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Registration data

Application type	Updating of EP in the Registry	Status	Approved
Date of getting the status	12.09.2025 17:31	Sent to rework by the expert (count)	0
Sender	6772	Registration number	6B01500119

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Higher and Postgraduate Educational Programs

☐ Project EP ☐ Participant of project EP

Field of education *

6B01 Pedagogical sciences

☐ Interdisciplinary EP

Direction of personnel training *

6B015 Training of teachers in Natural science subjects

Group of educational programs *

B013 Teacher training in biology

Educational program *

6B01508 Biology

Curriculum *

Биология (бакалавриат)

Kazakh language

Russian language

English language

EP purpose *

The preparation of highly qualified specialists of biological profile, competitive in the world educational space with pedagogical training in the field of teaching biology, demanded by modern educational institutions, able to effectively adapt to dynamically changing social and professional conditions of activity

EP type *

Acting EP

Level on NQF *

6

Level on SQF *

6

EP distinctive features

No

Degree to be conferred *

Bachelor

Period of study *

4 ▾

Volume of the credits *

240

Language of education *



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Professional Standard for EP *

Exists

+ Add

Nº	Name of professional standard
1	Professional standards for teachers of educational organizations

Professional standards (career standards)

Professional standard has been used at developing EP

Date of approval EP on the Academic Council *

15-04-2025



☒Existence of the annex to the license for the direction of personnel training

The license number on the direction of training *

KZ49LAM00007465

☐The training format is online

☒EP accreditation existence

Atlas of new professions *

Қарастырылмаған

Regional standard *

Қарастырылмаған

The formed educational outcomes

Nº	Educational outcome
1	In KazakhIn RussianIn English Өсімдіктердің морфологиялық құрылысының ерекшеліктерін ажырата білу біліктері мен дағдыларын пайдалану; жасушалардың, тіндер түрлерінің, ағзалардың, ағзалар жүйелерінің
2	In KazakhIn RussianIn English Құқықтық, экономикалық, кәсіпкерлік, өндірістік, экологиялық ортада, сондай-ақ қаржылық сауаттылық, инклюзия құндылықтары, тұрақты даму және сыбайлас жемқорлыққа қарсы
3	In KazakhIn RussianIn English Ұлттық мәдениет негізінде білім алушының эмоционалды-құндылық саласын дамытатын оқу-тәрбие жұмысын жобалау
4	In KazakhIn RussianIn English Бейорганикалық және органикалық қосылыстардың жіктелуін, химиялық реакциялардың заңдылықтарын; өсімдік және жануарлар жасушаларындағы биохимиялық алмасу

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ЕДИНАЯ ПЛАТФОРМА
ВЫСШЕГО ОБРАЗОВАНИЯ

English

	In KazakhIn RussianIn English 5Өсімдіктер, жануарлар, адам ағзасындағы физиологиялық процестер туралы, ағзадағы биометриялық технологиялар мен биофизикалық процестер туралы, Фитопатологияның түрлері
	In KazakhIn RussianIn English 6Оқу процесінде биологияны оқытудың инновациялық әдістері мен технологияларын, ақпараттық-коммуникациялық технологиялар мен жасанды интеллектті қоса алғанда,
	In KazakhIn RussianIn English 7Маңызды эволюциялық теориялардың қазіргі заманғы ұстанымдарын, жаратылыстану тұжырымдамаларын, спецификацияның негізгі жолдары мен микро-макроэволюция
	In KazakhIn RussianIn English 8Микроорганизмдерді, өсімдіктерді, жануарларды жүйелеу принциптерін, латын тіліндегі терминологияны меңгеру; олардың қоршаған орта жағдайларына бейімделуін, алуан түрлілігін
	In KazakhIn RussianIn English 9Тұқымқуалаушылық, мұрагерлік және өзгергіштік заңдылықтарын, генетикалық ақпаратты және репликация, транскрипция және аударма жүйесін көбейту және іске асыру механизмдерін
	In KazakhIn RussianIn English 10Оқыту-тәрбиелеу үдерісін даму үдерістерінің физиологиялық және функционалдық ерекшеліктерін, сондай-ақ тәрбиеленушілер мен білім алушылардың жеке білім беру

Data on disciplines

Nº	Name of discipline	Short description of discipline	Cycle	Component	Credits			
						ON1	CR	ON2
1	Methods of scientific research	The goal is to form knowledge about the principles, technologies, practical methods and techniques of conducting scientific research based on modern achievements of scientists. Forms the basic foundations of scientific culture and ethics, flexible perception of scientific texts, skills of effective application of acquired knowledge in planning and organizing research work, the ability to analyze and summarize research results.	GED	EC	5	☐		☒

