

MINISTRY OF EDUCATION AND SCIENCE OF THE REPUBLIC OF KAZAKHSTAN

KARAGANDA UNIVERSITY NAMED AFTER ACADEMICIAN E.A. BUKETOV

«AGREED»

Director of the Nazarbayev Intellectual School of Chemistry and Biology in Karaganda

Yakupov R.M.

2022 year



«AGREED»

Director of the Boarding school "Bilim - innovation No. 2" of Karaganda region education department

Pirmaganbetova G.S.

03 2022 year.



«AGREED»

Director of the Specialized boarding school "Murager" of Karaganda region education department

Utebayev N.G.

" 25 " 03 2022 year.

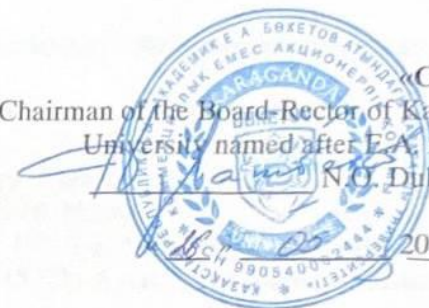


«CLAIM»

Chairman of the Board-Rector of Karaganda University named after E.A. Buketov

N.O. Dufatbekov

2022 year.



EDUCATIONAL PROGRAM

in the field of training «7M015-teacher training in natural science subjects»

«7M01505 – Biology»

Karaganda 2022

The educational program "«7M01505- Biology » is developed on the basis of:

- Law of the Republic of Kazakhstan dated July 27, 2007 № 319-III "on education"
 - Law of the Republic of Kazakhstan dated July 11, 1997 № 151-I. "On languages in the Republic of Kazakhstan - State mandatory standard of postgraduate education № 604 dated August 31, 2018 "
 - National qualifications framework of March 16, 2016 by the Republican tripartite Commission on social partnership and regulation of social and labor relations.
 - Order of MES of RK "On approval of Rules of organization of educational process on credit technology" from October 2, 2018 №152
- The classifier of areas of education and training with higher and postgraduate education of October 13, 2018. №569.
- Order of the Minister of Education and Science of the Republic of Kazakhstan dated May 10, 2018 No. 199 "On Amendments and Additions to the Order of the Minister of Education and Science of the Republic of Kazakhstan dated April 3, 2013 No. 115 "On Approval of standard curricula in general education subjects, elective courses and electives for general education organizations".

For pedagogical specialties:

- State mandatory standard of primary education. Approved by the decree of the Government of the Republic of Kazakhstan dated August 23, 2012 №1080. Resolution of the Government of the Republic of Kazakhstan dated August 15, 2017 №484.
- Professional standard "Teacher "(Appendix to the order of the Chairman of the Board of the National chamber of entrepreneurs of the Republic of Kazakhstan "Atameken" dated June 8, 2017 №133).

For other majors:

- Professional standard " national qualifications framework (2016) "(approved by the Protocol of the Republican tripartite Commission on social partnership and regulation of social and labor relations within the framework of national qualifications dated March 16, 2016)
- Industry qualifications framework " industry qualifications framework in the field of education "(approved by the minutes of the meeting of the industry tripartite Commission on social partnership and regulation of social and labor relations under the Ministry of education and science of the Republic of Kazakhstan dated November 23, 2016 No. 2).

By the decision of the Academic Council of the University of 2021 "01" september since the beginning of the year, it was proposed to put into effect.

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	Passport of the educational program
1	Code and name of the educational program: «7M01505 – Biology»
2	Code and classification of the field of education, areas of training: 7M01 – Pedagogical sciences, 7M015 – Teacher training in natural science subjects
3	Group of educational programs: M014- Training of biology teachers
4	Volume of loans: 120 ECTS
5	Form of training: full - time
6	Language of instruction: Kazakh, Russian, English
7	Degree awarded: Master of Pedagogical Sciences in the educational program "7M01505-Biology"
8	Type of EP: current
9	Level according to ISCE – Level 7;
10	Level according to NQF – Level 7;
11	Level according to IQF – Level 7;
12	Distinctive features of OP: none
	Partner University (JEP)
	Partner University (TDEP)
13	Appendix number to the license for the direction of training: KZ83LAA00018495 dated 07/28/2020, No. 16
14	The name of the accreditation body and the validity period of the accreditation of the EP: Independent Agency for Quality Assurance in Education (IQAA) (Certificate of International accreditation of educational programs SA-A No.0193/1 dated November 09, 2020; certificate validity period November 09, 2020 – November 08, 2027)
15	The objectives of the educational program are to prepare a competitive teacher for work in the field of secondary and higher education, who has fundamental and applied knowledge in the field of theoretical biology and methods of teaching biology, skills of conducting scientific and pedagogical experiments, a high general intellectual level of development, literate and developed speech, humanitarian culture of thinking and skills of scientific organization of work.

