NJSC SHAKARIM UNIVERSITY OF SEMEY

EDUCATIONAL PROGRAM

6B01 - Pedagogical sciences
(Code and classification of the field of education)

6B015 - Training of teachers in Natural science subjects
(Code and classification of the direction of training)

0114
(Code in the International Standard Classification of Education)

B013 - Biology teacher training
(Code and classification of the educational program group)

6B01517 - Biology (IP)
(Code and name of the educational program)

Bachelor
(Level of preparation)

Semey

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Semey 2024

PREFACE

Developed

The educational program 6B01517 - Biology (IP) in the direction of preparation 6B015 - Training of teachers in Natural science subjects on the basis of the State Compulsory Standards of Higher and Postgraduate Education approved by the Order of the Ministry of Science and Higher Education of the Republic of Kazakhstan dated July 20, 2022 No 2 (as amended by the order) was developed by the Academic Committee dated 20.02.2023 No 66).

Members of the Academic Committee	Full name	Academic degree, academic title, position
Head of the Academic Committee	Mukayev Zhandos	PhD, dean of the high school natural sciences
Educational program manager	Zharmukhametova Raushan	Senior Lecturer, Department of Chemistry and Biology
Member of the AC	Rakhimzhanova Akgul	PhD, Head of the Department of Natural Sciences
Member of the AC	Saparova Gulnara	Candidate of Biological Sciences, Associate Professor of the Department of Natural Sciences
Member of the AC	Sadykova Raigul	Candidate of Agricultural Sciences, Senior Lecturer at the Department of Natural Sciences
Member of the AC	Toleubaeva Gaukhar	Secondary School №37 Y. Altynsarin, biology teacher
Member of the AC	Kobelekova Moldir	Secondary school №30, biology teacher
Member of the AC	Nurpeissova Nazgul	student
Member of the AC	Bakytzhar Nursaya	student

Reviewing

Full name of the reviewer	Position, place of work
Nygmedzhanova Gulbarshyn	Secondary school №16 T. Amanov
Sovetova Anar Bolatovna	Nazarbayev Intellectual School of Physics and Mathematics of Semey city

Reviewed

At the meeting of the Quality Assurance Commission Natural and Mathematical of the faculty Record No 3, January 09, 2024 y.

Agreed

Head of the education department of the city of Semey Bulabaev B.Z.

Approved

at a meeting of the University Academic Council by protocol No. 6/1 of January 19, 2024.

at a meeting of the University Academic Council by protocol No. 11 of June 28, 2024.

Content

1.Introduction

1.1.General data

This educational program (EP) "Biology" is a national educational program for teacher training, which was developed in cooperation with various Kazakhstani universities and with the involvement of international consultants. Due to the fact that this is a national educational program, descriptive texts in it do not provide specific information, but highlight general pedagogical principles and cross-cutting topics (see also Appendix 1.). More detailed descriptions, for example, methodologies and assessments will be defined in the implementation plans of universities, taking into account institutional and regional conditions. The educational program is aimed at training a qualified biology teacher who is able to use innovative technologies, including STEM, CLIL, and IT technologies in professional activities. Graduates possess pedagogical and subject competencies in the field of conceptual and theoretical knowledge, conducting scientific research and applying them in science.

When implementing the educational program, it is planned to use artificial intelligence tools in the educational process, thereby developing digital competencies among students in a rapidly changing technological environment.

The educational program provides for the education of a student with special educational needs in the conditions of a higher educational institution, as well as his socialization and integration into society.

1.2.Completion criteria

The main criterion for the completion of the educational process in the preparation of bachelors is the acquisition of at least 205 credits of theoretical training, as well as at least 27 credits of practice, not 8 credits for the preparation of diplomas. Total 240 credits.

