



Greeting

Dear friends, we are glad to welcome you at the Faculty of Biology and Biotechnology of the Al-Farabi Kazakh National University!

The biological faculty is the oldest in the university, it was organized since the foundation of the Kazakh State University in 1934. At present, in accordance with the ongoing scientific research, modern educational programs for the training of specialists, the faculty is called the Faculty of Biology and Biotechnology. The faculty consists of 4 departments: biodiversity and bioresources, biotechnology, molecular biology and genetics, biophysics and biomedicine, as well as a bioclinic and agrobiological station.

Dear applicants and all who are interested in obtaining prestigious education, acquiring professional skills and competencies, ensuring a stable career growth, we are waiting for you and assure you that the all conditions for achieving the goals set are created at the Faculty of Biology and Biotechnology.

Welcome, you will find an exciting student life full of interesting events!



DEAN OF THE FACULTY
OF BIOLOGY AND
BIOTECHNOLOGY
AL-FARABI KAZNU,
DOCTOR OF BIOLOGICAL
SCIENCES, PROFESSOR,
Academician
OF THE NATIONAL ACADEMY
OF SCIENCES OF THE
REPUBLIC OF KAZAKHSTAN
ZAYADAN B.K.



WHERE OUR GRADUATES CAN WORK ...

The Faculty of Biology and Biotechnology is a large scientific and educational center, participates in the training of highly qualified specialists in demand in the production and business structures of Kazakhstan and abroad.

Unit actively working in the faculty: 4 departments - Biotechnology, Biodiversity and Bioresources, Biophysics, Biomedicine and neuroscience, Molecular Biology and Genetics; 2 research institutes - the Research Institute of Biology and Biotechnology and the Research Institute of Ecological Problems, as well as a unique Biological Museum. The Faculty of Biology and Biotechnology, has 87 years of experience in the training of a specialist in biology.

Graduates of the faculty work:

– In Kazakhstani and foreign research institutes; Research Institute of Human and Animal Physiology, Research Institute of Oncology and Radiology, M. Aitkozhin Institute of Molecular Biology and Biochemistry, Institute of Plant Biology and Biotechnology, National Center for Biotechnology, Institute of Zoology, Institute of Genetics and Physiology, Institute for Plant Protection and Quarantine, etc...

– In the field of pharmacology and criminology: Viva Pharm, Research Center for Anti-Infective Drugs, Antigen, etc.

– At the largest industrial enterprises of the country: JSC National company "KazMunayGas", JSC, "KazTransOil"; Bayserke-Agro and etc.

– In medical centers: Diagnostic medical center «Smart Health» in Keremet; «Ecomed», IVF center and reproductive medicine center and others.

In educational centers; Museum and other functions.

In educational institutions; Kazakh National Agrarian University (KazNAU), Kazakh National University named after Abai (KazNPU), Eurasian National University named after L.N. Gumilyov, Kazakh National Medical University named after Asfendiyarov (KazNMU), Zhetysu State University named after I. Zhansugirova, Taraz State Pedagogical Institute and others.



GRADUATES - OUR PRIDE



Smagulov N.E.
President of Astana
Motors Group



Shigaeva M.Kh.
Academician of NAS RK



Dos Sarbasov, Ph.D.,
Professor at the
University of Texas



Abzhanov A, Ph.D.,
Harvard University
Professor



Ilya Digel, Ph.D,
Professor at Aachen
University of Applied
Sciences



Dyusenov O.K.
Director of
KazEcoSolutions
LLP



Baykoshkarova S.B.
Doctor of Biological
Sciences, Professor,
Head of the EcoMed Clinic
Network



R.I. Bersimbay
Academician
of NAS RK



Aitkhozhina N.A.
President of NAS RK



EDUCATIONAL PROGRAMS OF THE FACULTY Bachelor, Master

At the Faculty of Biology and Biotechnology, the teaching of the discipline of specialties is conducted by the choice of students in Kazakh, Russian and English.

