



MINISTRY OF SCIENCE AND HIGHER EDUCATION OF THE RUSSIAN FEDERATION
Federal State Autonomous Educational Institution of Higher Education

Far Eastern Federal University
(FEFU)

«APPROVE»
of the Academic Council FEFU

30.09.2022 №10-22

**BASIC PROFESSIONAL EDUCATIONAL PROGRAM OF HIGHER
EDUCATION**

Master's program
19.04.01 Biotechnology

Name of the educational program
Agri-food biotechnology

Квалификация выпускника: master

Форма обучения: full-time

Normative period of development of the program (2 years)

Starting year of preparation: 2021

Vladivostok
2021


APPROVAL SHEET
Core Professional Education Program

The main professional educational program of higher education is compiled in accordance with the requirements of the educational standard, independently established by FEFU, approved by order of the rector of FEFU dated 07.07.2015 No. 12-13-1282.

Considered and approved at the meeting of the FEFU AC on September 30, 2022 (Minutes No. 10-22).


Scientific supervisor of the EPHE _____  L.V. Levochkina

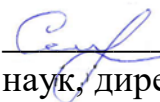
Head EPHE _____  E.G. Novitckaia

Members of the working group _____  T.A. Ershova
EPHE

Director of the School _____  L.A. Tekuteva

Employer representatives:

_____  Б.И. Кунденюк, генеральный директор ООО «Владтехимпорт»
подпись

_____  Н.В. Ситун, канд. биол. наук, директор департамента по пищевой и биологической безопасности ООО «Ратимир»

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Abstract of the main professional educational program

1. General Provisions

The main professional educational program (OPEP) of the Master's program, implemented by the federal state autonomous educational institution of higher education "Far Eastern Federal University" in the direction of preparation 19.04.01 Biotechnology, master's program Agri-food biotechnology is a system of documents developed and approved by a higher educational institution, taking into account the requirements of the labor market based on the Federal State Educational Standard in the field of higher education (FSES HE 3++), taking into account the relevant exemplary basic educational program included in the register of exemplary basic educational programs (hereinafter referred to as EPHE), and determining the content of training a highly qualified specialist, developed competencies, components of the educational process by disciplines, the relationship of disciplines, forms and methods of organizing the educational process and controlling students' knowledge, educational and methodological and material technical support of the educational process.

The focus of the areas of professional activity is focused on:

01 Education and science (in the areas of: implementation of educational programs of vocational education, higher education and additional professional programs; scientific research);

13 Agriculture and animal and human health protection (in the areas of development, research and production of enzymes, including the development of banks of microbial strains, biotechnology of biofertilizers, feed protein and premixes for animal husbandry, beekeeping, fish farming, processing of agricultural waste, biological components feed and premixes, deep processing of grain and other agricultural crops).

22 Food industry, including the production of beverages and tobacco (in the areas of: production of food protein, enzyme preparations, prebiotics, probiotics, synbiotics, functional foods (including therapeutic, prophylactic and children's),

food ingredients, including vitamins and functional mixtures; deep processing of food raw materials, production of biotechnological products for the food industry).

As part of the development of the undergraduate program, graduates are preparing to solve the problems of professional activities of research, design, production and technological types.

The orientation of the program determines the subject-thematic content, the prevailing types of educational activities of the student and the requirements for the results of mastering the areas of professional activity. Qualification awarded to graduates of the educational program: master.

Areas of professional activity is a complex of the main characteristics of education (volume, content, planned results), organizational and pedagogical conditions, certification forms, which is presented in the form of an annotation (general characteristic) of the educational program, curriculum, calendar curriculum, work programs of disciplines (modules), including assessment tools and methodological materials, practice programs, research programs and state final certification, as well as information about the actual resource support of the educational process. as well as working program of education, calendar plan of educational work

2. Regulatory framework for the development of OPEP

The regulatory legal framework for the development of the BRI consists of:

- Federal Law of December 29, 2012 No. 273-FZ “On Education in the Russian Federation”;
- Federal State Educational Standard of Higher Education in the field of study 19.04.01 "Biotechnology", approved by order of the Ministry of Education and Science of the Russian Federation dated 10.00.2021 No. 737;
- Order of the Ministry of Science and Higher Education of the Russian Federation dated April 6, 2021 No. 245 “On Approval of the Procedure for Organization and Implementation of Educational Activities in Educational Programs

of Higher Education – Bachelor’s Programs, Specialist’s Programs, Master’s Programs”;