1.3.Typical study duration: 4 year

2.PASSPORT OF THE EDUCATIONAL PROGRAM

2.1.EP purpose	Training a qualified biology teacher who is able to use innovative technologies, including STEM-, CLIL-, IT-technologies in professional activities, possessing pedagogical and subject competencies in the field of conceptual and theoretical knowledge, conducting scientific research and applying them in science
2.2.Map of the training profile within the educational program	
Code and classification of the field of education	6B01 - Pedagogical sciences
Code and classification of the direction of training	6B015 - Training of teachers in Natural science subjects
Code in the International Standard Classification of Education	0114
Code and classification of the educational program group	B013 - Biology teacher training
Code and name of the educational program	6B01517 - Biology (IP)
2.3.Distinctive features of the OP (double degree/joint, OVPO-partner, Double major, innovative)	Innovative
2.4.Qualification characteristics of the graduate	
Degree awarded / qualification	Bachelor of Education in the educational 6B01517-Biologyprogram
Name of professional standard	Teacher
Atlas of new professions	-
Regional standard	-
Name of the profession / list of positions of a specialist	Teacher. High School Teacher
OQF qualification level (industry qualification framework)	6
Area of professional activity	- biology teacher in high school, lyceum, gymnasium, college; - departments of education, akimats, organizations for landscaping, ecology; - science - research organizations in various biological profiles; - organizations of various forms of ownership that use biology methods in their work; - state-owned enterprises and institutions. - business, economics. - officials in educational organizations (director of a general educational institution, deputy directors for educational work, etc.) - methodologist in educational organizations; - specialist in the field of pedagogical sciences;
Object of professional activity	-general secondary schools, lyceums, gymnasiums colleges; - ecological and biological centers, agrobiostations; - higher educational institutions; - education departments under akimats; - research institutes and laboratories; - state environmental institutions - nature reserves, national parks and botanical gardens;

	- production laboratories and farms for processing raw materials of animal and vegetable origin; - organization of landscaping and landscaping of urban and natural areas; - ecology committees.
Types of professional activity	Educational (pedagogical) activity: work as a biology teacher in various educational institutions (schools, gymnasiums, lyceums, colleges, etc.); Research activity: performing scientific research in specialized disciplines in various organizations: laboratories, biocenters, zoos, nature reserves, national parks, botanical gardens Project activity: implementation of general and specialized developments in design and engineering organizations (landscaping, watering, reconstruction, landscape planning); Production and management activities: in state structures of various levels (departments of education, akimats, laboratories of biological and chemical directions, etc.); Organizational and technological activities: in biological industries (sanitary and epidemiological stations, plants and animal products processing plants, etc.).
2.5.Graduate Model	Graduate Model Educational program 6B01517– Biology: 1. Demonstrate socio-cultural, economic, legal, environmental knowledge, communication skills, apply information technologies taking into account modern trends in the development of society. 2. Apply modern teaching technologies and criteria -based assessment, taking into account the individual, physiological and psychological characteristics of students. 3. Demonstrate scientific ideas about the diversity and systematics of the animal and plant world, knowledge about the human body and animals as an integrated system. Possess the methodology of determining plants and animals, skills of naturalistic work and environmental protection activities. 4. Explain the chemical nature of a living organism using theoretical knowledge about the basic properties and structures of substances, patterns of chemical reactions. 5. Possess a system of methodological knowledge and skills that ensure readiness to effectively carry out the educational process in biology at school, independence and creativity in their teaching activities. Be able to reconstruct various parts of previously acquired knowledge into a new context in accordance with

	current trends in the development of biology and use it in their professional activities. 6. Structure the natural science material on biology and design the biology learning process. Critically evaluate scientific content in the field of biology and related sciences, put forward ideas for their transformation. 7. Possess knowledge about the resource value of plants in Kazakhstan; describe the diversity of the structure of cells, tissues and vegetative organs of various plant groups; evaluate the evolutionary significance of morphological structures of plants. To develop skills in the image of design and planning solutions for the construction of landscape compositions. 8. Possess knowledge about the resource value of ichthyofauna, herpetofauna, ornithofauna and theriofauna. Describe the biodiversity, ecological status and importance of the most important animal representatives Kazakhstan. 9. Explain the basic mechanisms of heredity and variability; apply methods of statistical data analysis, forecasting and modeling of biological and environmental processes, including using modern information technologies. To argue the basic patterns of individual and historical development of living organisms. 10. Demonstrate knowledge of theoretical disciplines and apply them in professional activities; consolidate the skills of independent planning and conducting research experiments.

3.Modules and content of the educational program

General Education

Brief description of the module content

is designed to form and strengthen students` broad scientific outlook, necessary for a specialist with higher education. It serves as a basis for studying specialized subjects, develops thinking, forms the ability to deeply understand and flexibly respond to current changes in society, and allows for the development of criteria for an analytical attitude toward these changes and toward social reality as a whole.