16. Qualification characteristics of the graduate

a) List of graduate positions:

- teacher, specialist and laboratory assistant at universities, engineer, laboratory assistant at research institutes, sanitary and epidemiological stations;
- biology teacher in secondary schools, gymnasiums, colleges;
- specialist in yunnat stations, nature museums;
- specialist in state management organizations, education departments, akimats and other institutions.

b) The sphere and objects of professional activity: The sphere of professional activity of graduates is the field of theoretical and practical methods of teaching biology

The objects of professional activity of masters under the educational program "7M01505-Biology" are:

higher educational institutions of medical and biological profiles, secondary and secondary specialized educational organizations, research organizations of various profiles requiring higher postgraduate education in accordance with the legislation of the Republic of Kazakhstan.

c) Types of professional activity:

- educational (pedagogical): work as a biology teacher in various educational institutions (universities, schools, gymnasiums, lyceums, colleges, etc.), including teaching disciplines in English;
- research: performing scientific research in specialized disciplines in various organizations (botany, zoology, anatomy, physiology, biochemistry, genetics, etc.);
- project: implementation of general and specialized developments in design and engineering organizations (landscaping, watering, reconstruction, planning, for example, agrobiostations, yunnat stations);
- expert consulting;
- organizational and managerial

d) Functions of professional activity:

- educational (the correct application of the acquired knowledge in the pedagogical process, planning and conducting practical work in biology, improving methods and technologies of teaching biology);
- educating (the implementation of the upbringing of the younger generation in the context of the development of the national idea "Mangilik el", ensuring the unity of education and upbringing, cultural and educational, sanitary and hygienic work among students);
- methodological (organization and development of one's own pedagogical activity, expansion of skills in handling modern technology and the use of information technologies in the field of professional activity, planning, implementation, analysis of the results of pedagogical tasks in educational institutions, research, analysis and release of educational literature in the field of biology and methods of teaching biology);
- research (conducting research on current areas of biology and teaching methods);
- social and communicative (constant self-improvement and self-development through the use of reflexive techniques for professional and personal growth, maintaining the need and skills of independent creative mastery of new knowledge).

Formulation of learning outcomes based on competencies

Type of competencies	Learning result code	Learning outcomes (according to Bloom's taxonomy)
1. Behavioral skills and personal qualities (Soft skills)	LO1	Demonstrates stable knowledge and skills in the field of philosophy, pedagogy and psychology, in the practice of his own research.
	LO2	Applies a set of knowledge, skills and abilities for independent in-depth development of modern educational pedagogical technologies in the field of biology.
	LO4	Collects and interprets information to fulfill its own research concept, followed by the development of ways to use the results of scientific activity in practice.
	LO5	Possesses the skills and abilities of independent effective creative and research activities; offers options for commercialization of the results of his scientific work.
2. Digital competencies (Digital skills)	LO11	Expands the list of modern IT technologies used for conducting training sessions and educational process activities in their professional activities.
	LO12	Develops new ways of using ICT to enrich the learning environment and increase the motivation of students.
3. Professional competencies (Hard skills)	LO3	Explains the nuances of using biological terminology in English in professional communication.
	LO6	Deepens knowledge and expands the scope of skills in the field of theoretical and practical science for the successful assimilation of modern scientific achievements in various branches of biology.
	LO7	Analyzes the molecular mechanisms of biological processes; selects informative experimental methods of working with biological objects in field and laboratory conditions using modern equipment.
	LO8	Offers solutions to current problems in the field of scientific evolutionary biology; explains the role of animals in ecosystems.
	LO9	Evaluates the possibilities of practical implementation of the theoretical provisions of chronobiology and evolutionary biology; develops approaches to research activities based on modern value concepts of nature.
LO10	Differentiates the main methods of teaching biology, selects innovative pedagogical technologies implemented in higher education and secondary specialized educational institutions for use in their professional activities.	