– Order of the Ministry of Education and Science of the Russian Federation dated August 23, 2017 No. 816 “Procedure for the use by organizations engaged in educational activities of e-learning, distance learning technologies in the implementation of educational programs”;

– Order of the Ministry of Education and Science of the Russian Federation dated June 29, 2015 No. 636 “On Approval of the Procedure for Conducting State Final Attestation for Educational Programs of Higher Education - Bachelor’s Programs, Specialist’s Programs, Master’s Programs” (as amended and supplemented on March 27, 2020);

– order dated 08/05/2020 on the practical training of students of the Ministry of Education and Science of Russia No. 885, the Ministry of Education of Russia No. 390 (as amended and supplemented on November 18, 2020);

– professional standards approved by orders of the Ministry of Labor and Social Protection of the Russian Federation;

– Order of Rosobrnadzor No. 831 dated August 14, 2020 “On approval of the Requirements for the structure of the official website of an educational organization in the Internet information and telecommunication network and the format for presenting information” (registered with the Ministry of Justice of Russia on November 12, 2020 No. 60867) (as amended and amendments dated May 7, 2021);

– Order of the Ministry of Education and Science of Russia No. 882, Ministry of Education of Russia No. 391 dated 08/05/2020 "On the organization and implementation of educational activities in the network form of the implementation of educational programs" (together with the "Procedure for the organization and implementation of educational activities in the network form of the implementation of educational programs");

- regulatory documents of the Ministry of Science and Higher Education of the Russian Federation (Ministry of Education and Science of the Russian Federation), the Federal Service for Supervision of Education and Science;
- FEFU internal regulations and documents.

Terms, definitions, designations, abbreviations

HE - higher education;

ISU - issuing structural unit;

SFC - state final certification;

R & D - research work;

LHP - limited health opportunities

GPC - general professional competencies;

MPEP - the main professional educational program;

ESHE - the educational standard of higher education, independently established by FEFU;

GLF - generalized labor function;

PC - professional competencies;

EBPP - exemplary basic professional program;

WPC - the work program of the discipline.

SPC - special professional competencies;

UC - universal competencies;

UPC- universal professional competencies;

FSES HE - is the federal state educational standard of higher education.

3. Goals and objectives of the main professional educational program

In accordance with the recommendations of the Ministry of Education and Science of Russia and the requirements of the ES HE FEFU 19.04.01 Biotechnology, the main goal of implementing the educational program is:

- high-quality training of highly qualified personnel in the field of education «Engineering, technology and technical sciences», general professional and professional competencies that contribute to the social mobility of graduates and their stability in the labor market.

The main goal is achieved by solving the following tasks:

- providing a system of high-quality training in this area and the implementation of the ES HE, taking into account the development of science, culture, economics, engineering, technology and the social sphere;

- ensuring the systematic interaction of the teaching staff with employers, the business community to develop general cultural, professional, social and personal competencies and assess the quality of graduate training;

- formation and development on this basis of students' professional knowledge, skills and abilities in accordance with the requirements of ES HE in this area of training;

- improving the knowledge of a foreign language, focused on professional activities;

- in-depth study of the theoretical and methodological foundations of agro-food biotechnology, methods for their modeling, optimization of processes that ensure the production of biologically safe food products with specified quality characteristics;

- obtaining knowledge in the field of the legislative framework of the food and biotechnology industry, process technology;

- organization of production control at enterprises for the processing of agro-food raw materials and quality management of finished products that ensure the health and livelihoods of the population;

- formation of skills for independent research activities;

- formation of skills in independent solution of such professional tasks as: development of new types of products and technologies in accordance with the state policy of the Russian Federation in the field of healthy nutrition of the population on the basis of scientific research; participation in the preparation of design and technological documentation, taking into account international experience; organization and conduct of research work in the field of biotechnology, development of technical specifications for the design and manufacture of non-standard equipment and means of technological equipment for enterprises; development of technical documentation and technical regulations; organization of quality control of food products in accordance with the requirements of sanitary, veterinary norms and rules; organization of control over compliance with the environmental cleanliness of production processes.

4. The labor intensity of the OBOR in the direction of training

The normative term for mastering the OPEP VO of the master's program in the direction of preparation 19.04.01 Biotechnology, the program «Agri-Food Biotechnology» is 2 years for full-time education.