Module disciplines

Foreign language

Information and communication technology

Kazakh(Russian) language (1)

Physical Culture

Foreign language

History of Kazakhstan

Kazakh(Russian) language (2)

Physical Culture

Physical Culture

Physical Culture

Philosophy

Social and Political Knowledge Module

Brief description of the module content

The content of the module examines the political organization and political life of society, problems of domestic policy and international relations, as well as the system of society, the patterns of its functioning and development.

Module disciplines

The module of socio-political knowledge (sociology, political science, cultural studies, psychology)

The basis of social development

Brief description of the module content

Brief description of the module Concept and essence of culture. Typology of culture. Culture and man. Genesis of culture. Values of ancient cultures. Values of national Kazakh culture. Methods and branches of human rights. Psychology of groups, collectives.

Module disciplines

Idea Mangilik El and spiritual modernization

Fundamentals of anti-corruption culture

Life Safety Basics

Fundamentals of Law

Business basics

Religious studies

Financial literacy

Digital Technology in Education

Support for students as individuals

Brief description of the module content

creating conditions for improving the capabilities of students and their environment in solving problems of social life, promoting the effective use and enrichment of the resource potential of the environment to ensure the intellectual, spiritual, moral and physical education of children and the professional and personal development of teachers.

Module disciplines

Age and Physiological Features of the Development of Children

Educational Science and Key Theories of Learning

Psychology in Education and Concepts of Interaction and Communication

Inclusive Educational Environment

Teaching Planning and Individualization of Learning

Teaching and assessment for learning

Brief description of the module content

The principle of scientific knowledge should be understood as a requirement to build the learning process based on modern scientific and technical data and students` knowledge of the fundamentals of science. The essence of the principle is that students must master scientifically reliable knowledge that objectively reflects subject-practical activity.

Module disciplines

Teaching Methods and Technologies

Assessment and Development

Research, Development, and Innovation

The teacher as facilitator of learning

Brief description of the module content

the role of a teacher/expert who creates conditions for an independent and meaningful learning process in groups. The learning facilitator activates students` cognitive motives, their joint group work, offers a variety of educational material, and maintains an atmosphere of cooperation.

Module disciplines

Pedagogical Research

Biology of living organisms

Brief description of the module content

studies all manifestations of life, the structure and functions of living beings and their communities, the distribution, origin and development of living organisms, their connections with each other and with inanimate nature.

Module disciplines

Individual development of living organisms

Structure and functions of plant organisms

Diversity of plant organisms

Structure and functions of animals 1

Structure and functions of animals 2

Human anatomy

Human biology

Plant Physiology

Human and Animal Physiology

Genetics and evolution

Brief description of the module content

Consists in understanding the causes and general patterns of the historical development of living matter and the process of formation of modern biodiversity. Students study the stages of formation and the role of the evolutionary idea in the biological worldview, become familiar with sources of reliable information on the theory of evolution and anthropogenesis.

Module disciplines

Cytology, histology and embryology

Genetics and the basis of breeding

Patterns of inheritance and variability

Molecular Biology

Comparative anatomy and evolution of living organisms

Evolutionary teaching

Biopedagogy and the environment

Brief description of the module content

studying the dynamics of life processes in specially organized systematic activities for the formation of a person,

developing methods for measuring biological functions for the purpose of managing the educational process

Module disciplines

Biogeocenology

Ecology of plants, animals and humans

Bioresources of Kazakhstan

Flora and fauna of the world

Applied and integrated sciences

Brief description of the module content

The principle of fundamental research is knowledge as such; the most objective, rational representation of reality. instrumentally effective knowledge about a fragment of reality, intended to solve a specific practical problem

Module disciplines

Theoretical foundations of inorganic chemistry

Environmental Chemistry

Bioorganic chemistry

Biochemistry

Biometrics

Experimental Biology

Biophysics and bioinformatics

Microbiology with the basics of biotechnology

Scientific foundations of natural science

Applied biology with the basics of soil science

Research in biology

Brief description of the module content

The module promotes a stronger understanding of biological principles in students, defines a conceptual framework for the content of teaching in biology lessons at school, and prepares future teachers to teach biological concepts conceptually.