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2	Ilyastanu	The purpose of the discipline is to develop a deep-thinking personality with high aesthetic taste, appreciating literature, art, traditions, culture and language of the Kazakh people through a deep and comprehensive study of the works of Ilyas Zhansugurov. Forms an understanding of the importance of the works of Ilyas Zhansugurov in the development of the Kazakh literary language; skills of intellectual and creative thinking, the ability to cherish the values of national and spiritual heritage.	GED	EC	5	☐		☐
3	Fundamentals of financial literacy	The course "Fundamentals of Financial Literacy" is aimed at gaining knowledge and skills in the field of personal finance management. Also, as part of the course, students will learn how to use in practice all kinds of tools in the field of finance, save and increase savings, plan a budget competently, learn how to analyze financial information and navigate financial products to choose an adequate investment strategy	GED	EC	5	☐		☒
4	Basics of law and anti-corruption culture	The objective is to familiarize students with the fundamental branches and institutions of law, the foundations of anti-corruption culture, as well as the patterns of emergence, development, and functioning of the state and law. The course cultivates anti-corruption awareness and a high level of theoretical knowledge concerning the primary functions of law within the state and society, its impact on the development of the rule of law and civil society, and the value of inclusion as an integral component of a just and equitable legal order. Particular emphasis is placed on fostering students' understanding of the importance of human rights for all individuals, regardless of their social, cultural, physical, or other characteristics.	GED	EC	5	☐		☒

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5	Ecology and life safety basics	Purpose – the goal is to develop knowledge of the fundamentals of ecology, sustainable development, and life safety, enabling the analysis of ecological processes, the assessment of the socio-environmental consequences of anthropogenic activities, the assurance of environmental safety, and the application of methods and technologies for protection in emergency situations. Develops the ability to assess the impact of environmental factors on human health; to forecast ecological processes for planning and implementing measures aimed at enhancing life safety and ensuring environmental security; and to make informed decisions in adverse environmental and emergency situations, taking into account the potential consequences of accidents, disasters, and natural hazards within the framework of sustainable development principles.	GED	EC	5	☐	☒
6	Economics and entrepreneurship	Objective – to familiarize students with the economic challenges of modern society, develop economic thinking, and provide knowledge of the theoretical foundations and practical skills in the field of entrepreneurship. The program is aimed at forming a comprehensive understanding of the functioning of the economy, while delivering business education focused on acquiring applied competencies in various areas of entrepreneurial activity. Special attention is given to issues of sustainable development, efficient resource use, and the implementation of lean production principles as key elements of effective and environmentally responsible business practices. The course also explores the specifics of creating and successfully managing a business, taking into account modern requirements for environmental and social responsibility in entrepreneurship.	GED	EC	5	☐	☒
7	Human and animal physiology	Considers the following sections: Subject and methods of physiology. The concept of physiological systems and functions. System of regulation of functions. Physiology of the nervous system. Physiology of sensory systems: General principles of reception and processing of sensory information. Physiology of the muscular system, exocrine and endocrine glands. Blood, intercellular fluid, lymph. Physiology of blood circulation. Physiology of respiratory, digestive, excretory systems.	BD	UC	5	☐	☐



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8	Biochemistry	Studies modern methods of biochemistry, chemical composition of organisms, structure of proteins, structure and function of enzymes. The mechanism of action of enzymes. Enzyme activators and inhibitors. Nomenclature of enzymes. Kinetics of enzymatic reactions. Coenzymes, vitamins and some other biological active compounds. Fat-soluble, water-soluble vitamins. Nucleic acid. Characteristics of nitrogenous bases.	BD	UC	5	☐		☐
9	Biology of individual development	Studies the following sections: The subject of biology of individual development, connection with other biological disciplines. Asexual, vegetative and sexual reproduction. General characteristics of the fertilization process and its biological significance. Stages of crushing. Types of gastrulation. Levels of regulation and differentiation in development. Postembryonic development. Regeneration.	BD	UC	4	☐		☐
10	Inclusive education	Examines the theoretical foundations of the organization of inclusive education, historical aspects of the development of inclusion, inclusive education model. Studies technologies of inclusive education, drawing up an individual educational route, planning of educational process taking into account special educational needs of children, the organization of tutor practice in the conditions of inclusive education	BD	UC	5	☐		☐
11	Physiology of development of the student	Examines the General patterns of age-related features of growth and development of children and adolescents, the formation of their physiological functions. Studies the interaction of the child with the environment, hygiene standards and requirements, safety and health, harmonious development and improvement of functional capabilities of children and adolescents	BD	UC	5	☐		☐