The total labor intensity of mastering the main educational program for full-time education is 120 credits (60 credits per year) according to the standard training period of 2 years, regardless of the form of education, the educational technologies used, the implementation of the master's program using the network form, the implementation of the master's program in individual curriculum, including accelerated learning.

5. Areas of professional activity

The field of professional activity of graduates who have mastered the master's program includes:

- research, production and use of enzymes, viruses, microorganisms, cell cultures of animals and plants, products of their biosynthesis and biotransformation;

- creation of technologies for obtaining new types of products, including products obtained using microbiological synthesis, biocatalysis, genetic engineering and nanobiotechnologies;
- development of scientific and technical documentation and technological regulations for the production of biotechnological products;
- implementation of biotechnological processes and industries in accordance with the observance of legislative and regulatory national and international acts;
- organizing and conducting quality control of raw materials, intermediate products and finished products.

Specific areas of professional activity in the direction of training 19.04.01 Biotechnology, master's program «Agri-food Biotechnology» are:

- search and development of new effective ways to obtain innovative biotechnological products, creation of modern food biotechnologies, including technologies for obtaining raw materials of plant and animal origin.

6. Objects of professional activity

The objects of professional activity of graduates who have mastered the master's program are:

- microorganisms, cell cultures of animals and plants, viruses, enzymes, biologically active chemicals;
- devices and equipment for studying the properties of used microorganisms, cell cultures obtained by biosynthesis of substances obtained in laboratory and industrial conditions;
- biomass, installations and equipment for biotechnological processes;
- means of quality control of raw materials, semi-finished products and finished products;
- regulations for the production of biotechnology products, international standards;

Specific objects of professional activity in the field of study 19.04.01 Biotechnology, profile «Agri-food Biotechnology» are:

- food biotechnology products and functional foodstuffs;
- concentrates of biologically active substances of plant, animal, microbial origin, as functional ingredients.

7. Types of professional activity. Professional tasks

Types of professional activities for which graduates who have mastered the master's program are preparing:

- research;
- organizational and managerial;
- production and technological.

A graduate who has mastered the master's program, in accordance with the type (types) of professional activity, to which (which) the master's program is oriented, must be ready to solve the following professional tasks:

1) research activities:

- selection, processing and analysis of scientific, technical and patent information on the subject of research using specialized databases using information technology;
- analysis of technological process indicators for compliance with scientific developments;
- development of research programs, evaluation and analysis of the results;
- search and development of new effective ways to obtain biotechnological products, creation of modern biotechnologies, including nanobiotechnologies, technologies of recombinant deoxyribonucleic acids, cell technologies;
- isolation, identification and analysis of products of biosynthesis and biotransformation, obtaining new strains-producers of biological preparations;
- creation of composite forms and optimal ways of using biological products;
- carrying out validation of technological processes and analytical methods;
- study of biochemical and biological patterns of biosynthesis processes, micro- and macrostoichiometry, micro- and macrokinetics of growth of populations of microorganisms and cell cultures, interaction of microorganisms, viruses with

cells, metabolic pathways and features of substrate utilization and synthesis of metabolic products;

- creation of theoretical models that allow predicting the nature of changes in the properties of raw materials in the process of its biotransformation and obtaining products with specified quality characteristics;

- experimental study of biological and physico-chemical kinetics at all stages of the technological process and their mathematical description;

- preparation of scientific and technical reporting documentation, analytical reviews and references, documentation for participation in competitions of scientific projects, projects of pharmacopoeial articles (state standards), publication of scientific results, protection of intellectual property;

2) organizational and managerial activities:

- organization of the work of the team in the conditions of the current production, planning the work of personnel and payroll funds;

- implementation of relations with the leading scientific centers of the industry to optimize the work of the enterprise, development of criteria for evaluating the effectiveness and an action plan to improve it;

- conducting a technical and economic analysis of production and drawing up technical and economic documentation;

- development and implementation of a quality management system for biotechnological products;

- development of a system of local regulations of the enterprise in accordance with the requirements of international standards;

- organization of work on the introduction of innovations in the field of biotechnology;

- organization of logistics

biotechnological production, storage and accounting of raw materials, materials and finished products in the prescribed manner;

- ensuring technological discipline, sanitary and hygienic regime of the enterprise, maintenance of technological equipment in proper technical condition;