Module disciplines

Educational practice and methods of its implementation at school (Botany)

Educational and Field Practice (Zoology) I

Introduction to the teaching profession (pedagogical practice)

Academic letter

Research and project activities in biological education

Methodology of biological research

Content-language integrated learning in biology

Modern approaches to the organization of a biological experiment

STEM education in biology

Conceptual Biology Training

Design of STEM education

Digital technologies in biology

Final certification

Brief description of the module content

Writing and defending a thesis or preparing and passing a comprehensive exam.

Module disciplines

Comprehensive exam

4.Summary table on the scope of the educational program

«6B01517 - Biology (IP)»

Name of discipline	Cycle/ Component	Term	Number of credits	Total hours	Lec	SPL	LC	IWST	IWS	Knowledge control form
General Education										
Foreign language	GER/CC	1	5	150		45		35	70	Examination
Information and communication technology	GER/CC	1	5	150	15	15	15	35	70	Examination
Kazakh(Russian) language (1)	GER/CC	1	5	150		45		35	70	Examination
Physical Culture	GER/CC	1	2	60		60				Differentiated attestation
Foreign language	GER/CC	2	5	150		45		35	70	Examination
History of Kazakhstan	GER/CC	2	5	150	15	30		35	70	Qualification examination
Kazakh(Russian) language (2)	GER/CC	2	5	150		45		35	70	Examination
Physical Culture	GER/CC	2	2	60		60				Differentiated attestation
Physical Culture	GER/CC	3	2	60		60				Differentiated attestation
Physical Culture	GER/CC	4	2	60		60				Differentiated attestation
Philosophy	GER/CC	5	5	150	15	30		35	70	Examination
Social and Political Knowledge Module										
The module of socio-political knowledge (sociology, political science, cultural studies, psychology)	GER/CC	3	8	240	30	45		55	110	Examination
The basis of social development										
Idea Mangilik El and spiritual modernization	GER/CCh	1	5	150	15	30		35	70	Examination
Fundamentals of anti-corruption culture	GER/CCh	1	5	150	15	30		35	70	Examination
Life Safety Basics	GER/CCh	1	5	150	15	30		35	70	Examination
Fundamentals of Law	GER/CCh	1	5	150	15	30		35	70	Examination
Business basics	GER/CCh	1	5	150	15	30		35	70	Examination
Religious studies	GER/CCh	1	5	150	15	30		35	70	Examination
Financial literacy	GER/CCh	1	5	150	15	30		35	70	Examination
Digital Technology in Education	GER/CCh	1	5	150	15	30		35	70	Examination
Support for students as individuals										
Age and Physiological Features of the Development of Children	BS/US	2	3	90	15	15		20	40	Examination
Educational Science and Key Theories of Learning	BS/US	4	3	90	15	15		20	40	Examination
Psychology in Education and Concepts of Interaction and Communication	BS/US	4	4	120	15	30		25	50	Examination

Inclusive Educational Environment	BS/US	5	3	90	15	15		20	40	Examination
Teaching Planning and Individualization of Learning	BS/US	6	4	120	15	30		25	50	Examination
Teaching and assessment for learning										
Teaching Methods and Technologies	BS/US	5	5	150	15	30		35	70	Examination
Assessment and Development	BS/US	5	4	120	15	30		25	50	Examination
Research, Development, and Innovation	BS/US	7	5	150	15	30		35	70	Examination
The teacher as facilitator of learning										
Pedagogical Research	BS/US	3	4	120		45		25	50	Examination
Biology of living organisms										
Individual development of living organisms	BS/US	1	6	180	30		30	40	80	Examination
Structure and functions of plant organisms	BS/US	2	6	180	30	15	15	40	80	Examination
Diversity of plant organisms	BS/US	3	5	150	15		30	35	70	Examination
Structure and functions of animals 1	BS/US	3	5	150	15	30		35	70	Examination
Structure and functions of animals 2	BS/US	4	5	150	15	30		35	70	Examination
Human anatomy	BS/CCh	5	5	150	15		30	35	70	Examination
Human biology	BS/CCh	5	5	150	15		30	35	70	Examination
Plant Physiology	BS/US	5	5	150	15		30	35	70	Examination
Human and Animal Physiology	BS/US	6	5	150	15		30	35	70	Examination
Genetics and evolution										
Cytology, histology and embryology	BS/CCh	1	6	180	30		30	40	80	Examination
Genetics and the basis of breeding	BS/CCh	6	5	150	15	30		35	70	Examination
Patterns of inheritance and variability	BS/CCh	6	5	150	15	30		35	70	Examination
Molecular Biology	BS/US	7	6	180	15	15	30	40	80	Examination
Comparative anatomy and evolution of living organisms	BS/CCh	7	5	150	15		30	35	70	Examination
Evolutionary teaching	BS/CCh	7	5	150	15		30	35	70	Examination
Biopedagogy and the environment										
Biogeocenology	BS/CCh	5	4	120	15	30		25	50	Examination
Ecology of plants, animals and humans	BS/CCh	5	4	120	15	30		25	50	Examination
Bioresources of Kazakhstan	BS/CCh	6	4	120	15	30		25	50	Examination
Flora and fauna of the world	BS/CCh	6	4	120	15	30		25	50	Examination
Applied and integrated sciences										
Theoretical foundations of inorganic chemistry	AS/CCh	3	5	150	30		15	35	70	Examination
Environmental Chemistry	AS/CCh	3	5	150	30		15	35	70	Examination

