, social or cultural development of a society based on knowledge.

3.4 Basic competencies

- the ability to combine basic theoretical knowledge with specific tasks of scientific research in the field of livestock production technology using the latest domestic and foreign experience and implementation into practice;

- the ability to generalize the results of work and conduct scientific breeding and genetic research and determine the areas of activity in various branches of agriculture.

3.5 Professional competencies

The PhD doctor who studied under educational program "Animal Science" must: to know and understand:

- current trends, patterns of national science development in globalization, internationalization context;

- scientific knowledge methodology;

- world, Kazakhstan science achievements in relevant field;

(realize and accept) social responsibility of science, education;

- foreign language for scientific communication, international cooperation;

be competent:

- in scientific, scientific-pedagogical activity field in rapid updating conditions and information flows growth;

- in carrying out theoretical, experimental scientific research;

- in formulation and solution of theoretical, applied tasks in scientific research;

- in matters of interpersonal communication, human resource management.

4 The base of passing professional practices

The bases of passing professional practices are:

1) Pedagogical practice: Department of "Technology of production and processing of animal products" of S. Seifullin KATU.

2) Research practice: Dairy farm "Aina", "Novobratskoe i K" JSC, Akmola region, "Bagration 2" JSC, East Kazakhstan region, "Bishkul poultry fabric" JSC, North Kazakhstan region and other enterprises and research institutes of the Republic of Kazakhstan.


5 The structure of the educational program of doctoral studies

№	Name of cycles and disciplines	Total labor intensity
---	--------------------------------	-----------------------

		in academic hours	in academic credits
1	2	3	4
1.	Theoretical training	1350	45
1.1	Cycle of basic disciplines (BD)	600	20
1)	University component	300	10
	Academic writing	150	5
	Methods of scientific researches	150	5
	Pedagogical practice	300	10
1.2	Cycle of profile disciplines (PD)	750	25
2)	Component of choice	450	15
	Detailed feeding of high-producing animals/ Energy-protein feeding of productive animals	150	5
	Technology and problems of livestock production/ Technology and problems of precision animal husbandry	150	5
	Selection and reproduction of farm animals/ New methods of reproduction assessment of agricultural animals	150	5
	Research practice	300	10
	Scientific- research work	3690	123
	Scientific- research work of a doctoral student, including internship and doctoral dissertation	3690	123
	Additional types of training:		
	Final certification	12	360
	Writing and defending a doctoral dissertation	12	360
	Total	5400	180

Appendix 1. Academic Calendar

Confirmed
 Acting Chairman of the Academic Council
 'S.Seifullin KATU'
 E.N.Nysanbayev
 05 _____ 2022



ACADEMIC CALENDAR
 for 2022-2023 academic year
 in areas of Doctoral training

Beginning of 1st trimester		1 September
1	Presentation week	from 1 September to September 2 (from August 29 to September 2 for 1 course)
2	<i>Constitution day</i>	30 August
3	<i>The day of knowledge</i>	1 September
4	Examination session	from 14 to 25 November
5	<i>The day of the First President</i>	of 1 December
6	FX delivery	from 14 November to 9 December
7	<i>Independence day</i>	16 December
8	Holidays	from 28 November to 31 December
9	<i>The New year's holiday</i>	January 1,2,3
Beginning of 2nd trimester		1 January
10	<i>Christmas</i>	7 January
11	<i>International Women's Day</i>	on 8 March
12	<i>Nauryz holiday</i>	21,22,23 March
13	Examination session	from March 13 to 24 March
14	FX delivery	from March 13 to 31 March
15	Holidays	from March 27 to March 31
Beginning of 3rd trimester		1 April
16	<i>Holiday of Unity of Nations of Kazakhstan</i>	1 May
17	<i>Defender is day</i>	7 may
18	<i>Victory Day</i>	9 may
19	Examination session	from 12 June to 23 June
20	Holidays	from 26 June to 31 August
21	FX delivery	from 12 June to 30 June
22	Enrollment for a trimester	from 26 June to 30 June
23	Final examination	until June 30
24	Summer trimester	from 3 June to 11 August
25	<i>Capital Day</i>	6 July

Approved by the Academic Council of the NAO 'S.Seifullin KATU',
 Protocol No. 14 of 13.05 2022.