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12	Vertebrate zoology	Studies the subject and methods of vertebrate Zoology. Considers the origin of chord animals and their classification. Feature type Chordates, subtype: besčerepnyh, tunicates and vertebrates. Systematics, comparative morphology, system of internal organs, development and phylogeny of vertebrate classes: round-necked, cartilaginous, bony fish, amphibians, reptiles, birds, mammals. Ways to adapt to life on land. Evolution, diversity and importance of vertebrates.	BD	UC	5	☐		☐
13	Invertebrate zoology	Studies the subject and tasks of Zoology. It examines the laws of development of the animal world from simple single-celled forms to highly organized taxons, morphophysiological organization, phylogeny, features of embryogenesis, physiology, reproduction, geographical distribution, role in ecosystems and practical significance of the main types and classes of invertebrates; characteristics of levels of Organization of invertebrates: cellular, tissue; systematicity, structure, ontogenesis, ecology of types.	BD	UC	5	☐		☐
14	Anatomy and morphology of plants	A wide range of problems: regularities of external and internal structure (morphology and anatomy) vegetation at the cellular and tissue levels, their systematics, development during geological time (evolution) and related relationships (phylogenesis).	BD	UC	5	☒	High	☐
15	Systematics of plants	Studies the subject and methods of systematics of higher and lower plants. Systematics, classification, nomenclature. Examines the diversity of structure, lifestyle and nutritional characteristics of lower plants. Prokaryotes and eukaryotes. Levels of plant organization: precellular, cellular and tissue. Classification of the plant world. Phylogeny of basic taxonomic groups. Classification of higher plants.	BD	UC	6	☐		☐
16	Pedagogics	Considers the latest methods and technologies of teaching in the framework of the updated content of secondary education. Studies methods of scientific analysis, forecasting, planning and management of the pedagogical process.Forms theoretical ideas about pedagogy as a branch of humanitarian knowledge and interaction of subjects of educational process	BD	UC	5	☐		☐

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17	Theory and methods of educational work	Examines the methods of organization of educational work and describes the laws, the essence and content of the processes of education, studying the features and principles of education within the updated content of secondary education. It is aimed at forming the interest of the future teacher for further pedagogical self-education and professional self-improvement	BD	UC	5	☐		☐
18	Cytology and histology	Examines the basic, fundamental properties of the most important groups of cells and tissues, especially the structural and functional organization and interaction of cells and tissues in specific organs. Studies objects with organ structure, embryonic development of living organisms, gametogenesis, fertilization, morphogenesis.	BD	UC	6	☒	High	☐
19	Fundamentals of artificial intelligence	The discipline is aimed at studying the basic concepts, methods and algorithms that underlie the creation and application of artificial intelligence. As part of this course, students will learn the theoretical foundations of machine learning, neural networks, natural language processing algorithms, and computer vision. They will also get acquainted with the ethical, social and legal aspects of the application of artificial intelligence in various areas of life.	BD	EC	5	☐		☐
20	Flora and fauna of the world	Studies the main patterns of biodiversity and distribution of flora and fauna of the world, the main patterns of biological diversity and distribution of plants and animals of the world, use the knowledge in professional activities.	BD	EC	5	☐		☐
21	Biological ecology	Forms, systematizes and deepens knowledge about living systems, their properties, functions and development of life on Earth, about the role of living systems in planetary processes; develops skills and abilities to identify relationships between various phenomena and processes occurring in living and inanimate nature.	BD	EC	5	☐		☐
22	Biometrics	Studies ways to measure a person's physical characteristics to verify their identity, physiological traits such as fingerprints and eyes, or behavioral characteristics that evaluate a person's unique behavior and subconscious movements.	BD	EC	5	☐		☐