6B051 – Biological and related sciences

Educational programs «Biological and related sciences» – undergraduate:

- 6B05101 – Biological Engineering
- 6B05102 – Biology (NIS)
- 6B05102 – Biology
- 6B05103 – Biotechnology
- 6B05103 – Biotechnology (NIS)
- 6B05104 – Biophysics
- 6B05105 – Genetics
- 6B05106 – Geobotany
- 6B05107 – Microbiology
- 6B05108 – Biomedicine
- 6B08401 – Fisheries and industrial fisheries
- 6B05109 – Neuroscience
- 6B08402 – Aquaculture and aquatic biological resources

7B051 – Biological and related sciences

Educational programs «Biological and related sciences» – master's program:

- 7M01504 – Biology
- 7M05101 – Biology
- 7M05102 – Biomedicine
- 7M05103 – Biophysics
- 7M05104 – IT – Genetics
- 7M05105 – Genetics
- 7M05106 – Genetics (1 year)
- 7M05107 – Genetics (1,5 year)
- 7M05108 – Phytobiotechnology
- 7M05109 – Biotechnology
- 7M05110 – Food Biotechnology
- 7M05111 – Nanotechnology in the food industry
- 7M05112 – Geobotany
- 7M05201 – Environmental biotechnology
- 7M08401 – Fisheries and industrial fisheries
- 7M05114 – Virology
- 7M05113 – Neuroscience
- 7M08402 – Aquaculture and aquatic biological resources



PhD ДОКТОРАНТУРА

8B051 – Biological and related sciences

Educational programs «Biological and related sciences» - doctoral studies:

- 8D05101 – Biology
- 8D05102 – Biomedicine
- 8D05103 – Biophysics
- 8D05104 – Genetics
- 8D05105 – Biotechnology
- 8D05106 – Nanotechnology in the food industry
- 8D05107 – Phytobiotechnology
- 8D05108 – Geobotany
- 8D05201 – Invironmental biotechnology
- 8D08401 – Fisheries and industrial fisheries
- 8D05110 – Virology
- 8D05111 – Virology (University Paris Saclay)
- 8D05109 – Neuroscience

B050- Biological and related sciences

Educational programs «Biological and related sciences» - undergraduate:

6B05103 – Biotechnology, Biotechnology (NIS): Biotechnologist develops and uses techniques to increase the productivity of natural and organisms; owns the skills of cultivating biological objects and controlling the synthetic the production. Process work-flow for obtaining a biotechnological product; developing measures to improve the economic and production indicators of the biotechnological process; assesses compliance with the quality and safety of biotechnological products and industries; He owns methods of genetic and cellular engineering for the production of microbiological synthesis, bio catalysis and nanobiotechnology products. Biotechnologist can work as a technologist, engineer, researcher in food and pharmacological industries, in certification, environmental and research laboratories.

6B05107 – Microbiology: The microbiologist is engaged in the storage and maintenance of cultures and collections of microorganisms; develops and applies methods for their cultivation and preparation of biological products based on them; provides technological operation of industrial microbiological equipment; develops and implements measures to ensure biosafety; organizes and conducts sanitary product quality control. Microbiologist can work as a microbiologist technologist, laboratory assistant, sanitary expert, researcher and engineer in food and pharmacological industries, in certification and research laboratories, and sanitary surveillance authorities.

6B05102 – Biology (scientific), Biology (NIS): scientific and industrial activity; scientific and pedagogical activity; in the field of embryology; in the



field of biotechnology; in the field of microbiology; in the field of genetics; in the field of genetic engineering; in research institutes; diagnostic centers.

6B05101 – Biological engineering (in English): Field of activity of specialists in the field of bioengineering; obtaining and application of modified natural and artificial organisms; genomic and proteomic analysis; development of molecular diagnostic methods for diseases; obtaining drugs based on cell cultures.

