NON-PROFIT JOINT-STOCK COMPANY
ABAI KAZAKH NATIONAL PEDAGOGICAL UNIVERSITY (ABAI UNIVERSITY)

FACULTY OF NATURAL SCIENCES AND GEOGRAPHY

APPROVED BY
Dean of the Faculty of Natural Sciences and Geography

K.D. Kaimuldinova

(8) 2026

DEVELOPMENT PLAN

OF THE EDUCATIONAL PROGRAMM 8D01513 – BIOLOGY FOR 2023-2029

Almaty, 2026

The Development Plan of the Educational Programme has been developed on the basis of the Development Programme of the Non-Profit Joint-Stock Company "Abai Kazakh National Pedagogical University" for 2023 2029, the Action Plan for its implementation, the key performance indicators of the University for the specified period, as well as internal policies and standards. The document also takes into account the Internal Quality Assurance Policy and Standards of "Abai University" for 2023 2029.

APPROVED
at the meeting of the Council of the "Faculty of Natural Sciences and Geography"

Minutes № 5 « 25 » 01 2023.

Chairperson /К.Д. Каймулдинова

Reviewed
at the meeting of the Department of Biology

Minutes № 6 « 18 » 01 2023.

Head of the Department A.D. Maimataeva

FOREWORD

Development Plan of the Educational Programme 8D01513 – Biology for 2023–2029

Code and name of the field of education: 8D01 Pedagogical Sciences
Code and name of the training area: 8D01513 Teacher Training in Natural Sciences
Group of educational programmes: 8D013 Training of Biology Teachers

The strategy of the programme is aimed at developing and effectively implementing a clear and modern competency model, enhancing the professional skills of learners, and increasing the competitiveness of graduates in the labour market by expanding the network of potential employers.

Mission of the Educational Programme: to train highly qualified scientific personnel who meet the requirements of the national and global scientific and educational environment, possess well-developed scientific, pedagogical, and research competencies, demonstrate innovative thinking, and are capable of conducting fundamental and applied research in the field of biology, remaining competitive in both national and international labour markets.

Objective of the Educational Programme: to prepare highly qualified and competitive specialists in biological sciences and biology teaching methodology in accordance with international standards, capable of integration into the global educational space, as well as of formulating and solving contemporary scientific and pedagogical problems, and successfully carrying out pedagogical, research, and managerial activities.

ANALYSIS OF THE CURRENT SITUATION

General Information about the Educational Programme

Category	Content
Developers of the Programme Development Plan	Department representatives: A.D. Maimataeva, K.A. Zhumagulova, M.B. Amanbaeva. Employers: Zh.B. Childibaev (Professor, Department of Biology, Abai Kazakh National Pedagogical University); K.I. Shalabaev (Professor, Department of Biology, Abai Kazakh National Pedagogical University); M.S. Kurmanbaeva (Dean, Faculty of Biology and Biotechnology, Al-Farabi Kazakh National University); D.S. Bataeva (Deputy Dean, Institute of Natural Sciences, Kazakh National Women's Pedagogical University); G.B. Toktaganova (Head of Department, Korkyt Ata Kyzylorda University); A. Tolegen (PhD student); T.K. Takhatbek (Master's graduate in Biology – 8D01513)
Degree Awarded	Doctor of Philosophy (PhD) in Educational Programme 8D01513 Biology
Languages of Instruction	Kazakh, Russian
Mode of Study	Full-time
Duration	3 years
Credits	180 ECTS
Programme Uniqueness	The programme is developed considering regional characteristics and the university's strategic priorities. It aims to train specialists capable of addressing key challenges in biology at both regional and institutional

	levels
Programme Advantages	The programme reflects modern educational demands and labour market needs. It integrates key areas of biology and innovative teaching approaches, ensuring graduates' competitiveness. It incorporates sustainable development principles, develops environmental awareness, and prepares teacher-researchers capable of conducting theoretical and applied research. The programme integrates pedagogy, psychology, and modern educational technologies, enabling graduates to design curricula and implement innovative models. Training includes participation in research projects, internships, and real-case analysis. It also develops managerial and communication competencies for leadership in education
Graduate Profile	Professional and social responsibility; clear value orientation; diligence and self-development; environmental awareness and tolerance; practical and entrepreneurial skills; respect for cultural heritage; advanced digital literacy; communication and multilingual skills; adaptability to global challenges; leadership and decision-making ability; creativity and social engagement; commitment to lifelong learning
Types of Professional Activity	Research; scientific and pedagogical activity; teaching in secondary education; teaching in technical and vocational education; additional education; organizational and managerial activity
Academic Mobility Partners	International: RWTH Aachen University; Okayama University (Japan); University of Putra Malaysia; Herzen State Pedagogical University (Russia); Hacettepe University; Akdeniz University; Gazi University; Moscow City University. Domestic: Atyrau University; Aktobe Regional University; Pavlodar Pedagogical University; Korkyt Ata Kyzylorda University
Graduate Employment Rate	100%
License	No. KZ29LAA00018497, dated July 28, 2020
Key Partner Organizations	Educational institutions including Departments of Education of Almaty city and region, secondary schools and gymnasiums (No. 26, No. 159, No. 178, No. 168), Specialized Lyceum No. 92 named after Mahatma Gandhi, etc.
Expected Outcomes	Improvement of research and professional performance; development of competencies in innovative technologies (STEM, CLIL, digital and biotechnological approaches); increased participation in research projects and competitions; enhancement of research infrastructure; expansion of international collaboration; integration of students into the global scientific community through academic mobility