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23	Biophysics	Studies the physical aspects of the existence of living nature at all its levels, from molecules and cells to the biosphere as a whole; biological objects as a kind of complex nonlinear physical systems; physical processes occurring in biological systems of different levels of organization, the influence of various physical factors on biological objects.	BD	EC	5	☐		☐
24	Innovative technologies in education	Examines the sections: Modern methods and technologies of teaching. The content, system and basic principles of building a modern school course. Non-standard lessons.	BD	EC	5	☐		☒
25	Concepts of natural science	Considers the specifics of the natural Sciences, the progress of science, methods of scientific knowledge. Fundamentals of natural science. Universe. Earth-planet. Basic concepts of the origin of life. Theory of evolution of the organic world. Human phenomenon in modern science. The concept and essence of the biosphere.	BD	EC	5	☐		☐
26	Bioresources of Kazakhstan	Studies the resources of the plant and animal world, with the aim of discovering and learning about all the diversity, the relationships between plants, animals and their habitat, the biological diversity and distribution of plants and animals, the main provisions of the protection of plant and animal resources and their protection.	BD	EC	5	☐		☐
27	Methods and technology of distance education	Considered methodological issues of distance learning and e-learning methods, examines the features of the organization of the educational process using remote educational technologies, taking into account the achievements of science, modern educational practice and advanced pedagogical experience.	BD	EC	5	☐		☐
28	Applied Biology with Fundamentals of Soil Science	Studies ways to increase the productivity of cultivated plants, domestic animals, and beneficial microorganisms. Considers the following sections: Applied sections of soil science. Soil processes that occur under the influence of human agrotechnical measures. Forest soil science. Meliorative soil science. Classification of soils.	BD	EC	5	☐		☐

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29	Fundamentals of applied behavior analysis	Course goal — to develop the ability, grounded in Applied Behavior Analysis (ABA), to critically analyze data-based functions of behavior; design and implement individualized interventions in inclusive educational settings; and evaluate their effectiveness, safety, and ethical soundness. Develops skills to: operationalize behavior; collect and analyze data (incl. ABC); identify behavioral functions; design and apply behavior support plans; teach functionally equivalent alternative behavior; manage crisis situations; and assess outcomes.	BD	EC	5	☐	☐
30	Microbiology and Virology	Studies physiology and biochemistry, systematics, genetics and ecology of microorganisms and viruses. Determines the General biological and practical value, achievements in the field of Virology and Microbiology. The position of microorganisms in the system of living beings. The world of microorganisms and viruses, common features and diversity. Morphology of yeast, mycelial fungi, microform algae, protozoa. Pure cultures of microorganisms, determination and methods of their production.	BD	EC	5	☐	☐
31	Organic hemistry	Considers the topics: the Electronic theory of the chemical bond. The theory of the direction of valences. The theory of electronic displacement. Isomerism. Alkanes. Alkenes. Alkynes. Halogenated alkanes. Alkanols. Two-and triatomic alcohols. Ether. Thioalcohols. The thioethers and other sulfur compounds. Nitro compounds of the aliphatic series. Amines of the aliphatic series. Aldehydes and ketones. Monocarboxylic acids. Derivatives of carboxylic acids. Organoelement compounds. Connections with two or more functions.dicarboxylic acid.	BD	EC	5	☐	☐
32	Ecology of plants and animals	Studies the subject and the content of ecology of plants and animals. Examines the General patterns of interaction between plants and animals and habitat, quantitative and qualitative patterns of factors on plants and animals, the composition and structure of populations, communities, their dynamics and productivity.	BD	EC	5	☐	☐

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33	Parasitology and Mycology	Studies the basic concepts, terms and definitions of Parasitology, the main groups of parasitic animals, the laws of the existence of the parasite-host , the origin and distribution of parasitism in the animal world, the life cycles of parasites, the dependence of the parasite on the lifestyle and food of the host, geographical and anthropogenic factors of parasites, the population ecology of parasites.	BD	EC	5	☐		☐
34	Chemistry of natural compounds	Studies the chemical compounds that make up living organisms, the natural ways of their transformation and methods of artificial production, isolation and study of the structure and properties of chemicals found in living organisms.	BD	EC	5	☐		☐
35	Soil biology	Considers the sections: Species composition and biological features of pests and diseases. The role of environmental factors in changing pest populations and plant development. Methods and principles of measures to combat plant diseases and pests.	BD	EC	5	☐		☐
36	Evolutionary teaching	Studies the historical development of evolutionary ideas; intra-population evolutionary phenomena and the emergence of species; supraspecific evolution and its mechanisms; the development of life on Earth; the basic theories of evolution, various functions of organs and systems of the body, the development of the human body and the formation of historical development, the study of evolutionary functions, the identification of the essence of functional evolution.	BD	EC	5	☐		☐
37	Human anatomy	Studies the structure of organs and systems of the human body, as well as structures and mutual arrangement. Examines the relationship of the structure of individual organs and the functions performed by them, age-related features of the body structure. Forms a holistic view of the most important general biological laws, knowledge of the most important sections of human anatomy, functional systems of the body, their regulation and self-regulation in interaction with the environment.	PD	UC	5	☐		☐