Definition of discipline modules and compliance with learning outcomes

Learning result code	Name of the module	Name of disciplines	Volume (ECTS)
LO1 LO2 LO3 LO8 LO10	Philosophical and historical aspects of social and humanitarian knowledge	History and philosophy of science	4
		Higher school pedagogy	4
		Psychology of management	4
		Pedagogical practice	
LO2 LO3 LO5 LO10	Professional languages	Foreign language (professional)	5
		Theory and practice of Biological education (in English)	5
		Teaching biology in a foreign language	
LO1 LO2 LO7 LO11	Issues of modern science and technology	Commercialization of the results of scientific and scientific-technical activities	5
		Introduction of scientific research in education into practice	
		Innovation in biology Modern applied methods in biology	5
LO1 LO2 LO7 LO9 LO11	Theoretical and practical aspects of biology	Theoretical biology	5
		Modern biology	6
		Modern aspects of physiology	4
LO4 LO6 LO8 LO9 LO10 LO11	Theoretical and applied biology	Teaching biology in a modern school	4
		Modern problems of biology teaching methods	
		STEAM technologies in the modern educational space	4
		Conceptual Biology Training	4
		Chronobiology	
		Cyclic processes in biological systems	4
		Evolution and the animal system Phylogeny of the animal world	4
Experimental studies in zoology Zoological methods of studying ecosystem dynamics	4		
		Research practice	14
LO7 LO8 LO9 LO10 LO11	Final certification	Preparation and defense of a master's thesis Undergraduate research work, including internships and the implementation of a master	12

Matrix of achievability of learning outcomes

NN π/π	Name of disciplines	Brief description of the discipline (30-40 words)	Number of credits	Generated learning outcomes (codes)														
				LO1	LO2	LO3	LO4	LO5	LO6	LO7	LO8	LO9	LO10	LO11				
		Cycle of basic disciplines University component																
D1	History and philosophy of science	The history and philosophy of science as the study of the general laws of scientific knowledge in its historical development and changing socio-cultural context. Philosophy of science and methodology of science. Science as a cognitive activity and tradition, as a social institution and as a special sphere of culture. Science in the culture of modern civilization. Features of scientific knowledge. The functions of science in the life of society. Historical development of institutional forms of scientific activity. Scientific communities and their historical types.	4	+														
D2	Pedagogy of higher education	Course summary: Substantiates the modern paradigm of higher education, its content. Defines the driving forces and principles of the learning process in higher education. Reveals the features of modern didactic concepts in higher education. Demonstrates knowledge in the field of modern educational technologies. Selects the optimal and most effective forms of organization of the educational process in higher education.	4	+	+													
D3	Psychology of management	Management psychology as an independent scientific discipline. Personality and its potential in the management system. Organization and social group as objects of management. Mechanisms of group dynamics. Managerial communication. Motivation and effectiveness of the organization. Psychology of conflict and ways to resolve it. Psychological foundations of managerial decision-making.	4	+	+													
D4	Pedagogical practice	Methodology of conducting independent research and scientific and pedagogical activities that require a broad multidisciplinary education. Development and conduct of lectures, practical classes in	4	+	+													