Bioorganic chemistry	AS/CCh	4	5	150	15	15	15	35	70	Examination
Biochemistry	AS/CCh	4	5	150	15	15	15	35	70	Examination
Biometrics	AS/CCh	6	5	150	30	15		35	70	Examination
Experimental Biology	AS/CCh	6	5	150	30	15		35	70	Examination
Biophysics and bioinformatics	AS/CCh	7	6	180	30	30		40	80	Examination
Microbiology with the basics of biotechnology	AS/CCh	7	5	150	15	15	15	35	70	Examination
Scientific foundations of natural science	AS/CCh	7	6	180	30	30		40	80	Examination
Applied biology with the basics of soil science	AS/CCh	7	5	150	15	15	15	35	70	Examination
Research in biology										
Educational practice and methods of its implementation at school (Botany)	BS/US	2	2	60						Total mark on practice
Educational and Field Practice (Zoology) I	BS/US	2	2	60						Total mark on practice
Introduction to the teaching profession (pedagogical practice)	Additional subjects/ CC	2	2	2						Total mark on practice
Academic letter	AS/CCh	4	5	150	15	30		35	70	Examination
Research and project activities in biological education	AS/CCh	4	5	150	15	15	15	35	70	Examination
Methodology of biological research	AS/CCh	4	5	150	15	15	15	35	70	Examination
Content-language integrated learning in biology	AS/CCh	4	5	150	15	30		35	70	Examination
Modern approaches to the organization of a biological experiment	AS/CCh	4	5	150	15	15	15	35	70	Examination
STEM education in biology	AS/CCh	7	5	150	15	30		35	70	Examination
Conceptual Biology Training	AS/US	7	5	150	15	30		35	70	Examination
Design of STEM education	AS/CCh	7	5	150	15	30		35	70	Examination
Digital technologies in biology	AS/CCh	7	5	150	15	30		35	70	Examination
Final certification										
Comprehensive exam		8	8	240						
Diploma work		8	8	240						

NJC SHAKARIM UNIVERSITY OF SEMEY

EDUCATIONAL PROGRAM DEVELOPMENT PLAN
"6B01517 – Biology (IP)"
(code and name of EP) for 2024-2028

Semey 2024 y

Content

1. Passport of the Development Plan EP «6B01510 – Biology(IP) »

1	The basis for the development	Development program of the non-profit joint-stock company “Shakarim University of Semey” for 2023 – 2029. Work plan of the School .
2	Terms of implementation	2024-2028 y.
3	Expected results of implementation	In connection with the improvement of the quality of education, the preparation of a competent, adaptable to the changing conditions of the labor market, competitive, innovation-oriented specialist, approaches to the design of educational programs are changing in the Kazakh higher education system. New conditions change not only the role of education in society, but also its goals, objectives and content, which dictates the need for constant updating of programs, teaching materials.

2. Analytical justification of the EP

2.1 Information about the educational program:

The educational program has been developed in accordance with the National Qualifications Framework and Professional Standards, according to the Dublin Descriptors and the European Qualifications Framework.

The typical period of mastering the bachelor's degree program is 4 years.

