

6B01509 Biology

The purpose of the educational program: Training of competitive specialists in the education system of the Republic of Kazakhstan, with fundamental knowledge, for the implementation of pedagogical activities in the field of teaching biology.

1.2. VISION, MISSION, PROGRAM GOAL, VALUES, ATTRIBUTES OF A UNIVERSITY GRADUATE

Vision:

An intellectual platform that develops teachers who can manage in a rapidly changing world.

Mission:

Formation of teacher leaders who are able to create, develop and disseminate advanced knowledge and values in the field of education for the benefit of the country and the world.

Program goal:

The university aims to become a hub for innovative methods of teaching, learning and research, as well as the development of rural education in Central Asia.

Values:

Integrity, dedication to one's work, caring for others

University Graduate Attributes:

- Self-taught, able to reflect and explore their practice
- Have moral and ethical qualities and are responsible
- Have deep subject, digital knowledge and a broad intellectual mind
- Creative and critical thinking, collaborative and communicative
- Practice leadership in teaching and learning, and adapt to rapidly changing environments
- Diverse, inclusive and for equality of opportunity in society

1.3. RATIONALE OF THE EDUCATIONAL PROGRAM

The relevance of the educational program. For our state, the need for highly qualified subject teachers for general education schools is considered very relevant. The educational program 6B01509 - Biology offers a new approach to the formation of key competencies necessary for a graduate of the specialty in the field of study "Education". The educational program is aimed at training specialists in the field of teaching, research, organizational and technological, production and management, educational, cultural and educational work in the specialty of biology. To organize teaching in three languages, the training of teachers teaching subjects in English has been introduced.

An indicator of the quality of the teaching staff is the proportion of teachers with the highest and first qualification categories in the total number of teachers in state daytime general education schools. The EP will contribute to the improvement of pedagogical education and will provide a new influx of young professionals.

Market need. Statistical analysis was carried out on the basis of the official website *National collection "Statistics of the education system of the Republic of Kazakhstan" - JSC "Information and Analytical Center"*, Astana, 2017-2018.

The qualitative and quantitative composition of teachers of daytime state general education schools of the Republic of Kazakhstan (without part-time jobs) is 296,960, of which 9,648 are biology teachers. Mostly in the South Kazakhstan region - 1928 and in the Almaty region - 1183 people. The lowest provision with biology teachers is noted in rural districts of such regions as Mangistau (312 hours) and Atyrau (356 hours).

The need for teachers in daytime state general education schools is 4952 people, 129 of them in biology.

In connection with the transition from 2019-2020 of the high school to the study of natural science subjects in English, the need for teaching staff in biology amounted to 15773 people.

1.4. FEATURES OF THE EDUCATIONAL PROGRAM

Academic mobility	<ol style="list-style-type: none"> 1. Niide Omer Halisdemir University (Republic of Turkey) 2. Karaganda University named after E. A. Buketov 3. Kyzylorda University named after Korkyt Ata 4. South Kazakhstan State Pedagogical University
Additional education (Minor) "Fundamentals of applied research in biology"	The program is aimed at training students with an in-depth study of the research of microorganisms, plants and animals, specialists with formed research competence, knowledge of modern applied technologies, highly qualified in the practical solution of scientific, technical and social problems.

Coincidence with similar EPs of leading universities of near and far abroad

Stanford University - 21%, Belarusian State University - 52%, Moscow State University named after M.V. Lomonosov - 52%, Autonomous University of Sinaloa - 36%, University of Auckland - 30%

1.5. POTENTIAL DIRECTION AND GRADUATE JOBS

Types of professional activity:

Bachelor of Education in the educational program "6B01509 - Biology" can perform the following types of professional activities:

- ✓ educational organizations,
- ✓ training centers,
- ✓ cultural and educational spheres,
- ✓ public education sector.