		the disciplines. Development of tasks for independent work of students, SRSP. Methods of educational work with students.																
D5	Foreign language (professional)	Foreign language in professional activity. Everyday communication. Lexical minimum. The grammatical minimum required to work with professional documentation in a foreign language. Syntactic constructions of the studied language. Linguistic features of professional texts. Methods of independent work in the development of a foreign language. Teaching profession and professional foreign language.	4			+												
		Cycle of basic disciplines Component of choice																
D6	Theory and practice of biological education (in English)	Multilingualism in the educational process as the basis for the formation of a multicultural personality in the younger youth of Kazakhstan. Education and upbringing taking into account the requirements of the modern multicultural and multilingual world. Teaching subjects of the natural science cycle in English. Requirements for basic knowledge of biology, biological terms in English.	5			+												+
	Teaching biology in a foreign language	Methodology for the formation of theoretical knowledge about the basic concepts and patterns in biology in English. Teaching biological disciplines in English, methods, forms and tools. Conditions for creative self-realization and self-development of students. Expanding the vocabulary of the English language among students.																
D7	Commercialization of the results of scientific and scientific-technical activities	Theoretical and practical bases of commercialization of scientific research results. The specifics of the commercialization of the results of scientific research. The importance of commercialization of scientific research results for the scientific and educational and real sector of the economy. Regulatory and legal regulation in the field of commercialization of the results of scientific research. Mechanisms for the commercialization of the results of scientific research.	5				+	+										
	Introduction of scientific research in education into practice	Creative community of scientists and practical teachers. Ways of introducing the results of pedagogical research into practice. The specifics and complexity of the implementation of the results of scientific and pedagogical research into practice. Criteria for the degree of effectiveness of pedagogical experience and research. Mechanisms of introduction into practice of scientific research in education: domestic and foreign experience.					+	+										

D8	Innovation in biology	Innovation as the scientific basis of innovation activity. Types of innovations. Innovative theories in biology. Basic concepts and terminology. The role of innovation theory in modern biological science. Historical experience of innovation activity. The role of innovation in the life of society. Analysis of the current level of innovation activity in biological research.	5				+							
	Modern applied methods in biology	Modern applied methods in biology. Science and scientific worldview. Scientific research. Private and special methods of scientific research in biology. The use of scientific cognition methods. Research behavior. Methodology of scientific creativity. Varieties of scientific style of speech. Methods of experimental research. Statistical processing of experimental results.					+							
Cycle of specialized disciplines University component														
D9	Theoretical biology	The foundation of theoretical biology. General theory of systems. The fundamental biophysical principle of stable disequilibrium. The main directions of development of theoretical biology: evolutionary (theory of biological evolution), physico-chemical (molecular biology) and systems (general theory of systems). The fundamental principles of the phenomenon of life.	5						+	+				
D10	Modern biology	Modern biology: fundamental and applied aspects. Analysis of modern methodological approaches to the study of biology. Problems of cellular and reproductive biology. Nanotechnology in biology and biomedicine. Development of new biotechnologies for the efficient use of renewable energy sources. Actual problems of biosphere conservation.	6						+	+				
D11	Modern aspects of physiology	Methods of study used in physiology. The role of physiology in the development of biological knowledge. The connection of physiology with other sciences. Cytophysiology. Physiology of the nervous system. Physiology of motor systems. Physiology of the endocrine system and mechanisms of functioning of the endocrine glands. Physiology of circulatory and respiratory systems. Physiology of nutrition and digestion.	4						+	+				
Cycle of specialized disciplines Component of choice														
D12	Teaching biology in a modern school	Educational technologies in a modern school. Diversity and classification of learning technologies. The semantic search activity of a specialist in the design of training technology is modern traditional training. Technology of problem-based learning.	4										+	+

		Modular training. Information and communication technologies. Technology of project training. Interactive learning technologies. Case study technology. Technology for the development of critical thinking. Test technology.													
	Modern problems of biology teaching methods	Features of modern biological education and methods of teaching biology. Modern problems of biology teaching methods. Competence-based approach in teaching biology. Formation of universal educational achievements of students in biology. Modern forms and methods of organization of biology teaching. System-activity and differentiated approaches in teaching biology. Personality-oriented learning.												+	+
D13	STEM technologies in the modern educational space	The emergence of STEM technologies. Development of STEM education in the Republic of Kazakhstan at the present stage. The use of STEAM technologies in a secondary school. Project and case technologies in STEAM education. The use of information and communication technologies in the process of STEM education. Methods for evaluating the effectiveness of STEM education. Creating a STEAM project with students as a criterion for the effectiveness of training future teachers.	4											+	+
	Conceptual Biology Training	The ideas of conceptual learning in integration with traditional methods and means of teaching biology. Analysis of the intensity of training. Taking into account modern achievements in the field of natural sciences, using the latest data as a resource to motivate students to study biology. Creating an interactive environment. Taking into account the psychological characteristics of students												+	+
D14	Chronobiology	Basic concepts of biological rhythms. Methods of chronobiology. Chronobiological aspects of adaptation. Cosmic rhythms in cultural phenomena, social phenomena, history, economy. Adaptive role of circadian rhythms. Seasonal rhythms. The sleep-wake rhythm. Biological clock. Rhythmic structure of the habitat.	4							+	+			+	
	Cyclic processes in biological systems	Regulators of circadian biological rhythms. The problem of biological time. The comparability of biological rhythms with the rhythms of the habitat. Ultradian rhythms in animals and plants. Ontogenesis of circadian rhythms. Cyclicity in the dynamics of the number of animals and possible causes of cyclicity. The role of circadian clock genes in biological systems								+	+			+	
D15	Evolution and the animal system	Features of animal evolution. Evolution of integuments. The evolution of the skeleton. Evolution of the digestive system. Evolution of the respiratory system. The main stages of the evolution of the circulatory system. Evolution of the nervous system	4											+	+