EP "6B01517 – Biology (IP)" is developed by the Academic Committee

The main criterion for the completion of the educational process is the development of at least 240 credits, with the award of a Bachelor of education degree in the educational program 6B01517 – Biology (IP).

2.2 Information about students in the OP

Academic year / The basis of training	2024-2025 Academic year	2025-2026 Academic year	2026-2027 Academic year	2027-2028 Academic year
Grant	26	26	26	26
Contract	2	2	2	2
In total	28	28	28	28

2.3 Internal and external conditions for the development of EP

EP 6B01517 – Biology (IP) includes components for preparation for professional activity. This is reflected in the subject matter and the list of tasks of laboratory and practical classes, in the list of types and forms of performing tasks of independent work of the student. Various forms of classes (traditional and frontal and demonstration experiments, case methods and project methods of teaching, problem and step-by-step, modular teaching methods), the completion of theses, the passage of professional practices also form professional qualities. The activation of cognitive and scientific-creative activity is also facilitated by the participation of students in scientific circles at the department, in seminars, round tables and conferences. The curricula of the courses, the content of lectures, practical and laboratory classes are adjusted taking into account the updating of the library fund, the requirements of internal and external regulatory documents and concepts of educational development. EP training sessions are held in 15 classrooms. Practical training of students of the EP is carried out through educational and industrial practices, which are the most important link in the system of professional training of future specialists. The practices are focused on deepening,

systematization, generalization and concretization of theoretical knowledge acquired at the university, on improving professionally significant skills and abilities.

Students take an active part in creating a learning trajectory in the learning process by participating in the academic mobility program. The organization of external and internal academic mobility at the university is carried out on the basis of the "Regulations on academic mobility of Shakarim University in the Republic of Kazakhstan", taking into account the needs and individual characteristics of students. Academic support for students in choosing a partner university and forming an individual curriculum that provides for the possibility of studying the proposed disciplines is provided by the student advisor and the coordinator of the DEEP.

The University has concluded cooperation agreements on the implementation of programs of external academic mobility of students with 30 universities of foreign countries, as well as internal academic mobility of students with 19 universities of the Republic of Kazakhstan.

The general control over the process of employment of graduates of the university is conducted by the head of the Career and Employment Department. Every year, the university appoints those responsible for employment at the faculty level and at the level of graduate departments. Every year, the university holds a university-wide job fair with the participation of employers in various fields of activity. According to the EP " Biology", specialists are graduated annually, the percentage of employment is 100%.

Dual training in educational institutions is organized during the period of professional training of full-time students, for the acquisition of practical experience, taking into account the content of the modules of the educational program in accordance with the curriculum.

2.4 Information about teaching staff implementing the educational program

№	Indicators	Unit of measurement.	2024-2025 Academic year	2025-2026 Academic year	2026-2027 Academic year	2027-2028 Academic year
1	The share of teaching staff with a degree In EP	%	**60**	**65**	**65**	**65**
2	Including the share of teaching staff with a degree in the OOD cycle	%	**11**	**12**	**12**	**12**

2.5 Characteristics of the achievements of the EP

- The demand for specialists with higher pedagogical education in the region;
- The share of graduates who studied under the state order, employed in the specialty is 100%
- Sufficient level of settlement; the share of full-time teaching staff with academic degrees and titles is 53%.
- High lecturing skills and mentoring and the availability of basic education of teaching staff
- The use of innovative teaching methods by teachers in training sessions
- The presence of continuity in two stages of bachelor's - master's degree
- Formation of practical skills of students taking into account the real needs of employers
- Availability of educational laboratories equipped with laboratory equipment and instruments
- The information and library fund in the specialty is completed, all disciplines are provided with educational, methodical and scientific literature
- Provision of nonresident students with a hostel
- Active participation of teaching staff and students in cultural events

3. The main objectives of the EP development plan

The goals and objectives of the development of EP 6B01517 – Biology (IP) in accordance with the mission of the university are: Training of biology teachers with theoretical and practical knowledge in the field of modern areas of biological sciences and methods of teaching biology, able to apply the acquired competencies in teaching activities.