☑ **Note:** If it concurs with a weekend or a holiday, study begins on the next working day.

Appendix 2. Working curriculum

WORKING CURRICULUM																													
For the modular education program "Animal science"																													
In speciality D132 – Animal breeding																													
Course years 2022-2025																													
Degree : Doctoral studies by specialization (scientific & pedagogical direction)																													
Form of education: Full-time (PhD 3 years) trimestr																													
Entry year : 25-05-2022																													
Module code	Module name	Discipline cycle component	Code of subject	Subject name	Academic credits	Control in the academic period					Volume of hours						Distribution of credits per academic period												
						Exams	Differentiated test (practice)	Differentiated test (course paper)	Practice/SRW	Total	In-class learning	including			Self-study work of PhD	Self-study work of PhD	1 course			2 course			3 course						
												Lectures	Practice	Lab practicals			1	2	3	4	5	6	7	8	9				
																										Number of weeks in the academic period			
10	10	10	10	10	10	10	10	10	10																				
Modules of specialty/education program																													
1	Feeding and breeding of farm animals	AS ES	EPKPZh 7306	Energy-protein feeding of productive animals	5	1				150.0	50.0	1/20	2/30		1/20	5/80	5.0												
2		AS ES	TPTZh 7307	Technology and problems of precision animal husbandry	5	2				150.0	50.0	1/20	2/30		1/20	5/80		5.0											
3		AS ES	TPPPZh 7303	Technology and problems of livestock production	5	2				150.0	50.0	1/20	2/30		1/20	5/80		5.0											
4		AS ES	DKVZh 7301	Detailed feeding of high-producing animals	5	1				150.0	50.0	1/20	2/30		1/20	5/80		5.0											
5	Research	BS U	MNI 7201	Methods of scientific researches	5	1				150.0	50.0	1/20	2/30		1/20	5/80		5.0											
6	ch	BS U	AP 7202	Academic writing	5	1				150.0	50.0	1/20	2/30		1/20	5/80		5.0											
7	Breeding and	AS ES	NMOVSh 7309	New methods of reproduction assessment of agricultural animals	5	2				150.0	50.0	1/20	2/30		1/20	5/80		5.0											
8	g and	AS ES	SVSh 7310	Selection and reproduction of farm animals	5	2				150.0	50.0	1/20	2/30		1/20	5/80		5.0											
Scientific research																													
9	Additional kinds of training	RW CS	NIRDWDD	PhD student's research work, incl. doctoral thesis	5					150.0							5.0												
10		RW CS	NIRDWDD	PhD student's research work, incl. doctoral thesis	10					300.0									10.0										
11		RW CS	NIRDWDD	PhD student's research work, incl. doctoral thesis	15					450.0										15.0									
12		RW CS	NIRDWDD	PhD student's research work, incl. doctoral thesis	15					450.0											15.0								
13		RW CS	NIRDWDD	PhD student's research work, incl. doctoral thesis	15					450.0												15.0							
14		RW CS	NIRDWDD	PhD student's research work, incl. doctoral thesis	15					450.0													15.0						
15		RW CS	NIRDWDD	PhD student's research work, incl. doctoral thesis	20					600.0														20.0					
16		RW CS	NIRDWDD	PhD student's research work, incl. doctoral thesis	20					600.0															20.0				
17		RW CS	NIRDWDD	PhD student's research work, incl. doctoral thesis	8					240.0																		8.0	
18		BS U	PP 7203	Teaching practice	5					150.0																			
19		BS U	PP 8204	Teaching practice	5					150.0																			
20		AS U	IP 8304	Research practice	5					150.0																			
21		AS U	IP 8305	Research practice	5					150.0																			
Total of theoretical course					40	8	0	0	0	5490	400	160	240	0	160	640													
AC	Additional courses				143																								
PP	Teaching practice				10		3,5		5																				
RP	Research practice				10		4,6		6																				
PhDSR	PhD student's research work, incl. doctoral thesis				123				1,2,3,																				
FA	Final attestation				12																								
	Оформление и защита докторской диссертации/проекта				12				9																				
Total					195					5850	400	160	240	0	160	640													