		of animals. Formation of the sensory organs of vertebrates in embryogenesis. Types of excretory systems and their evolution. The main stages of the evolution of the reproductive system. Aromorphoses. Characteristics of the animal system.															
	Phylogeny of the animal world	Basic concepts, terms, principles and methods of phylogenetic systematics. A cladistic method based on reconstructing the phylogeny of invertebrates. Monophyletic taxa. Sympleiomorphy. Paraphyletic taxa. Polyphyletic taxa. Homologous and similar signs. Phylogeny and systematics of Protista, Metazoa.										+	+				
D16	Experimental studies in zoology	Features of modern zoological methods. Ecological and faunal studies. Methods of studying the spatial placement and reproduction of animals. Study of seasonal migrations of birds. Relative and absolute accounting methods. Methodology of faunal research. Spatial-typological structure and classification. The role of ecological and economic assessments of the animal population in rational nature management. Data banks, the use of GIS technologies.	4									+	+				
	Zoological methods of studying ecosystem dynamics	A systematic approach. Full-scale observations. Experiment. Modeling. Regime monitoring observations of the state of natural objects and processes. Analytical studies of natural and artificial (man-made) objects. Studies of morphological parameters. Statistical methods of evaluation. Remote research methods and methods of special cartography. Methods of social demography. Certification of natural and artificial objects.										+	+				
D17	Research practice	Organizational and preparatory stage. The research stage. Preparation and conduct of research on the profile of the master's thesis. Working with electronic databases. Creating a bibliography. Data processing, analysis and specification of results. Preparation of a scientific article and report. Preparation of a report on research practice with the reflection of research materials.	14			+						+	+	+	+	+	+

Coordination of the planned learning outcomes with the methods of teaching and evaluation within the module

Learning outcomes	Planned learning outcomes for the module	Teaching methods	Assessment methods
LO1	Demonstrates stable knowledge and skills in the field of philosophy, pedagogy and psychology, in the practice of his own research.	Problematic conversation	Presentation
LO2	Applies a set of knowledge, skills and abilities for independent in-depth development of modern educational pedagogical technologies in the field of biology.	Round table	Preparation of the poster
LO3	Explains the nuances of using biological terminology in English in professional communication.	Discussion	Abstract message
LO4	Collects and interprets information to fulfill its own research concept, followed by the development of ways to use the results of scientific activity in practice.	Individual and group work on educational Internet resources	Presentation
LO5	Possesses the skills and abilities of independent effective creative and research activities; offers options for commercialization of the results of his scientific work.	Project on the organization of educational space	Presentation
LO6	Deepens knowledge and expands the scope of skills in the field of theoretical and practical science for the successful assimilation of modern scientific achievements in various branches of biology.	Practical work on educational platforms	Portfolio
LO7	Analyzes the molecular mechanisms of biological processes; selects informative experimental methods of working with biological objects in field and laboratory conditions using modern equipment.	Problematic conversation	Control and verification work
LO8	Offers solutions to current problems in the field of scientific evolutionary biology; explains the role of animals in ecosystems.	Brainstorming	"Map of concepts"
LO9	Evaluates the possibilities of practical implementation of the theoretical provisions of chronobiology and evolutionary biology; develops approaches to research activities based on modern value concepts of nature.	Research project	Writing an essay
LO10	Differentiates the main methods of teaching biology, selects innovative pedagogical technologies implemented in higher education and secondary specialized educational institutions for use in their professional activities.	Project on the organization of educational space	Planning of different types of classes
LO11	Expands the list of modern IT technologies used for conducting training sessions and educational process activities in their professional activities.	Practical work on educational platforms	Portfolio
LO12	Develops new ways of using ICT to enrich the learning environment and increase the motivation of students.	Individual and group work on educational Internet resources	Presentation