Key Risks of the Educational Programme

Risk Name	Potential Consequences	Mitigation Mechanisms and Management Measures
Competition in the education services market	Decreased attractiveness of the educational programme; decline in the number of applicants; weakening of public perception	Development of a positive programme image; expansion of grant opportunities; promotion through mass media and digital platforms; strengthening alumni engagement; enhancing partnerships with

		employers
Student enrolment (contingent)	Reduction in the number of students: decreased sustainability of the programme	Improvement of career guidance activities; strengthening practice-oriented and research-based courses; implementation of student recruitment and retention strategies; development of feedback mechanisms with graduates
Economic crisis	Decreased affordability; increased risk of student dropout	Introduction of flexible tuition payment systems; installment payment options; individualized learning trajectories; provision of psychological support; development of grant and financial support mechanisms

SWOT Analysis of the Implementation of the Educational Programme

Internal Factors	Strengths	Weaknesses
	- The goals and strategy of the educational programme are aimed at developing and implementing a modern scientific competency-based model; - The programme includes both theoretical and practical components that ensure readiness for research and professional activities; - The content of laboratory, practical, and research work is systematically integrated into the curriculum; - Innovative teaching methods (case-based learning, project-based learning, modular and problem-based learning) are widely applied; - A high level of organization of students' research activities (conferences, seminars, scientific clubs) is ensured; - Highly qualified academic staff; - Effective collaboration between the university and employers; - High graduate employability rate; - Availability of a system for continuous monitoring and evaluation of educational programmes.	- Insufficient development of joint educational programmes with foreign universities; - Low level of alumni association activity and underdeveloped endowment fund; - The need to improve instructional and methodological support, particularly in terms of scientific and digital resources.
External Factors	**Opportunities**	Threats and Risks
	- Effective utilization of academic freedom opportunities; - Expansion of research projects and initiatives in the field of biology; - Participation of academic staff in international education fairs and scientific platforms; - Informing students about labour market trends, internships, and research opportunities; - Creating conditions for students' scientific, professional, and creative self-development; - Increased efficiency of the educational process and growth of research activity; - Development of distance and digital education technologies.	- High competition in the education services market; - Rising costs of fee-based education; - Reduction in education funding under conditions of economic crisis; - Intensification of international scientific competition

1. KEY OBJECTIVES OF THE EDUCATIONAL PROGRAMME DEVELOPMENT

DIRECTION 1. Expanding Access to University Educational Services

No.	Performance Indicators	Unit	2023	2024	2025
1	Student enrolment in the programme 8D01513 Biology	unit	8	9	7
2	Admission to the educational programme	unit	8	9	7

	3	Number of graduates	unit	5	8	7	

DIRECTION 2. Innovative Support of Educational Activities

No.	Performance Indicators (share, %, number)	Unit	2023	2024	2025	Responsible Executors	Reporting Form
1	Type of educational programme (existing, new, innovative, interdisciplinary, minor, joint)	unit	D 1	D 1	D 1	department staff	programme documentation
2	Participation of the programme in rankings	fact	+	+	+	department staff	ranking results
3	Accreditation of the programme	fact	+			department staff	accreditation results
4	Post-accreditation monitoring	fact		+		department staff	monitoring reports
5	Updating the programme in line with labour market requirements	fact	+	+	+	department staff	updated programme, expert reviews
6	Analysis of programme alignment with the university's strategic development plan	fact	+	+	+	department staff	meeting minutes
7	Conducting round tables on competency-based curriculum implementation	fact	+	+	+	department staff, employers	reports, minutes
8	Number of industry specialists involved in the educational process	unit	3	3	4	department staff	agreements, memoranda
9	Participation of stakeholders as programme experts	fact	+	+	+	department staff	staffing documentation
10	Availability of human resources in line with programme development	%	100	100	100	academic staff	staffing plan
11	Share of academic staff who completed professional development and research internships in biology	%	100	100	100	academic staff	certificates, diplomas
12	Professional development of staff through PhD programmes and internships	fact	+	+	+	academic staff	certificates, diplomas
13	Development of graduates' IT competencies and research skills	fact	+	+	+	academic staff	certificates, diplomas
14	Participation of full-time graduates in the quality assurance process	fact	+	+	+	academic staff	committee participation
15	Level of student participation in programme design and improvement	fact	+	+	+	academic staff, students	participation records
16	Number of employers involved in programme quality evaluation	unit	3	3	3	employers (programme partners)	agreements, expert reports
17	Share of students participating in the evaluation of teaching performance (%)	%	50	50	50	graduates	survey results