6B05108 – Biomedicine: researcher, laboratory assistant, technician at universities, laboratory assistant at research institutes, sanitary and epidemiological stations; technician, laboratory researcher.

6B0510 – Biophysics: Researcher, Laboratory Specialist; specialist, teacher of biology, specialist of teaching and auxiliary personnel, laboratory assistant.

6B05105 – Genetics: Science; Education; The medicine; Agriculture; Ecology and environmental protection; Forensics.

6B05106 – Geobotany: Researcher; laboratory specialist; specialist; teacher – geobotanist, botanist; specialist of teaching staff; laboratory assistant.

6B08401 – Fisheries and industrial fisheries: Conducts biological, ichthyological analyses of fish and other aquatic hydrobionts, studies fish diseases, is able to determine the fish productivity of reservoirs, owns the technology of artificial insemination of fish, knows the normalized fish nutrition, methods for determining the composition of feed.

6B08402 – Aquaculture and aquatic biological resources: He works at aquaculture enterprises, carries out biotechnology for growing sturgeon, salmon, carp and other new aquaculture objects, owns methods for studying the biological characteristics of hydrobionts, studies the pathological diseases of hydrobionts and takes therapeutic measures, performs hydrobiological, ichthyological analysis, determines the hydrobiological productivity of the reservoir.

6B05109 – NEUROSCIENCE: Personnel training in the field of professional activity includes the following types of activities, professions, qualification levels (schedule the types of activities by the professional standard):

- researcher in the field of neuroscience;
- practitioner-researcher;
- specialist in the field of neuroscience;
- specialist in the field of neuroscience in government institutions;

7M051 - Biological and related sciences - Master's program:

M082 – Biotechnology – 7M05109: capable of implementing a biotechnological product management system in accordance with the requirements of Kazakhstan and international quality standards; ideally suited for work in the biotechnological, environmental, agricultural and pharmaceutical industries.

M087 – Environmental biotechnology – 7M05201: Research institutes, Environmental monitoring organizations, Biotechnological product manufacturing companies, Sanitary and epidemiological stations, Agro-



industrial fertilizer manufacturing companies, Chemical and bacteriological laboratories for monitoring water quality, RSE «Kazhydromet» of the Ministry of Energy of the Republic of Kazakhstan.

M082 – Phytobiotechnology – 7M05108: Education and science: biologist and researcher (in the field of biology and biotechnology); biology teacher in secondary school; Pharmacology: biopharmacologist, phytopharmacologist; Ecology: in environmental committees.

M082 – Nanotechnology in the food industry – 7M05111: «Nanotechnology in the food industry» aims to prepare future specialists will be able to: develop functional Smart Food products with changing tastes, smells and other properties as desired by a person; solve malnutrition problems; receive composite materials for various purposes, etc.

M082 – Food Biotechnology – 7M 05109: Food Biotechnology – Biotechnologist in the food industry is committed to controlling the quality of products. Keeps track of the cooking process.

M080 – 7M01504 –Biology (scientific) – Biology - 7M05101: scientific and industrial activity; scientific and pedagogical activity; in the field of embryology; in the field of biotechnology; in the field of microbiology; in the field of genetics; in the field of genetic engineering; in research institutes; diagnostic centers; epidemiology; biological nanotechnology.

M080 – Biomedicine – 7M05102: Training in the field of professional activity includes the following activities, professions, and qualification levels: researcher, laboratory specialist at research institutes, sanitary and epidemiological stations, biomedical institutions; Lecturer – biomedicist, technician, laboratory assistant.

M083 – Geobotany – 7M05202: Researcher; laboratory specialist; specialist; teacher - geobotanist, botanist; specialist teaching staff; laboratory assistant.

M080 – Biophysics – 7M05103: Researcher, Laboratory Specialist; laboratory assistant, teacher - biophysicist, specialist of educational and auxiliary personnel of higher educational institutions.