WORKING CURRICULUM

For the modular education program "Animal science"

In specialty D132 – Animal breeding

Course years 2021-2024

Degree : Doctoral studies by specialization (scientific & pedagogical direction)

Form of education: Full-time (PhD 3 years) trimester

Entry year : 25-05-2021

Module code	Module name	Discipline code	Discipline	Code of subject	Subject name	Academic credits	Control in the academic period					Volume of hours					Distribution of credits per academic period																						
							Exams	Differentiated test/pract	Differentiated test/course paper	Practice/SRW	Total	In-class learning	including			Self-study work of PhD	Self-study work of PhD	1 course			2 course			3 course															
													Lectures	Practice	Lab practicals			10	10	10	10	10	10	10	10	10													
																											Number of weeks in the academic period												
10	10	10	10	10	10	10	10	10	10																														
Modules of specialty/education programm																																							
1	Feeding and breeding of farm animals	AS	ES	TPPPZh 7303	Technology and problems of livestock	5	2				150.0	50.0	1/20	2/30		1/20	5/80	5.0																					
2		AS	ES	DKVZh 7301	Detailed feeding of high-producing animals	5	1				150.0	50.0	1/20	2/30		1/20	5/80	5.0																					
3	Research	BS	U	MNI 7201	Methods of scientific researches	5	1				150.0	50.0	1/20	2/30		1/20	5/80	5.0																					
4		BS	U	AP 7202	Academic writing	5	1				150.0	50.0	1/20	2/30		1/20	5/80	5.0																					
5	Breeding and	AS	ES	SVSZh 7302	Selection and reproduction of farm animals	5	2				150.0	50.0	1/20	2/30		1/20	5/80	5.0																					
Scientifically research																																							
6	Additional kinds of training	R	C	NIRDWDD	PhD student's research work, incl. doctoral	5					150.0							5.0																					
7		R	C	NIRDWDD	PhD student's research work, incl. doctoral	10					300.0								10.0																				
8		R	C	NIRDWDD	PhD student's research work, incl. doctoral	15					450.0								15.0																				
9		R	C	NIRDWDD	PhD student's research work, incl. doctoral	15					450.0								15.0																				
10		R	C	NIRDWDD	PhD student's research work, incl. doctoral	15					450.0								15.0																				
11		R	C	NIRDWDD	PhD student's research work, incl. doctoral	15					450.0								15.0																				
12		R	C	NIRDWDD	PhD student's research work, incl. doctoral	20					600.0								20.0																				
13		R	C	NIRDWDD	PhD student's research work, incl. doctoral	20					600.0								20.0																				
14	R	C	NIRDWDD	PhD student's research work, incl. doctoral	8					240.0																													
15		BS	U	PP 7203	Teaching practice	5					150.0							5.0																					
16		BS	U	PP 8204	Teaching practice	5					150.0							5.0																					
17		AS	U	IP 8304	Research practice	5					150.0							5.0																					
18		AS	U	IP 8305	Research practice	5					150.0							5.0																					
Total of theoretical course						25	5	0	0	0	5040	250	100	150	0	100	400																						
AC	Additional courses					143																																	
PP	Teaching practice					10		3,5		5																													
RP	Research practice					10		4,6		6																													
PhDSR	PhD student's research work, incl. doctoral thesis					123				1,2,3,																													
FA	Final attestation					12																																	
	Оформление и защита докторской диссертации/проекта					12				9																													
Total						180					5400	250	100	150	0	100	400																						

WORKING CURRICULUM

For the modular education program "Animal science"

In specialty D132 – Animal breeding

Course years 2020-2023

Degree : Doctoral studies by specialization (scientific & pedagogical direction)