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38	Technology of criteria assessment	It covers a wide range of issues, the mastery of which will allow you to successfully study the most important rules and methods of evaluation of educational achievements of students; description of General guidelines, directing the attention of undergraduates to the most important laws of this process.	PD	UC	5	☐	☐
39	Methods of teaching biology	Considering the priority the meaningful aspects of the organization of process of teaching of biology and includes basic methodological knowledge, updated to reflect the challenges of school biological education. Study and generalization of the experience of advanced teachers-biologists, the use of new pedagogical technologies in the educational process, innovative learning technologies.	PD	UC	5	☐	☐
40	Plant physiology	Studies the current state of knowledge about the General laws of plant life; identification of the relationship between the main biological processes occurring among themselves, and the processes that use plant organisms, minerals and water, the processes of growth and development, flowering and fruiting, natural and air nutrition, respiration, biosynthesis and accumulation of various substances.	PD	UC	6	☐	☐
41	Biotechnology objects	Examines the structure, functions and use of microorganisms, plants and animals as objects of biotechnology; analyzes the practically useful properties of biotechnology objects, the principles underlying the improvement of the properties of biotechnology objects.	PD	EC	5	☐	☐
42	Inorganic chemistry	Studies the atomic-molecular theory, is able to use the basic concepts of inorganic chemistry and stoichiometric laws, the periodic law of D.I.Mendeleev. He knows the classification and nomenclature of inorganic compounds. The structure of the atom. Chemical bond Energy and chemical processes. The rate of chemical reactions. Chemical equilibrium. Solutions. Theory of electrolytic dissociation. Redox Reactions. Electrode processes.	PD	EC	6	☐	☐



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43	Solving biological problems	Considers the blocks of the course: Hereditary information and its implementation in the cell , Fundamentals of genetics , Selection , cell Biochemistry , Molecular biology of cells , cell Division , Reproduction and development of organisms . The study of the laws of heredity, variability, implementation of hereditary information in the body.	PD	EC	5	☐	☐
44	Methods of biological experiments	Considers modern theoretical, methodological and technological achievements of science and practice in the field of biology; methods of processing and interpretation of data with the use of computer technology; with the use of modern methods of scientific research. Includes all the experiences listed in the modern school curriculum.	PD	EC	5	☐	☐
45	Basics of Biotechnology	Examines issues related to the basics of biotechnological processes, the possibility of their improvement based on the use of highly active producers, the principles of cell and enzyme immobilization, the use of cellular and genetic engineering methods.	PD	EC	5	☐	☐
46	Digital technologies in education	Studies types of computer software; features of multimedia, hypertext and interactive mode of operation; methods of coding different types of information; units of information.	PD	EC	5	☐	☐
47	Genetics	Studies the methods of genetic research, the material foundations of heredity. It examines the mechanisms of reproduction of prokaryotes and eukaryotes, the patterns of inheritance of traits and the principles of heredity. Variability, its causes and methods of study. Genetic bases of ontogenesis, mechanisms of differentiation, actions and interactions of genes, genotype and phenotype, stages and critical periods of ontogenesis.	PD	EC	6	☐	☐
48	General and molecular genetics	Studies modern issues in biotechnology, molecular genetics, the latest data obtained using the methods of gene cloning, polymerase chain reaction, transformation in eukaryotes. Examines the issues of genetics sex determination, genetics of individual development, the organization of chromosomes and extra chromosomal DNA, modern methods of molecular genetics.	PD	EC	6	☐	☐



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49	General chemistry	Considers sections: Atomic-molecular doctrine. Basic chemical concepts and laws. Classification and nomenclature of inorganic compounds. Atomic structure. Chemical bonds. Energy and direction of chemical processes. The rate of chemical reactions. Chemical equilibrium. Solutions. Theory of electrolytic dissociation. Oxidation-reduction reactions. Electrode process.	PD	EC	6	☐	☐
50	Molecular biology of the cell	Studies a set of techniques, methods and technologies for obtaining recombinant RNA and DNA, isolating genes from an organism (cells), influencing them, turning them into other organisms and growing artificial organisms after removing selected genes from DNA.	PD	EC	5	☐	☐
51	Molecular biology	Studies the mechanisms of storage, transmission and realization of genetic information, structure and functions of complex high-molecular compounds that make up the cell: irregular biopolymers (protein and nucleic acids), methodological achievements and actual problems of modern molecular biology.	PD	EC	5	☐	☐

EO attainability coefficient: 95,03 %

	State	Status assignment date and time	General expert op
1	Expertise	12.09.2025 17:30	обновить

Basis for updating of EP *

Изменение лицензии, исключен ПС Педагог, утративший силу. Добавили новую дисциплину "Основы прикладного поведения".