1. CHARACTERISTIC OF THE EDUCATIONAL PROGRAM

The purpose of the educational program: Training of qualified personnel with fundamental knowledge in the field of chemistry and biology in combination with the requirements of advanced innovative learning technologies.

1.2 VISION, MISSION, PROGRAM GOAL, VALUES, UNIVERSITY GRADUATE ATTRIBUTES

Vision:

An intellectual platform that develops educators who are open to new ideas and able to lead in a rapidly changing world.

Mission:

Developing teacher leaders, who can create, develop, and disseminate advanced knowledge and values in education for the benefit our country and the world.

Program goal:

Our University aims to become a hub for innovative teaching, learning, research as well as the development of rural education in Central Asia.

Values:

Integrity, commitment, care.

University graduate attributes:

- Self-guided learners and reflexive practitioners
- Responsible personalities with moral and ethical values
- Professionals with deep subject knowledge and digital skills
- Creative and critical thinkers and excellent team players and communicators
- Adaptive leaders in teaching and learning
- Diverse, inclusive and for equality of opportunity in society

1.3. THE RATIONALE BEHIND THE EDUCATION PROGRAM

The relevance of the educational program is explained on the one hand by the active development of the chemical-biological direction based on the integration of the two sciences, taking into account interdisciplinary connections. On the other hand, by increasing the competitiveness of dual-profile personnel, including in the field of education

Market demand. The need for teachers of two subjects, such as chemistry and biology, is relevant, especially in the context of the updated content of secondary education, requiring a teacher who is motivated for his or her professional activity, mobile, socially active and in demand on the labor market.

Also, in daytime general education schools, the need for teaching staff of chemistry and biology subjects in the Republic of Kazakhstan is growing from year to year, which indicates the need to train teachers of chemistry and biologists.Thus, despite the positive changes in the system of training and development of teachers, there are still a number of problems that negatively affect the attraction and retention of qualified teachers. In this regard, the Program provides measures to solve problems in the development of the country's pedagogical potential.

By 2023, teacher training programmes will be fully updated to reflect the professional standard.

By chemistry:

There are 285,996 teachers in public general education schools, of which the total number of chemistry teachers is 6,367.

The total number of teachers with a master's degree in public general education schools is 5,029, of which 255 are chemistry teachers.

The need for teachers in state general education schools is 5,2676, of which 315 are in chemistry (Akmola - 45, Aktobe - 19, Almaty - 18, Atyrau - 21, West Kazakhstan - 6, Zhambyl - 23, Karaganda - 72, Kostanay -1, Kyzylorda -0, Mangistau -11, Pavlodar - 4, North Kazakhstan - 29, Turkestan - 10, East Kazakhstan -18, Astana -3, Almaty -1, Shymkent -0).

By biology:

There are 285,996 teachers in public general education schools, of which the total number of biology teachers is 9,651.

The total number of teachers holding a master's degree in public general education schools is 5,029, of which 293 are biology teachers.

The need for teachers in state general education schools is 5,2676, of which 136 are in biology (Akmola - 5, Aktobe - 2, Almaty - 0, Atyrau - 0, WKO - 60, Zhambyl - 2, Karaganda - 9, Kostanay -0, Kyzylorda -11, Mangistauskaya-7, Pavlodar-1, North Kazakhstan region - 2, Turkestan - 1, East Kazakhstan region -1, Astana -2, Almaty -0, Shymkent -0).

(Source: NOBD data: JSC "Information and Analytical Center", National Collection "statistics of the education system of the Republic of Kazakhstan").

1.4. DISTINCTIVE FEATURES OF THE EDUCATIONAL PROGRAM

Academic mobility	Niide University (Niide, Turkey)
	E.A. Buketov Karaganda State University (Karaganda, Kazakhstan)
	South Kazakhstan State Pedagogical University (Shymkent, Kazakhstan)

Coincidence with similar EP of leading universities in the near and far abroad

Stanford University – 21%,

Belarusian State University – 52%,

Lomonosov Moscow State University – 52%,

Autonomous University of Sinaloa – 36%,

University of Auckland – 30 %

1.5. GRADUATE CAREER OPPORTUNITIES

Professional activities:

Bachelors of education under the educational program 6B01508 "Chemistry - Biology" can perform the following types of professional activities:

- **educational (pedagogical) -** training and development of students, organization of the process of education and upbringing, design and management of the pedagogical process, diagnostics, correction, forecasting of the results of pedagogical activity; conducting classes in schools, technical and professional educational institutions; implementation of methodological knowledge and applied skills in a specific situation;

- **educational (учебно-воспитательная)** - implementation of educational work in accordance with the laws, regularities, principles, educational mechanisms of the pedagogical process; planning extra-curricular educational work; solving specific educational tasks; establishing relations with the students' team, teachers working in the classroom, with parents;

- **educational and technological -** use of the latest pedagogical technologies in the educational process; participation in the organization of the technological process of production and processing of information resources using information and communication means and technologies.