Form of education: Full-time (PhD 3 years) trimester

Entry year : 25-05-2020

Module code	Module name	Discipline cycle	Discipline	Code of subject	Subject name	Academic credits	Control in the academic period					Volume of hours					Distribution of credits per academic period																						
							Exams	Differentiated test/pract	Differentiated test (course paper)	Practice/SRW	Total	In-class learning	including			Self-study work of PhD	Self-study work of PhD	1 course			2 course			3 course															
													Lectures	Practice	Lab practicals			1	2	3	4	5	6	7	8	9													
																											Number of weeks in the academic period												
10	10	10	10	10	10	10	10	10	10																														
Modules of specialty/education program																																							
1	Feeding and breeding of farm animals	AS	ES	TPPPZh 7303	Technology and problems of livestock	5	2				150.0	50.0	1/20	2/30		1/20	5/80	5.0																					
2		AS	ES	DKVZh 7301	Detailed feeding of high-producing animals	5	1				150.0	50.0	1/20	2/30		1/20	5/80	5.0																					
3	Research	BS	U	MNI 7201	Methods of scientific researches	5	1				150.0	50.0	1/20	2/30		1/20	5/80	5.0																					
4		BS	U	AP 7202	Academic writing	5	1				150.0	50.0	1/20	2/30		1/20	5/80	5.0																					
5	Breeding and	AS	ES	SVSZh 7302	Selection and reproduction of farm animals	5	2				150.0	50.0	1/20	2/30		1/20	5/80	5.0																					
Scientifically research																																							
6	Additional kinds of training	R	C	NIRDWDD	PhD student's research work, incl. doctoral	5					150.0							5.0																					
7		R	C	NIRDWDD	PhD student's research work, incl. doctoral	10					300.0								10.0																				
8		R	C	NIRDWDD	PhD student's research work, incl. doctoral	15					450.0									15.0																			
9		R	C	NIRDWDD	PhD student's research work, incl. doctoral	15					450.0										15.0																		
10		R	C	NIRDWDD	PhD student's research work, incl. doctoral	15					450.0											15.0																	
11		R	C	NIRDWDD	PhD student's research work, incl. doctoral	15					450.0												15.0																
12		R	C	NIRDWDD	PhD student's research work, incl. doctoral	20					600.0													20.0															
13		R	C	NIRDWDD	PhD student's research work, incl. doctoral	20					600.0														20.0														
14	R	C	NIRDWDD	PhD student's research work, incl. doctoral	8					240.0																											8.0		
15		BS	U	PP 7203	Teaching practice	5					150.0								5.0																				
16		BS	U	PP 8204	Teaching practice	5					150.0										5.0																		
17		AS	U	IP 8304	Research practice	5					150.0										5.0																		
18		AS	U	IP 8305	Research practice	5					150.0											5.0																	
Total of theoretical course						25	5	0	0	0	5040	250	100	150	0	100	400																						
AC	Additional courses					143																																	
PP	Teaching practice					10		3,5		5																													
RP	Research practice					10		4,6		6																													
PhDSR	PhD student's research work, incl. doctoral thesis					123				1, 2, 3,																													
FA	Final attestation					12																																	
	Оформление и защита докторской диссертации/проекта					12				9																													
Total						180					5400	250	100	150	0	100	400																						

Appendix 3. Matrix of achievability of the formed learning outcomes according to the educational program with the help of academic disciplines

№	Name of the discipline	Brief description of the discipline	Number of credits	Generated learning outcomes				
				ON 1	ON 2	ON 3	ON 4	ON 5
Cycle of basic disciplines University component								
1	Academic writing	Development of relevant competencies of doctoral students aimed at developing the willingness and ability to implement research projects and present results in writing in accordance with the norms of the international academic community. Familiarization with the requirements for the design and structure of the presentation of research results in scientific articles, dissertations, patents.	5	v	v			
2	Methods of scientific researches	Mastering the basic theoretical provisions, laws, principles, terms, concepts, processes, methods, technologies, tools, operations for the implementation of scientific activities; Formation of knowledge about: methods of planning and organization of scientific research; a general methodology of scientific design, creativity, a general scheme for organizing scientific research; conducting scientific research, analysis, experiments.	5	v	v			
Cycle of major disciplines Component of choice								
1	Detailed feeding of high-producing animals	Principles of drawing up detailed and balanced diets. Features of feeding highly productive and breeding farm animals. Detailed feeding of lactating cows, dry cows and breeding bulls-producers of meat and dairy products. Scientific justification of directed feeding of young animals. Control of the usefulness of feeding highly productive animals. The scientific foundations of feed production and the necessary conditions for obtaining high-quality feed. Features and scientific foundations of feeding sheep, horses and poultry by periods of their development and productivity.	5				v	
2	New methods of reproduction assessment of agricultural animals	Principles and practice of monitoring the reproduction of farm animals, anatomical structures and physiological characteristics of groups of animals associated with reproduction. Animal husbandry requirements associated with breeding animals, behavioral changes in animals during pregnancy, territorial behavior, and	5			v		