M081 Genetics (1 year, 1,5 years, 2 years) – 7M05105, 7M05106, 7M05107): Graduates of the Genetics educational program can work: Scientific institutes (Institute of General Genetics and Cytology; Institute of Plant Biology and Biotechnology; Scientific Center for Anti- Infectious Drugs, etc.); Specialized Laboratories (medical-genetic, IVF, forensic science); City and regional perinatal centers; Educational institutions.

M081 – IT – Genetics – 7M05104: Science; Education; Medicine; Agriculture; Ecology and environmental protection; Forensics.

M134 – Fisheries and industrial fisheries – 7M08401: organization, planning and direct implementation of a range of activities to protect and control the rational use of aquatic biological resources in all types of fisheries; design of hatcheries; quality management of farmed facilities in all types of fisheries; implementation of management in fisheries; organization of research and design work at enterprises, organizations of the fishing industry and research institutes; implementation of fisheries and environmental assessments and development of recommendations in fisheries; the implementation of pedagogical activities in universities.



7M08402-Aquaculture and aquatic biological resources: Organizes aquaculture enterprises, uses new and traditional methods in the biotechnology of hydrobionts, knows the methods of genetics, breeding, is able to work with modern ultrasound equipment to determine the sex of fish, can conduct molecular genetic studies of hydrobionts, studies ichthyofauna by determining the biological productivity of the reservoir.

7M05114-Virology: Education (to teach virological and biological disciplines in universities and other educational institutions of state and non-state profile);

2 Government authorities (to carry out management activities in private and public organizations, enterprises, laboratories, companies and institutions);

7M05113 – NEUROSCIENCE: Personnel training in the field of professional activity includes the following types of activities, professions, qualification levels (schedule the types of activities following the professional standard):

- Scientific worker;
- Researcher;
- Practical researcher;
- Lecturer of disciplines of neuroscience;

7M01- Pedagogical sciences

«7M014 - Teacher training in natural science subjects

M014 Training of biology teachers: Teacher-biologist, teacher, specialist of educational support staff, laboratory assistant, researcher, specialist

8D051 – Biological and related sciences - doctoral degree:

D082 – Biotechnology – 8D05105: Doctoral students who have successfully mastered the educational program in the specialty Biotechnology will be specialists who are competitive in the international labor market and will be able to realize themselves as: scientific staff at research institutes; teachers at universities.

D087 – Environmental biotechnology – 8D05201: Environmental monitoring organizations, Biotechnological production companies, Research institutes, Sanitary and epidemiological stations, Agro-industrial fertilizer manufacturing companies, Chemical and bacteriological laboratories for water quality control, RSE «Kazhydromet» of the Ministry of Energy of the Republic of Kazakhstan.

D082 – Phytobiotechnology – 8D05107: Education and science:
- Biologist and researcher (in the field of biology and biotechnology); - University lecturer in the field of biology and biotechnology; Pharmacology: biopharmacologist, phytopharmacologist; Ecology: Senior Specialist in Environmental Committees.

D082 – Nanotechnology in the food industry – 8D05106: To search for modern ideas on the basics of biotechnological and biomedical production, genetic engineering, nanobiotechnology, molecular modeling, to operate modern apparatus and equipment for carrying out scientific research field and laboratory biological work. To develop research methods for the analysis of modeling and mathematical statistics in the field of nanotechnology. Prepare reports on project work.



D080 – Biology (scientific) – 8D05101: scientific and industrial activity; scientific and pedagogical activity; in the field of embryology; in the field of biotechnology; in the field of microbiology; in the field of genetics; in the field of genetic engineering; in research institutes; diagnostic centers; epidemiology; biological nanotechnology; in botany; in zoology.

D080 – Biomedicine – 8D05102: researcher, laboratory assistant, technician at universities, laboratory assistant at research institutes, sanitary and epidemiological stations; Lecturer - bio medic in universities; Technician, laboratory researcher: biotechnological, pharmacological and pharmaceutical studies, environmental protection, medical diagnostics (biochemistry, virology, microbiology, molecular biology, genetics), specialist in environmental services and organizations.