- Providing professional training and personal development of a teacher who is able to carry out the process of socio-pedagogical education and upbringing of a child at a high level;
- Flling the labor market with competitive teachers focused on professional growth, civic values, social responsibility and competencies in accordance with the requirements of this field of training.
- Fulfillment of the social order of the society for the development and formation of specialists in demand in the system of biological education;
- Improving the quality of education in accordance with the requirements of national and international standards based on the formation of students' motivation for professional improvement and self-realization;
- mastering key, subject and professional competencies for subsequent successful professional activity;
- formation of students' readiness to organize and conduct research activities in the field of biological education.

4 Risk analysis of EP

№	Name of risks	Measures to eliminate
1	Outdated educational and laboratory facilities	Creation of modern educational, research and laboratory facilities on the basis of public-private partnership, purchase of modern laboratory equipment.
2	Weak practical skills of students on the use of modern teaching methods in practice.	To practice the introduction of elements of dual training in educational institutions for the acquisition of practical experience, taking into account the content of the modules of the educational program.
3	Decrease in the level of employment of graduates	To continue the development of the career guidance system for the younger generation, starting from school (both graduates and students of universities themselves, as well as teachers, specialists of the university employment center and employers can help in this);

		To carry out systematic monitoring of the functioning of the quality assurance system of the EP, including its design and management on the basis of facts.
4	Insufficient development of external and internal academic mobility of students and teaching staff	Intensification of international scientific cooperation
5	The risk of reducing the settlement of PPS in the EP	To increase the stability of teaching staff through the admission of young specialists to the PhD program.
6	The development plans of the EP are publicly discussed with a small number of representatives of interested parties, on the basis of proposals and amendments of which it would be possible to make changes in the planning and management of the EP;	To expand the opportunities for the formation of practical skills of students taking into account the real needs of employers;
7	Insufficiently high activity of participation of teaching staff in competitions for the implementation of grant research projects funded by the Ministry of Education and Science of the Republic of Kazakhstan and other funds;	To increase the share of participation of teaching staff in competitions for the implementation of grant research projects funded by the Ministry of Education and Science of the Republic of Kazakhstan and other funds;

5. Action plan for the development of the EP

№	Criteria	Expected results	Unit of measurem	2024 - 2025	2025- 2026	2026- 2027	2027 - 2028
Direction 1. Educational and methodological support							
1.1	Updating the educational program based on professional standards, taking into account the recommendations of employers	Conducting an examination of EP 6B01517 – Biology (IP) in order to improve the practice orientation and development of professional competencies of graduates	fact.	**1**	**0**	**0**	**0**
1.2	Monitoring and updating catalogs of elective disciplines in accordance with the development of key and professional competencies, the demands of the labor market	Improving the quality of the content of educational programs by including elective courses aimed at developing the key and professional competencies of graduates in accordance with the demands of the labor market.	fact.	**1**	**0**	**0**	**0**
1.3	Introduction of modern learning technologies into the educational process, contributing to the development of cognitive activity, communicative ability of students	Improving the quality of teaching academic disciplines, taking into account the novelty and variety of forms of work that contribute to the development of cognitive activity of students.	fact.	All disciplines by components by choice	All disciplines by components by choice	All disciplines by components by choice	All disciplines by components by choice

1.3.1	Introduction of mass open online courses (MOOCs) in the educational process according to the educational program 6B01510 - Biology	Introduction of disciplines into the educational process Improving the quality of teaching academic disciplines, taking into account the novelty and diversity of forms of work that contribute to the development of cognitive activity of students.	ed..	**-**	**-**	**-**	**-**
1.4	Involvement of social partners and employers in the development, examination of the implementation of educational programs	Improving the quality of implemented educational programs taking into account market demands and recommendations of employers	ed..	**2**	**0**	**0**	**0**
1.5	Development and implementation of elective courses in English	Introduction of disciplines in English into the educational process	ed.	**-**	**-**	**-**	**-**
1.6	Conducting seminars and round tables on the application of innovative technologies in the educational process	Introduction of innovative technologies in the educational process	ed.	**1**	**2**	**1**	**1**
1.7	Publication of educational, methodical and scientific literature on the implemented OP	Improvement of educational and methodological support in the disciplines of the implemented educational programs	ed.	**2**	**2**	**2**	**2**