		environmental processes that can affect reproduction, birth and hatching. Factors that can interfere with reproduction, natural, normal and abnormal behavior of farm animals during breeding.						
3	Selection and reproduction of farm animals	Scientific achievements in the field of breeding and reproduction of farm animals. Fundamental and applied methods of breeding and reproduction. Organization of breeding work in conditions of intensification of animal husbandry, application of modern achievements in the field of breeding and reproduction. Forms, principles of evaluation, methods of selection and assortment of highly productive farm animals.	5			v		
4	Technology and problems of livestock production	Putting forward the problems of scientific research in the livestock industry. Foreign experience in solving the problems of livestock production. The main problems in animal husbandry in Kazakhstan. Use and results of application of advanced technologies in Kazakhstan. Ways to solve the problems of increasing the productivity of animals on the basis of improving, improving the conditions of feeding and keeping. Ways to solve the problems of using valuable genetic resources on the basis of our own breeding base. Technological methods for increasing productivity, scientific approaches to improving the efficiency of production and sales of livestock products.	5					v
5	Technology and problems of precision animal husbandry	Application of advanced technologies in order to optimize the contribution of each animal to the production process, environmental factors, climatic conditions, feed supply and additives for precision animal husbandry. Discipline gives an understanding of the processes occurring in the room and provides the ability to respond to them if necessary. Course studies technologies and problems of precision animal husbandry, optimal management in all stages of production, system-forming elements of management in the field of animal husbandry.	5					v
6	Energy-protein feeding of productive animals	Energy-protein usefulness of animal feeding diets and control over it. Balanced diets for energy (heat production) and structural compounds for the biosynthesis of products (protein). Energy-protein ratio, which allows to reduce feed consumption for production.	5				v	

**MAP of methodological support
«8D08201 Animal science»**

Total disciplines of the educational program - 5

Of these, how many disciplines are taught at the graduating department - 5

Of these, how many in other departments - 0

Map №1.

Information about the availability of a fund of educational and scientific literature

NJSC «S.Seifullin KATU» of the Department «Technology of production and processing of animal products» for the 2022-2023 academic year

№ i/n	Academic subject, academic discipline	The number of students studying the subject, the discipline (estimated enrollment)	Educational literature (title, year of publication, authors)	Educational and methodical, scientific literature (title, year of publication, authors)	Quantity at least 1 copy
1	2	3	4	5	6
1	Academic writing	3	1 Короткина И.Б. Академическое письмо: процесс, продукт и практика. Учебное пособие. Москва. 295 с. 2019. 2 Салагаев, В. Как написать диплом и диссертацию : учебное пособие / В. Салагаев. - Алматы : Ун-т "Туран", 2014. - 320 с	1 Лойко В.И., Луценко Е.В., Орлов А.И. Современные подходы в наукометрии: монография / Под науч. ред. проф. С.Г. Фалько. - Краснодар: КубГАУ. 2017. - 532 с. 2 Бедный Б.И., Миронос А.А., Сорокин Ю.М., Сулейманов Е.В. Наука и научная деятельность: организация, технологии, информационное обеспечение. Нижний Новгород: Из-во ННГУ, 2013. – 228 с.	1 1 Web resources
2	Methods of scientific researches	3	1 С.Қ. Бостанова, С.М. Жумагазиева Мал шаруашылығындағы ғылыми зерттеулер. Оқу құралы. Нұр-Сұлтан: Сейфуллин атындағы Қазақ		50