- organization of compliance with safety regulations at work and environmental protection;
- ensuring professional confidentiality;
- 3) production and technological activities:
 - organization, planning and management of existing biotechnological processes and production;
 - ensuring the stability of production indicators and the quality of products in accordance with the local acts of the enterprise (technological regulations, job descriptions, analysis methods);
 - ensuring the effective operation of control, automation and automated control of biotechnological production;
 - organization and implementation of measures for energy and resource saving, ensuring the environmental safety of biotechnological processes;
 - ensuring chemical-technical, biochemical and microbiological control;
 - development of measures to improve the economic and production indicators of the process, ensuring the economic efficiency of production and obtaining a product of the desired quality;
 - organization of metrological support of production;
 - organization of the internal and external audit system;
 - coordination of work on the implementation of the results of scientific research in production;
 - operation of experimental and industrial installations;
 - ensuring the operation of instruments and equipment for analytical control and production control in accordance with the technical data sheets and instructions for instruments and equipment.

8. Requirements for the results of the development of the OPEP

A graduate in the field of study 19.04.01 Biotechnology (master's level), in accordance with the goals of the master's program, types and tasks of professional activity, must have general cultural, general professional and professional

competencies, which are formed as a result of mastering the entire content of the EP of the master's program.

A graduate who has mastered the master's program must have the following general cultural competencies (GC):

- the ability to creatively adapt the achievements of foreign science, technology and education to domestic practice, a high degree of professional mobility (GC-1);

- willingness to show the qualities of a leader and organize the work of the team, to own effective technologies for solving professional problems (GC-2);

- ability to work in project interdisciplinary teams, including as a leader (GC-3);

- the ability to quickly master new subject areas, identify contradictions, problems and develop alternative solutions to them (GC-4);

- the ability to generate ideas in scientific and professional activities (GC-5);

- the ability to conduct a scientific discussion, possession of the norms of the scientific style of the modern Russian language (GC-6);

- the ability to free scientific and professional communication in a foreign language environment (GC-7);

- the ability to abstract thinking, analysis, synthesis (GC-8);

- willingness to act in non-standard situations, bear social and ethical responsibility for the decisions made (GC -9);

- the ability to improve and develop one's intellectual and general cultural level, gain knowledge in the field of modern problems of science, engineering and technology, humanitarian, social and economic sciences (GC-10);

- the ability to grow professionally, to independently learn new research methods, to change the scientific and research-and-production profile of one's professional activity (GC-11);

- the ability to practice the use of skills in the organization of research and design work and in team management (GC-12);

- willingness to use legal and ethical standards in assessing the consequences of their professional activities, in the development and implementation of socially significant projects (GC-13).

A graduate who has mastered the master's program must have the following general professional competencies (GPC):

- the ability to professionally operate modern biotechnological equipment and scientific instruments (GPC-1);

- readiness for communication in oral and written forms in the state language of the Russian Federation and a foreign language to solve the problems of professional activity (GPC-2);

- willingness to lead a team in the field of their professional activities, tolerantly perceiving social, ethnic, confessional and cultural differences (GPC-3);

- readiness to use methods of mathematical modeling of materials and technological processes, readiness for theoretical analysis and experimental verification of theoretical hypotheses (GPC-4);

- the ability to use modern information technologies to collect, process and disseminate scientific information in the field of biotechnology and related industries, the ability to use databases, software products and resources of the information and telecommunication network «Internet» (hereinafter referred to as the «Internet») to solve the problems of professional activity (GPC-5);

- readiness to protect intellectual property objects and commercialize rights to intellectual property objects (GPC-6).

A graduate who has mastered the master's program must have professional competencies (PC) corresponding to the type of professional activity that the master's program is focused on:

research activities:

- willingness to plan, organize and conduct research work in the field of biotechnology, the ability to correctly process the results of experiments and draw reasonable conclusions and conclusions (PC-1);

- the ability to analyze scientific and technical information in the field of biotechnology and related disciplines for the purpose of scientific, patent and marketing support for ongoing fundamental research and technological developments (PC-2);

- the ability to present the results of the work performed in the form of scientific and technical reports, reviews, scientific reports and publications using modern information technology capabilities and taking into account the requirements for the protection of intellectual property (PC-3);

organizational and managerial activities:

- readiness to organize the work of a team of performers, make executive decisions in a spectrum of opinions, determine the order of work (PC-7);

- the ability to conduct a technical and economic analysis of production and draw up technical and economic documentation (PC-8);

- willingness to use the basic principles of organization of metrological support of production (PC-9);