The following types of professional activities are available to bachelors of education in the educational program "6B01509- Biology":

- ✓ **educational (pedagogical)** - training, education and development of students, learning, based on the knowledge of modern pedagogical technologies, taking into account the conditions of special and inclusive education; forecasting the results of pedagogical activity; implementation of scientific and methodological knowledge and applied skills in a specific situation, including online;
- ✓ **educational and up-brinning** - training and education of students using innovative psychological and pedagogical methods and means; mastering the technologies of criteria-based assessment, the methodology of formative and summative assessment in the context of special and inclusive education;

- ✓ **educational and technological** - the use of evidence-based pedagogical technologies; monitoring and forecasting the educational achievements of students using modern assessment tools; possession of the basics of long-term, medium-term and short-term lesson planning, the use of active teaching methods that contribute to the development of students' metacognitive abilities;
- ✓ **socio-pedagogical** - the creation of favorable socio-pedagogical conditions for the education and development of students. Modeling a personal educational trajectory throughout life for self-development and career growth in the field of biology, a focus on a healthy lifestyle to ensure full-fledged social and professional activities;
- ✓ **experimental research** - the study of scientific and technical information, domestic and foreign experience on the subject of research; implementation of research work in the field of biology.
- ✓ **organizational and managerial** - organization of the pedagogical process in educational organizations, healthcare institutions and scientific organizations; organization and management of the pedagogical process, monitoring and evaluation of performance;
- ✓ **information and communication** - the use of information and communication technologies in the educational, correctional process and in extracurricular work.

Employment Opportunities:

A graduate of this EP can find a job in general education and specialized secondary schools, lyceums, colleges, gymnasiums, departments of education, institutions for advanced training of teachers, as well as research organizations of a biological, health, medical and biological profile, publishing houses and methodological rooms.

1.6. AREAS OF PROFESSIONAL COMPETENCE

1. The graduate of the program will understand the discipline at an advanced level, connect teaching with the actual application of the discipline in various fields, and teach subject knowledge through innovative teaching methods that can be analyzed and selected according to the context, while stimulating the critical and creative thinking of their students. A graduate is constantly improving, uses information technologies in work and in self-study, develops new educational materials and technologies, and can prove their effectiveness by scientific methods.
2. Effectively uses research methods at the biological-molecular level, using them optimally in solving urgent problems.
3. Studies the biodiversity of living organisms, evaluates ways to preserve them.

1.7. LEARNING OUTCOMES OF THE EDUCATIONAL PROGRAM

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 - Apply the principles of distribution, systematization, evolution and phylogenetic relationships of plants, animals and microorganisms in the environment in the learning process;

LO 5 - Distinguishes knowledge gained in the learning process, including structural, functional features of the development of living organisms

LO 6 - Determines the goals and principles of the study, is able to make scientifically based decisions based on the results of biological experiments, clearly formulates the conclusions of the results;

LO 7 - Carries out a comparative analysis of experimental data obtained in laboratory conditions, independently makes decisions, critically evaluates the necessary information.

LO 8 - Proficient in the methods of molecular biology, biotechnology and microbiological research, applies in scientific projects.

LO 9 - Analyzes the basic structure of the human body, historical development, age characteristics and its interaction with the environment

LO 10 - Possesses knowledge in the field of modern biological science, studies, generalizes, applies and disseminates the experience of highly professional teachers

LO 11 - Has a high motivation for teaching, strives for self-education and self-knowledge.

Comparison matrix of learning outcomes for the EP with the attributes of a graduate

	LO 1	LO 2	LO 3	LO 4	LO 5	LO 6	LO 7	LO 8	LO 9	LO 10	LO 11
GA1	+		+	+		+	+	+		+	+
GA 2		+			+				+		+
GA 3	+		+	+	+	+	+	+	+	+	
GA 4		+	+	+	+	+	+	+	+	+	
GA 5	+									+	+
GA 6	+	+	+						+	+	+

1.8. NORMATIVE REFERENCES

The program was developed on the basis of the following legal acts:

1) The State Compulsory Standard of Higher and Postgraduate Education, approved by 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 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 for organizing and conducting pedagogical practice for students in the field of education "pedagogical sciences. Order No. 125 dated 03/27/2023