			<p>агротехникалық университетінің баспасы, 2020 ж. 108 б.</p> <p>2 Демеуов А.Қ. Ғылыми зерттеу жұмысы: оқу құралы / А.Қ. Демеуов. - Алматы: Эверо, 2018. - 132 б.</p> <p>3 Бегімбеков Қ.Н. Зоотехниялық ғылыми зерттеулер әдіснамасы. Оқулық. Алматы: Эверо, 2015 ж. 412 б.</p> <p>4 Бостанова, С. К. Научные исследования в животноводстве: учеб. пособие / С. К. Бостанова ; рец.: К. Н. Баязитова, Б. С. Майканов ; М-во сельского хоз-ва РК, Каз. агротехн. ун-т им. С.Сейфуллина. - Астана : КазАТУ им. С.Сейфуллина, 2018. - 111 с.</p>		<p>4</p> <p>Web resources</p> <p>20</p>
3	Detailed feeding of high-producing animals	3	<p>1 Омарқожаұлы Н. Мал азығын бағалау және малды азықтандыру / Оқулық -. Алматы, Эверо, 2022, 350 б.</p> <p>2 Омарқожаұлы Н., Абдрахманов С. Мал азықтандыру және азықтандыру сапасын бақылау / Анықтамалық оқу құралы.- Алматы, Лантар Трейд, 2018, 217 б.</p>	<p>1 Жазылбеков, Н. А. Справочник по пищеварению и сбалансированному кормлению крупного рогатого скота (для фермеров) : справочное издание / Н. А. Жазылбеков, А. А. Тореханов, Б. М. - Алматы : Бастау, 2013. - 272 с</p>	<p>20</p> <p>1</p> <p>20</p>
4	New methods of reproduction assessment of agricultural animals	3	<p>1 Дүйшекеев , О. Д. Сүтті ірі қара физиогенетикасы мен селекциясы; Нарықтағы мал шаруашылығы / О. Д. Дүйшекеев , Ш. Д. Даленов, К. А. Сарханов. - Қарағанды : Tengri Ltd, 2019. - 524 б</p>	<p>1 Ускенов Р.Б., Исабекова С.А., Бостанова С.К., Шайкенова К.Х., Шамшидин А.С., Абугалиев С.К., Харжау А.Х. РЕКОМЕНДАЦИИ по нормам выбраковки коров и телок молочного направления продуктивности в Республике Казахстан</p>	<p>6</p> <p>30</p>
5	Selection and reproduction of farm	3	<p>1 Tomar, Arun Kumar; Tomar, Sukhvir Singh; Singh, Rajbir. Animal Genetics</p>	<p>1 Применение элементов цифровых технологий в молочном</p>	<p>Web resources</p>

	animals		<p>and Breeding New Delhi: Daya Publishing House. 2016. eBook.</p> <p>2 Marcondes Seneda, Marcelo; Silva-Santos, Katia Cristina; Marinho, Luciana Simões Rafagnin. Biotechnology of Animal Reproduction. Series: Recent Trends in Biotechnology. Hauppauge, New York: Nova Science Publishers, Inc. 2016. eBook.</p>	<p>скотоводстве Северного Казахстана: монография// Алимжанова Л.В., Джакупова, Ускенов Р.Б., Исабекова С.А., Бостанова С.К., Шайкенова К.Х. – Нур-Султан: КазАТУ им. С.Сейфуллина, 2020. -84 с</p> <p>2 Чесноков, Ю. В. Молекулярно-генетические маркеры и их использование в предселекционных исследованиях = Парал. тит. англ. : научное издание / Ю. В. Чесноков ; Россельхозакадемия. - СПб. : АФИ, 2013. - 116 с</p>	<p>10</p> <p>1</p>
6	Technology and problems of livestock production	3	<p>1 Amy J. Fitzgerald. Animals as Food: (Re)connecting Production, Processing, Consumption, and Impacts. Series: The Animal Turn. East Lansing, Michigan: Michigan State University Press. 2015. eBook.</p> <p>2 Air Emissions from Animal Feeding Operations: Current Knowledge, Future Needs. National Research Council; Division on Earth and Life Studies; Board on Environmental Studies and Toxicology; Board on Agriculture and Natural Resources; Committee on Animal Nutrition; Ad Hoc Committee on Air Emissions from Animal Feeding Operations. Washington, D.C.: National Academies Press. 2003. eBook., База данных: eBook</p> <p>3 Rebecca Doyle; John Moran. Cow Talk: Understanding Dairy Cow Behaviour to Improve Their Welfare on Asian Farms. Melbourne: CSIRO</p>	<p>1 Рзабаев, С. Рекомендации по повышению племенных и продуктивных качеств местных пород лошадей мясного и молочного направления продуктивности / С. Рзабаев, Т.С. Рзабаев, К.С. Рзабаев; Министерство сельского хозяйства Республики Казахстан, Республиканская Палата местных пород лошадей мясного и молочного направления продуктивности. - Актобе: Актюбинский СХОС, 2017. - 75 с</p>	<p>Web resources</p> <p>1</p>