- ability to develop a quality management system for biotechnological products in accordance with the requirements of Russian and international quality standards (PC-10);

- the ability to ensure technological discipline, sanitary and hygienic mode of operation of the enterprise, maintenance

technological equipment in proper technical condition (PC-11);

- the ability to plan and carry out activities to ensure safety at work, to monitor and protect the environment (PC-12);

production and technological activities:

- readiness for organizing, planning and managing existing biotechnological processes and production (PC-13);

- the ability to use standard and develop new methods for engineering calculations of technological parameters and equipment for biotechnological production (PC-14);

- willingness to ensure the stability of production indicators and product quality (PC-15);
- the ability to carry out the effective operation of control, automation and automated production control, chemical-technical, biochemical and microbiological control (PC-16);
- readiness to conduct pilot testing of technology and scaling up processes (PC-17);
- the ability to develop and scientifically substantiate schemes for optimal integrated certification of biotechnological products (PC-18);
- the ability to analyze the indicators of the technological process for compliance with the original scientific developments (PC-19);
- the ability to ensure the biological safety of raw materials, semi-finished products, finished products (PC-20);
- the ability to ensure the metrological state of production and the effective operation of control, automation and automated production control (PC-21);
- the ability to coordinate work on the implementation of the results of scientific research into production (PC-22).

9. Characteristics of the educational environment of FEFU, which ensures the formation of general cultural competencies and the achievement of educational goals

In accordance with the FEFU Charter and the University Development Program, the main task of educational work with students is to create conditions for the active life of students, for civic self-determination and self-realization, to meet the needs of students in intellectual, spiritual, cultural and moral development. Educational activities at the university are carried out systematically through the educational process, practices, research work of students and extracurricular activities in all areas. The university has created a campus environment that ensures the development of general cultural and social and personal competencies of graduates.

The organization and content of the management system of educational and extracurricular activities in FEFU are provided by the following structures: Academic Council; administration; Vice-Rector for Academic and Educational Work; services of psychological and pedagogical support; Schools; Department of Youth Policy; Creative Center; United Student Council. Young people can apply their efforts and implement their own projects at the Volunteer Training Center, the Parliamentary Debate Club, the student trade union, and the United Student Scientific Society. An important role in shaping the educational environment is played by the student council of the School of Biomedicine. The Student Council participates in the organization of extracurricular activities of students, identifies factors that impede the successful implementation of the educational process at the university, brings them to the attention of the school management, considers issues related to the observance of academic discipline, internal regulations, protects the interests of students in cooperation with the administration, promotes students to gain experience in organizing and performing activities.

The educational environment of the university contributes to the fact that each student has the opportunity to be active, get involved in social practice, in solving the problems of the university, city, country, while developing the relevant general cultural and professional competencies. So, to support and motivate students at FEFU, a number of state and non-state scholarships have been defined: a scholarship for success in scientific activities, a scholarship for success in social activities, a scholarship for success in sports activities, a scholarship for success in creative activity, Scholarship of the V. Potanin Charitable Foundation, Scholarship of the Oxford Russian Foundation, Scholarship of the Governor of the Primorsky Territory, Scholarship «Genzo Shimadzu» etc.

The procedure in accordance with which scholarships are paid is determined by the Regulations on scholarships and other forms of material support for students, postgraduates and doctoral students of FEFU, approved by order No. 12-13-1794 of 07.11.2014.

The selection criteria and the amount of increased state academic scholarships are regulated by the Regulation on increased

state academic scholarships for achievements in educational, research, social, cultural, creative and sports activities, approved by order No. 12-13-1862 of 19.11.2014

The procedure for assigning financial assistance to needy students is regulated by the Regulations on the procedure for providing one-time financial assistance to FEFU students, approved by Order No. 12-18-1251 of March 20, 2013, and the amount of payments is established by the commission for consideration of issues of providing material assistance to FEFU students.

The University is a unique complex of buildings and structures, located on an area of about a million square meters, with a developed campus infrastructure, including hostels and hotels, sports facilities and facilities, a medical center, a network of canteens and cafes, gyms, grocery stores, pharmacies, post offices and banks, laundries, ateliers and other facilities that provide all the conditions for accommodation, food, health improvement, sports and recreation for students and employees. All campus buildings are designed with accessibility in mind for people with disabilities.

To organize independent work of students, rooms and computer classes are equipped with possible access to the Internet and the electronic educational environment of the university.