	18	Number of instructional materials developed in Kazakh	unit	5	5	7	academic staff	teaching materials
	19	Number of teaching and methodological publications developed by staff	unit	9	4	6	academic staff	textbooks, publications
	20	Preparation of graduates for national and international standardized testing	fact	+	+	+	academic staff	certificates
	21	Development of a digital platform based on the programme and MOOC's to provide access to learning materials	fact	+	+	+	academic staff, students	online courses

DIRECTION 3. Internationalization of the Educational Programme

No.	Performance Indicators (share, %, number)	Unit	2023	2024	2025	Responsible Executors	Reporting Form
1	Inter-university partnerships within the educational programme	unit			1	academic staff of the department	double-degree programme agreements
2	Double-degree educational programmes	unit				academic staff, Academic Mobility Center	double-degree programme documentation
3	Number of students participating in outgoing internal academic mobility	unit		1	1	department, students	orders, student transcripts
4	Number of students participating in incoming internal academic mobility	unit				academic staff	orders, reports
5	Number of academic staff participating in outgoing internal academic mobility	persons		2	2	Academic Mobility Center	reports
6	Number of academic staff participating in incoming internal academic mobility	persons	3	3	3	academic staff, Academic Mobility Center	reports
7	Number of invited foreign scholars	persons		1	1	academic staff	reports
8	Academic staff internships under external mobility programmes (ERASMUS+, DAAD, Mevlana, Bolashak)	persons	1	1	1	academic staff, Mobility Center	reports
9	Internships within international academic exchange programmes	units				academic staff, Mobility Center	reports

DIRECTION 4. Development and Expansion of Research Activities and Innovation Potential

No.	Performance Indicators (share, %, number)	Unit	2023	2024	2025	Responsible Executors	Reporting Form
1	Number of academic staff involved in educational and research projects	unit	4	6	9	department staff	reports
2	Number of academic staff involved in fundamental and applied research	unit	4	5	8	department staff	reports
3	Number of publications in Q1-Q3 journals (Web of Science, Clarivate Analytics) or high CiteScore percentile	unit	18	17	20	department staff	key performance indicators

	journals (Scopus)						
4	Number of doctoral students' publications in journals indexed in Web of Science/Scopus with non-zero impact factor	unit	32	30	26	department staff, doctoral students	database indicators
5	International scientific-practical conference "Prospective Directions for Research on Modern Problems of Biological Education"	fact	+	+	+	department staff	conference proceedings, media and social media coverage, reports
6	Round table and scientific-methodological seminar "Path to Science" with leading biologists	fact	+	+	+	department staff	media coverage, reports
7	Number of research and development (R&D) projects implemented within international cooperation	unit	1	1	1	department staff	reports
8	Number of publications in journals recommended by the Committee for Quality Assurance in Science and Higher Education (Kazakhstan)	unit	23	10	25	department staff	reports
9	Number of academic staff participating in the national competition "Best Teacher"	unit		1	2	department staff	competition results
10	Number of student scientific publications	unit	83	55	127	department staff, doctoral students	reports
11	Number of students participating in research and competitions	unit	3	6	4	department staff, doctoral students	reports
12	Functioning of research centers and laboratories	fact	+	+	+	department staff, doctoral students	audit reports

DIRECTION 5. Improvement of Infrastructure and Material-Technical Base

No.	Performance Indicators (share, %, number)	Unit	2023	2024	2025	Responsible Executors	Reporting Form
1	Improvement of the material and technical base of the Department of Biology	fact	+	+	+	department staff	audit reports of the Infrastructure Modernization Unit
2	Expansion of library holdings with educational, scientific, and digital resources	fact	+	+	+	department staff	infrastructure modernization reports

DIRECTION 6. Career Guidance within the Educational Programme

No.	Performance Indicators (share, %, number)	Unit	2023	2024	2025	Responsible Executors	Reporting Form
1	Provision of school students and teachers with informational materials via online and offline platforms: presentations about the educational programme, list of subjects for the Unified National Testing (UNT), required admission documents, information on university rankings and material-technical base, as well as opportunities for admission to Abai University	fact	+	+	+	programme-offering department	reports, social media links
3	Conducting meetings on career guidance and preparation for applicant selection, and	fact	+	+	+	programme-offering	reports on number of

	organizing working groups by key areas					department	participants

DIRECTION 7. Educational and Upbringing Activities within the Educational Programme

No.	Performance Indicators (share, %, number)	Unit	2023	2024	2025	Responsible Executors	Reporting Form
1	Organization and implementation of activities within the educational programme in accordance with the university's воспитательная work plan: ensuring active participation of students in the university's public life	fact	+	+	+	programme-offering department	reports, social media links
2	Organization of upbringing activities based on national educational ideals and core national values (Abai's "Holistic Person" concept)	fact	+	+	+	programme-offering department	reports, social media links
3	Implementation of comprehensive upbringing activities: • development of programmes for identifying and supporting gifted youth; • introduction of coaching, mentoring, and tutoring technologies; • organization of social and psychological support services	fact	+	+	+	programmes offering department	reports