			PUBLISHING. 2015. eBook		
7	Technology and problems of precision animal husbandry	3	1 Laffan, Jennifer. Managing and Marketing Beef. [Paterson, N.S.W]: Tocal College, NSW DPI. 2016. eBook. 2 ARUN KUMAR TOMAR; SUKHVIR SINGH TOMAR. SUSTAINABLE LIVESTOCK AND POULTRY BREEDING. Daya Publishing House. 2017. eBook.	1 Ауыл шаруашылық өнімдерді өндейтін технологиялық жабдықтар : практикум / А.М. Әбдіров [ж.б.] ; Сын-пікірші М. Какимов. - Астана: С.Сейфуллин атындағы ҚазАТУ, 2018. - 156 б.	Web resources 20
8	Energy-protein feeding of productive animals	3	1 Омарқожаұлы Н. Мал азығын бағалау және малды азықтандыру / Оқулық -. Алматы, Эверо, 2022, 350 б. 2 Омарқожаұлы Н., Абдрахманов С. Мал азықтандыру және азықтандыру сапасын бақылау / Анықтамалық оқу құралы.- Алматы, Лантар Трейд, 2018, 217 б.	1 Жазылбеков, Н. А. Справочник по пищеварению и сбалансированному кормлению крупного рогатого скота (для фермеров) : справочное издание / Н. А. Жазылбеков, А. А. Тореханов, Б. М. - Алматы : Бастау, 2013. - 272 с	20 1 20

Map №2.

Information about the availability of educational and scientific literature on digital media

NJSC «S.Seifullin KATU» of the Department «Technology of production and processing of animal products» for the 2022-2023 academic year

№ i/n	Academic discipline by profession, direction of personnel training, by specialty qualifications being prepared	Name, year of creation	The author(s)	Information about the presence of a subscription to international, national databases
1	2	3	4	5
1	Academic writing	Академическое письмо, 2020	Шинкаренко Е.А.	https://e.lanbook.com/book/191824
		Academic writing and feedback, 2020	Kadirova N.K.	https://elibrary.ru/item.asp?id=43142713
2	Methods of scientific researches	Методы исследований в частной зоотехнии, 2015	М.В. Забелина	https://www.sgau.ru/files/pages/14691/143279596812.pdf
		Ғылыми зерттеулердің	Абдигалиева Т.Б.	http://rmebrk.kz/book/1172141