10. The system for assessing the quality of mastering the educational program by students

The assessment of the quality of mastering the BEP HE includes current control, intermediate certification and the state final certification of graduates. For systematic work to support academic progress at the university, a rating assessment of students' knowledge has been developed.

The procedure for conducting ongoing monitoring and intermediate certification is regulated by the «Regulations on the current monitoring of academic performance, current and intermediate certification of students enrolled in

educational programs of higher education at FEFU», approved by order No. 12-13-1720 of October 28, 2014; «Regulations on the rating system for assessing the performance of students of educational programs of higher education of the Far Eastern Federal University», approved by order No. 12-13-17184 dated October 28, 2014; «Regulations for monitoring the effectiveness of the educational process», approved by order No. 12-13-1719 dated October 28, 2014. Conducting the state final certification is regulated by the «Regulations on the state final certification for educational programs of higher education - undergraduate, specialist, master's programs», approved by order No. 12-13-2285 of November 27, 2015. The requirements for final qualification works and the procedure for their implementation, the criteria for assessing the defense of final qualification works are approved by the «Program of the state final certification», approved and posted in the BlackBoard Learn electronic learning support system. Evaluation tools in the form of a fund of evaluation tools for all forms of certification tests and current control are developed and presented in the BlackBoard Learn electronic learning support system. Evaluation tools are developed in accordance with the "Regulations on the funds for evaluation funds of educational programs of higher education - bachelor's, specialist's, master's programs of FEFU", approved by order No. 12-13-850 dated May 12, 2015. For each learning outcome in a discipline, practice or final certification, indicators and criteria for evaluating the formation of competencies at various stages of their formation, scales and assessment procedures are determined.

In accordance with the needs of the labor market in the Russian Federation and leading enterprises in the biotechnological and food industries, such as Ratimir LLC; PPO «Nikolsk»; Vladkhdeb LLC, Federal State Budgetary Scientific Institution Federal Scientific Center for Agricultural Biotechnology of the Far East named after A.K. Seagulls. A list of basic and variable disciplines has been formed. Variable part of the general scientific cycle (modules):

- Safety and quality of food raw materials and food products;
- Agro-food biotechnology;
- Food legislation and food safety;

- Processes in food production;
- Biotechnology of food production, etc.

The strategic document defining the policy of the Russian Federation in the biotechnological sector of the economy is the Comprehensive Program for the Development of Biotechnologies in the Russian Federation for the period up to 2020, approved by the Chairman of the Government of the Russian Federation V.V. Putin April 24, 2012 N 1853p-P8.

The implementation of the action plan (“road map”) “Development of biotechnologies and genetic engineering” (hereinafter referred to as the “road map”) is carried out both with the help of system-wide measures for the development of the field of biotechnology, and measures to develop priority sectors of this area, including the following:

- biopharmaceutics;
- biomedicine;
- industrial biotechnology;
- bioenergy;
- agro-food biotechnology;
- forest biotechnology;
- environmental (environmental) biotechnology.

According to the State Program for the Development of Agriculture and the Regulation of Agricultural Products, Raw Materials and Food Markets for 2013-2020. and Order of the Government of the Russian Federation of July 18, 2013 No. 1247-r «On approval of the action plan (road map) «Development of biotechnology and genetic engineering», the following events are relevant:

- to improve the quality of training, advanced training and professional retraining of personnel for biotechnology (clause 6 of plan No. 1247-r);
- on the formation of a list of professional standards most in demand in the field of biotechnology (clause 7 of plan No. 1247-r);
- on the development of professional standards in the field of biotechnology (clause 8 of the plan No. 1247-r);

- to ensure the dissemination of best practices in the use of biotechnologies in agriculture and the processing industry (clause 12 of plan No. 1247-r);

- on the implementation of pilot innovative projects for the production of functional foods and food ingredients in the constituent entities of the Russian Federation (clause 55 of plan No. 1247-r).

According to the Department of Agriculture and Food of the Administration of Primorsky Krai in the region, the demand for specialists in the direction of training 19.04.01 Biotechnology, the program "Agricultural biotechnology" in connection with the development of "territories of priority development" (TOR) and current areas of activity of the food and processing industry, is very high. The main current activities of the industry in Primorsky Krai:

- creation of a biotechnology cluster in accordance with the roadmap;
- legislative need for the urgent implementation of HACCP and QMS systems at enterprises;
- construction of processing complexes and biotechnological modules;
- monitoring of the current state of economic activity of enterprises of the food and processing industry in Primorsky Krai and their potential;
- modernization of food and processing industry enterprises.