D080 – Biophysics – 8D05103: Researcher, Laboratory Specialist; Lecturer - biophysicist, expert.

D083 – Geobotany – 8D05108: Researcher; Laboratory Specialist; Specialist; Teacher - geobotanist, Botanist.

D081 – Genetics – 8D05104: Graduates of the Genetics educational program can work: Scientific institutes (Institute of General Genetics and Cytology; Institute of Plant Biology and Biotechnology; Scientific Center for Anti-Infectious Drugs, etc.); Specialized laboratories (medical-genetic, IVF, forensic science); City and regional perinatal centers; educational institutions.

D134 – Fisheries and industrial fisheries – 8D08401: Organization, planning and direct implementation of a range of activities to protect and control the rational use of aquatic biological resources in all types of fisheries; design of hatcheries; quality management of farmed facilities in all types of fisheries.

8D05110-Virology, Virology (University Paris Saclay): Training in the specialty «8D05110-Virology» is carried out for the following areas of professional activity:

- Education (to teach virological and biological disciplines in universities and other educational institutions of state and non-state profile);
- Government authorities (to carry out management activities in private and public organizations, enterprises, laboratories, companies and institutions);

8D05109 – NEUROSCIENCE: Personnel training in the field of professional activity includes the following types of activities, professions, qualification levels (schedule the types of activities following the professional standard):

- Senior scientific worker;
- Research Scientist;
- Research Practitioner;
- Lecturer of disciplines of neuroscience;



COMMENTS ON OUR FACULTY



I am Assem Sharipbay. I am alumni of KazNU and now I am the first year Master student here. Currently, I am studying at ISA Lille(France). Now thanks to institutional collaboration of KazNU and ISA Lille. I am truly happy to have a chance to study in the university, focused on professional skills. I am grateful to my professors for all the knowledge I have gained during my bachelor at KazNU.

The whole academic exchange period expenses will be covered by Erasmus+ grant, funded by European Commission.



My name is Yuliya Genievskaia, I am a 2nd year Master student of the Department of Biotechnology, Faculty of Biology and Biotechnology of the al-Farabi Kazakh National University. My current specialization is the molecular genetics of wheat resistance to fungal diseases of Kazakhstan. Our faculty gives the opportunity to study all aspects of biological science - from molecular biology to medical research. I have been studying at the department of biotechnology since 2014, when I entered the bachelor's program, and I must say that I have never regretted my

choice. Our department is the most numerous not only in the number of students among the faculty, but also in teachers, each of whom is a professional in his field and always ready to help each student.

In the last spring, I had the chance to visit one of the best universities in the World - the University of Oxford, where I had a scientific internship with other top master students of the KazNU. For this, I am grateful not only to the university, but also to our faculty and, of course, to my department.



Kanalbek Gulzat, a graduate of master's and bachelor's programs, majoring in biotechnology.

The main purpose of participation of KazNU in the international educational program of the USOS-the development of higher education, improving its global competitiveness. To this end, I studied in the master's program of the USOS in biotechnology, received double diplomas of the Belgorod state University and the Kazakh national University. Al-Farabi, became a master of engineering.

This is a great opportunity for graduates who have completed training to a prestigious job!



STUDENTS' LIFE



Bologna Process Student Office Meeting



Caring for an orphanage



The best student group



Participation in a sport event on Medeu

FOREIGN EXPERIENCE



University of Salento (Italy),
2 semesters study in a joint
curriculum



Studying at BelSU (Russia) under the double
diploma program in biotechnology



Training at Lille University (France) 2 semesters program in food biotechnology



Ultra Electronic (Czech Republic) MSc Internship Program

DOMESTIC AND INTERNATIONAL COOPERATION

THE INTERNATIONAL COOPERATION



DOMESTIC COOPERATION