		әдістемесі, 2019		
3	Detailed feeding of high-producing animals	Кормление с/х животных, 2013	Шупик М., Райхман А.	https://www.twirpx.com/file/1480652/
		«Современные системы нормированного кормления», 2021	Кердяшов Н.Н.	https://e.lanbook.com/book/261560
4	New methods of reproduction assessment of agricultural animals	Ауыл шаруашылығы малымен жүргізілетін селекциясының генетикалық негіздері, 2013	Д.Қ. Найманов	http://rmebrk.kz/book/1025937
		Animal Genetics and Breeding New Delhi, 2016	Tomar, Arun Kumar, Sukhvir Singh	https://eds.p.ebscohost.com/eds/detail/detail?vid=3&sid=113eccb1-3a0f-4caf-a424-4b8c6882c57d%40redis&bdata=JkF1dGhUeXB1PWlwJmxhbmc9cnUmc2l0ZT1lZHMtbG12ZQ%3d%3d#AN=1074593&db=nlebk
5	Selection and reproduction of farm animals	Ауыл шаруашылығы малдарын өсіру және селекциясы, 2013	Насамбаев Е.Г., Ахметалиева А.Б.	http://rmebrk.kz/book/1173564
		Biotechnology of Animal Reproduction. Series: Recent Trends in Biotechnology, 2016	Marcondes Seneda, Silva-Santos, Katia Cristina	https://eds.p.ebscohost.com/eds/detail/detail?vid=5&sid=113eccb1-3a0f-4caf-a424-4b8c6882c57d%40redis&bdata=JkF1dGhUeXB1PWlwJmxhbmc9cnUmc2l0ZT1lZHMtbG12ZQ%3d%3d#AN=1258659&db=nlebk
6	Technology and problems of livestock production	«Мал шаруашылығы өнімдерін өндіру технологиясы», 2018	Н.Ж.Қажғалиев, С.К.Бостанова	http://portal.kazatu.kz/e-books/content/P1G9gIR1Aa09DibfMA3A/index.pdf
		Animals As Food : (Re)connecting Production, Processing, Consumption, and Impacts. Series: The Animal Turn. East	Amy J. Fitzgerald	https://eds.s.ebscohost.com/eds/detail/detail?vid=2&sid=3507d463-2ad1-4b75-82f43e204bdd7cd3%40redis&bdata=JkF1dGhUeXB1PWlwJmxhbmc9cnUmc2l0ZT1lZHMtbG12ZQ%3d%3d#AN=2154022&db=nlebk

		Lansing, 2015		
7	Technology and problems of precision animal husbandry	«Производство продукции животноводства», 2015	Ляшенко В.В., Губина А.В., Каешова И.В.	https://e.lanbook.com/book/142160
		Cow Talk: Understanding Dairy Cow Behaviour to Improve Their Welfare on Asian Farms, 2015	Rebecca Doyle; John Moran	https://eds.s.ebscohost.com/eds/detail/detail?vid=7&sid=3507d463-2ad1-4b75-82f4-3e204bdd7cd3%40redis&bdata=JkF1dGhUeXBIPWlwJmxhbmc9cnUmc2l0ZT1lZHMtbGl2ZQ%3d%3d#AN=947312&db=nlebk
8	Energy-protein feeding of productive animals	Основы питания и кормления с/х животных, 2015	Рядчиков В.Г.	https://lanbook.com/catalog/discipline/kormleniya-zhivotnykh/
		«Нормированное кормление крупного рогатого скота», 2017	Полева Т.А.	https://e.lanbook.com/book/149596

Chairman of the FCAQ Faculty of Veterinary and Animal Husbandry Technology

Shaikenova K.H.

Head of the Department «Technology of production and processing of animal products»

Bostanova S.K.

		Lansing, 2015		
7	Technology and problems of precision animal husbandry	«Производство продукции животноводства», 2015	Ляшенко В.В., Губина А.В., Каешова И.В.	https://e.lanbook.com/book/142160
		Cow Talk: Understanding Dairy Cow Behaviour to Improve Their Welfare on Asian Farms, 2015	Rebecca Doyle; John Moran	https://eds.s.ebscohost.com/eds/detail/detail?vid=7&sid=3507d463-2ad1-4b75-82f4-3e204bdd7cd3%40redis&bdata=JkF1dGhUeXBIPWlwJmxhbmc9cnUmc2l0ZT1lZHMtbGl2ZQ%3d%3d#AN=947312&db=nlebk
8	Energy-protein feeding of productive animals	Основы питания и кормления с/х животных, 2015	Рядчиков В.Г.	https://lanbook.com/catalog/discipline/kormleniya-zhivotnykh/
		«Нормированное кормление крупного рогатого скота», 2017	Полева Т.А.	https://e.lanbook.com/book/149596

Chairman of the FCAQ Faculty of Veterinary and Animal Husbandry Technology

Shaik

Shaikenova K.H.

Head of the Department «Technology of production and processing of animal products»

Bostanova

Bostanova S.K.