- **social and pedagogical** - creation of favorable conditions and provision of pedagogical support for students' full life activity, upbringing and development;

- **experimental research** - study of scientific and methodical literature; study and generalization of advanced pedagogical experience in chemistry; conducting pedagogical experiments with the introduction of their results in the educational process;

- **organizational and managerial**-planning the content of chemistry at different levels; determining ways to organize and conduct the educational process;

Employment Opportunities:

- educational institutions: teachers of chemistry and biology at general education schools, lyceums, gymnasiums, colleges, technical and vocational education institutions;

- organizations of science: laboratory assistant, senior laboratory assistant, engineer in research centers (in the field of chemical, biological and pedagogical profiles, etc.);

- management organizations: an inspector, a specialist of the department of education departments, akimats, government agencies at various levels.

1.6. AREAS OF PROFESSIONAL COMPETENCE

Area of professional competence 1

Professional competence of an employee in the field of chemistry who has deep knowledge of fundamental and applied chemistry, actively applying them in various professional and research fields of activity.

Area of professional competence 2

Professional competence of an employee in the field of biology, effectively using research methods at the biological and molecular level, optimally applying them in solving urgent problems.

Area of professional competence 3

Professional competence of a teacher as its integral characteristic, including subject, psychological, pedagogical, methodological components of readiness for professional activity.

1.7. EDUCATIONAL PROGRAM LEARNING OUTCOMES:

LO 1 - Applies a variety of communication formats taking into account socio-cultural diversity, adheres to the principles of equality and accessibility in education, to create a

prosperous and inclusive environment, has leadership qualities and is able to apply them to develop collective potential

LO 2 - Possess high-level critical and creative thinking skills, are capable of self-regulation and reflection to solve professional problems

LO 3 - Demonstrate knowledge of and adherence to ethical and legal norms in research and use of digital technologies. Apply security measures when working with digital information and data protection, promote the active, safe and ethical use of digital resources.

LO 4 – Knows the basics of fundamental concepts and laws of chemistry, atomic and molecular theory, structure and physico-chemical properties of substances.

LO 5 – Has the skills of staging, planning chemical and biological experiments using the latest achievements of science and technology, knows and complies with safety regulations in chemical and biological laboratories.

LO 6 – Analyzes, interprets and processes experimental results of the work.

LO 7 – He is oriented in the information and conceptual field of natural science knowledge, knows how to use them to solve various practice-oriented tasks of a scientific laboratory and educational nature.

LO 8 – Connects the programs of educational material of chemical and biological disciplines with everyday life and promotes the development of interest in the study of chemistry and biology among students.

LO 9 – Applies the principles of distribution, systematization, evolution and phylogenetic relationships of plants, animals and microorganisms in the environment in the learning process.

LO 10 – Can apply knowledge of the theoretical and experimental foundations of teaching chemistry and biology in the management of the educational process with innovative technologies.

Matrix for correlating EP learning outcomes with graduate attributes

	LO 1	LO 2	LO 3	LO 4	LO 5	LO 6	LO 7	LO 8	LO 9	LO 10
GA1	+	+			+	+	+		+	+
GA 2	+	+								
GA 3				+	+	+	+	+	+	+
GA 4			+							
GA 5		+						+		+
GA 6	+	+	+							

1.8. REFERENCES

The educational program is developed based on the following legal acts:

1) The State mandatory standard of higher and Postgraduate education, approved by the Order of the Minister of Science and Higher Education of the Republic of Kazakhstan dated July 20, 2022 No. 2. Registered with the Ministry of Justice of the Republic of Kazakhstan on July 27, 2022 No. 28916.

2) The professional standard "Teacher" approved by the order of the Acting Minister of Education of the Republic of Kazakhstan dated December 15, 2022 No. 500.

Registered with the Ministry of Justice of the Republic of Kazakhstan on December 19, 2022 No. 31149.

3) Methodological recommendations on the organization and conduct of pedagogical practice for students of the field of education "pedagogical sciences. Order No. 125 of 27.03.2023