1.8	Conclusion of contracts with foreign and domestic partner universities in order to develop academic exchange of students of all levels and teaching staff	Creation of a database of foreign and domestic partner universities for the development of academic exchange of students of all levels and teaching staff	ed.	**0**	**1**	**2**	**2**
1.9	Inviting students from partner universities to study for a semester, short-term internships, internships, etc.	Development of international recognition of educational programs, implementation of academic mobility programs for students	person	**-**	**-**	**-**	**-**
1.10	Participation of teaching staff and students in international academic exchange programs	Development of international cooperation with foreign universities implementing educational programs in the field of	person.	**0**	**2**	**2**	**1**
1.11	Development of outgoing academic mobility of teaching staff and students in the direction 6B01510 - Biology	Improvement of the educational program based on the use of the experience of implementing such programs in leading foreign universities	person	**0**	**1**	**2**	**2**
Direction 2. Teaching staff							
2.1	Professional development and training of scientific and pedagogical personnel for the implementation of educational programs once every 5 years	The share of teaching staff who have passed advanced training at the national and international level is at least 20%	person	**0**	**1**	**2**	**2**

2.2	Advanced training, retraining, internships of teaching staff at the international level	Completion of at least 2 teachers of the advanced training program, retraining, internship PPP at the international level	pers on.	**0**	**1**	**1**	**1**
2.3	Promotion of publications of the works of teaching staff in international publications indexed by the Web of Science and Scopus databases	Increase in the share of teaching staff who have published the results of scientific research in publications indexed by Web of databases Science and Scopus – at least 30% of the total number of teaching staff	%	**30**	**30**	**20**	**30**
2.4	Involvement of practical specialists in teaching and scientific activities	Participation in the implementation of educational programs of practitioners (at least 20% of specialists)	%	**20**	**20**	**20**	**20**
Direction 3. Internationalization of educational programs							
3.1	Conclusion of agreements on international cooperation with foreign universities	Implementation of joint projects, preparation of scientific publications with foreign partners, creation of bases for scientific internships of students	ed	**2**	**2**	**1**	**1**
3.2	Attracting foreign students to study under the educational program 6B01510 - Biology	Increasing the number of foreign students	pers on	**-**	**1**	**-**	**1**

3.3	Organization of joint scientific and practical events with international partners	Improving the efficiency of scientific and methodological activities Teaching staff, exchange of experience with foreign partners	ed.	**0**	**1**	**1**	**1**
3.4	Invitation of foreign specialists to give lectures and consultations on master's projects and dissertations	Improvement of the content component of educational programs based on the introduction of the experience of foreign specialists in the implementation of educational programs	ed	**0**	**1**	**1**	**1**
3.5	Expansion of cooperation with Leading foreign scientific and educational organizations in order to attract the most qualified foreign specialists to the implementation of educational programs	Formation of key and professional competencies in accordance with the practice of leading universities	pers on	**-**	**-**	**-**	**-**
Direction 4. Logistics and digitalization							
4.1	Step-by-step equipment of classrooms with technical training tools (projectors, panels, interactive and multimedia whiteboards, multifunction devices, webcam, projector screen, etc.)	Equipping classrooms assigned to the department with technical training facilities (projectors, panels, interactive and multimedia whiteboards, multifunction devices, webcam, projector screen, etc.)	ed	**1**	**1**	**2**	**2**

4.2	Automation of the educational process (testing, session management, student contingent movement, dean's office, department, teaching staff workload, schedule, library, syllabuses)	Information management based on the automation of the educational process (testing, session management, student contingent movement, dean's office, department, teaching staff workload, schedule, library, syllabuses)	fact	All	All
4.3	Replenishment of the full-text database of research results of teaching staff and students (articles, monographs, etc.)	Increasing the number of results of scientific works of scientists research results of teaching staff and students (articles, monographs, etc.)	ed	5	5
4.4	Expansion of the fund of scientific and educational literature, including on electronic media for the implemented educational programs	Ensuring the implementation of educational programs based on modern educational and information resources, including on electronic media	%	100	100
4.5	Monitoring the content and improvement of the faculty's website	Formation of the faculty's website on various aspects of the implementation of educational programs	%	100	100

Head of the Department_____**Rakhymzhanova A.M. PhD**

Reviewed

at the meeting of the quality assurance commission NMF
minutes of meetings №6 from «6» 06.2024 .
Chairman_____ Zheldybaeva B.S.

Agreed

Dean of the school_____ Mukaev.Zh.T.
«06» 06 2024.