Criteria for assessing the achievability of learning outcomes

LO codes	Criteria
LO1	Knows: basic epistemological models, the nature of transformations of the concept of rationality; forms and methods of pre-scientific, scientific and extra-scientific cognition, modern approaches to socio-humanitarian, natural science, pedagogical, psychological knowledge and their commensurability; pedagogy of higher education
	Can: use knowledge of psychology in management activities; organize research and professional pedagogical activities on the theoretical and methodological basis of pedagogical and psychological sciences.
	Owns: conceptual and categorical apparatus for solving research tasks and practical tasks; tools for applying knowledge of management psychology in professional activity;
LO2	Knows: features of the use of teaching tools in the educational process and methods of knowledge control in teaching biological disciplines
	Can: make notes and methodological developments of training sessions and other educational documentation that contribute to the organization and conduct of the educational process; organize and conduct training sessions and analyze them
	Owns: the skills of conducting various types of training sessions, compiling educational documentation and providing it to the educational process
LO4	Can: formulate and solve problems that arise in the course of research activities and require in-depth professional knowledge; choose the necessary research methods, modify existing and develop new methods based on the tasks of a specific study; analyze and comprehend the realities of modern theory and practice based on the methodology of socio-humanitarian, natural science, pedagogical and psychological knowledge
	Owns: skills of independent research and scientific and pedagogical activity requiring a broad multidisciplinary education; skills of applying methodological and methodological knowledge in conducting scientific research, pedagogical and educational work; skills of writing scientific articles, abstracts, speeches at conferences, symposiums, round tables, discussions and debates;
LO3	Knows: the basic biological laws, the etymology of biological terms, the history of their origin and authorship, the thesaurus of the biologist (lexical minimum), eponyms and bibliographic data of scientists whose names are associated with the names used in various fields of biology
	Can: able to explain the etymology of basic biological terms, use literature to increase the terminological stock, understands biological texts in English
	Owns: translates biological information from English and vice versa, owns the basic technical means of searching for modern scientific and biological information, terminological and conceptual apparatus of basic and specialized biological disciplines
LO6	Knows: basic biological laws, concepts, mechanisms of biological processes
	Can: independently search and analyze the results of new biological research to deepen knowledge and expand the scope of professional skills in the field of theoretical and practical science in various branches of biology
LO11	Can: to carry out research activities in the relevant professional field using modern research methods and information and communication technologies in the process of forming a personal biological terminological apparatus - concepts and terms
LO12	Knows: features of specialized biological software and platform training
	Owns: skills to develop new ways of using ICT to enrich the learning environment and increase the motivation of students
LO4	Can: to collect and interpret information for the formulation and implementation of their own research concept, followed by the development of

	ways of practical use of the results of scientific activity
	Owns: specific methods of scientific research in independent research work
LO5	Knows: about the possibilities of commercialization of the results of their scientific work; methodology of scientific knowledge; principles and norms governing the commercialization of scientific and scientific-technical activities, contributing to the integration of education, science, production and institutions of innovative development
	Can: effectively and efficiently organize their activities; operate with systematic knowledge in the field of commercialization of scientific and scientific-technical activities, assessment of achievement of targets and indicators of program implementation, determination of tasks for the development and improvement of programs
	Owns: skills of independent creative, research work; skills of registration of the results of scientific research and compliance with the ethics of scientific knowledge; implementation (use) of the results of scientific and (or) scientific and technical activities in the educational process, including using professional foreign terminology; .analysis and use of innovative research approaches in the process of scientific development
LO7	Knows: молекулярные механизмы биологических процессов
	Can: применять современные экспериментальные методы работы с биологическими объектами в полевых и лабораторных условиях
	Owns: basics of methods of working with modern equipment
LO8	Knows: ways of development and prospects of evolution and preservation of civilization; fundamentals of evolutionary processes, modern biospheric and evolutionary processes, the ability to assess them systematically
	Can: solve intellectual and personal problems (problems) in the field of scientific evolutionary biology and modern society
	Owns: methods of studying and classifying plants and animals, and their role in ecosystems
LO9	Knows: features of geopolitical and biospheric processes; mechanisms for predicting the consequences of the implementation of socially significant projects; new theories, research methods, new methodological approaches to biological research
	Can: plan, implement and analyze certain research activities based on modern value concepts of nature, evolutionary processes in it
	Owns: skills for the practical implementation of the theoretical provisions of evolutionary biology
LO10	Knows: features of the use of innovative pedagogical technologies for teaching biology; methodological possibilities of their use in their professional activities
	Can: apply innovative approaches to teaching in their profession; develop modern tools for implementing learning technologies; solve emerging problems as a teacher; find a compromise, correlate their opinion with the opinion of the team; comply with professional ethics, comply with ethical and moral standards of behavior.
	Owns: the skills of organizing the educational process using modern methods of teaching biology; the skills of generating new ideas for choosing methodological approaches in teaching, reflection with subsequent correction of their activities, teamwork, adequate orientation in pedagogical situations.

Graduate Attributes

High professionalism in the implementation of the educational process in biology, Emotional stability, High intelligence
 Adaptability to the global challenges of the modern world, Leadership, Strong citizenship. Understanding of the importance of principles and culture of academic integrity

Form 8

The graduate model of the educational program

Types of competencies	Description of competencies
1. Behavioral skills and personal qualities (Soft skills)	Has an idea about ethical, spiritual and cultural values, about the basic laws and forms of regulation of social behavior, about sociological approaches to personality, knows the traditions and culture of the peoples of Kazakhstan, trends in the development of society, is able to adequately navigate in various social situations, think creatively, be tolerant of traditions, culture of other peoples of the world, has an active life position; knows basic communication technologies and communication strategies; has a competent and developed speech in native and foreign languages, the skills and abilities of constructive dialogue, communication in a multicultural, polyethnic and multi-confessional society, is capable of critical perception of information, self-development and self-improvement, performance of their professional duties, competitive, motivated to actively participate in the procedures of leadership in the educational process institution
2. Digital competencies (Digital skills)	Understands the role of ICT in education, the basic principles of the use of ICT in the educational process; is able to expand the ICT used in professional activities; forms "technological literacy" among students and is able to develop new ways of using ICT to enrich the learning environment and the production of new knowledge; uses ICT to achieve educational results provided by educational standards, for evaluation activities, for the implementation of modern teaching methods, he is able to use ICT for current reporting and his professional development.
3. Professional competencies (Hard skills)	Possesses basic knowledge of fundamental pedagogical and psychological disciplines that contribute to the formation of a highly educated personality with a broad outlook and a culture of thinking; creates conditions for the development of creative potential, initiative, innovation, acquisition of knowledge, skills and abilities in fundamental and applied biological disciplines; possesses basic knowledge and skills in biology and biology teaching methods to determine and solve tasks in pedagogical and research orientation; uses modern scientific methods, methodological techniques and modern educational technologies in his professional educational, pedagogical and research activities.

Developers:

Members of the working group:

Head of the Department of Zoology

Associate Professor of the Department of Zoology, C.B.S.

Associate Professor of the Department of Zoology, C.B.S., Ph.D.

Senior lecturer of the Department of Zoology

Master's student of the MBO-51 group

Master's student of the MBO-52 group



A.Zh. Shaibek

G.O. Zhuzbayeva

O.L. Kovalenko

G.Zh. Zhomartova

A.Z. Zekenova

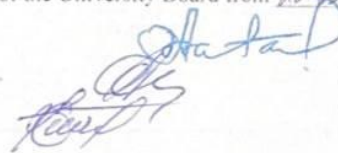
A.N. Mukanov

The educational program was reviewed by the Faculty Council from 15.03.2022 protocol No. 8The educational program was reviewed at the meeting of the Academic Council from 18.04.2022 protocol No. 5The educational program was reviewed and approved at the meeting of the University Board from 16.05.2022 protocol No. 12

Board Member-Vice-Rector for Academic Work

Director of the Academic Work Department

Dean of the Faculty



T. Z. Zhussipbek

G.S. Akybayeva

S.A. Talzhanov