The following enterprises for the production and processing of agro-food raw materials successfully operate on the territory of the Primorsky Territory: OOO Ratimir, PPO Nikolsk, SGB Management (Artyomovsky Dairy Plant, Green-Agro), OOO Brothers Group, OOO TD VIK, Mercy Agro Primorye LLC, Vladkhleb OJSC, etc. These enterprises are the customers of specialists and the ideological inspirers of ongoing projects, the heads of enterprises are the chairmen and members of state certification commissions.

12. Characteristics of active / interactive methods and forms of organizing classes, electronic educational technologies used in the implementation of the OPEP

In the educational process in the direction of preparation 19.04.01 Biotechnology, the master's program «Agri-Food Biotechnology» provides for the

widespread use of active and interactive methods and forms of conducting classes. According to the curriculum of the OPEP, using active and interactive methods (32% of the total classroom load) and forms, classroom classes are conducted.

13. Features of the organization of the educational process for the educational program for the disabled and persons with disabilities

FEFU implements an organizational model of inclusive education - ensuring equal access to education for all students, taking into account various special educational needs and individual abilities of students. The model allows people with disabilities to use education as the most effective mechanism for personal development and raising their social status. In order to create conditions for ensuring inclusive education for people with disabilities and persons with disabilities, the structural divisions of the University perform the following tasks:

- the department for work with applicants organizes career guidance among potential applicants, including disabled people and persons with disabilities: open days, career guidance testing, webinars for graduates of schools, educational institutions of vocational education, consultations for this category of students and their parents on admission and training, prepares advertising and information materials, organizes interaction with educational organizations;

- the Youth Policy Department provides support for inclusive education for people with disabilities, addressing the development and maintenance of the information technology base for inclusive education, elements of distance learning for people with disabilities, creating a barrier-free environment, collecting information about people with disabilities and people with disabilities, ensures their systematic accounting at the stages of their admission, training , employment;

- the Department of Extracurricular Activities of the Far Eastern Federal University ensures the adaptation of disabled people and persons with disabilities to the conditions and regime of educational activities, takes measures to create a sociocultural tolerant environment necessary for the formation of a civil, legal and professional position of complicity, the readiness of all members of the team to

communicate and cooperate, to be able to tolerate perceive social, personal and cultural differences;

- the department of career guidance and interaction with employers assists in the employment of graduates with disabilities and persons with disabilities in the form of: presentations and meetings of employers with senior students, individual consultations on employment issues, master classes and trainings.

The content of higher education in educational programs and the conditions for organizing training for persons with disabilities are determined by an adapted educational program, and for disabled people also in accordance with an individual rehabilitation program, which is developed by the Federal Institution of Medical and Social Expertise. An adapted educational program is developed in the presence of a statement from the student (parents, legal representatives) and medical indications. Training in educational programs for disabled people and students with disabilities is carried out by the organization, taking into account the peculiarities of psychophysical development, individual capabilities and health status. The choice of teaching methods in each individual case is determined by the objectives of the training, the content of the training, the level of professional training of teachers, methodological and logistical support, the availability of time for preparation, taking into account the characteristics of psychophysical development, individual capabilities and health status of students.

Disabled people and persons with hearing and speech disabilities, with visual impairments and limited capabilities of the musculoskeletal system can receive education at the University under this main educational program for full-time education using elements of distance learning technologies.

The university provides students with disabilities and disabled people with the opportunity to master specialized adaptation disciplines included in the variable part of the BEP. Teachers whose courses require the performance of certain specific actions and represent a problem or an action that is impossible for students who experience difficulties with movement or speech are required to take these features into account and offer people with disabilities and people with disabilities alternative

methods of consolidating the material being studied. Timely informing teachers about disabled people and persons with disabilities in a particular group is carried out by a responsible person established by order of the school principal.

In the reading rooms of the FEFU Scientific Library, workplaces for people with disabilities are equipped with displays and print

1. Documents regulating the organization and content of the educational process

1.1. Calendar schedule of the educational process

The calendar schedule of the educational process in the direction of training 19.04.01 Biotechnology, Agri-food biotechnology establishes the sequence and duration of theoretical training, examination sessions, practices, state final certification, vacations. The schedule was developed in accordance with the requirements of the educational standard, and compiled in the form determined by the Department of Organization of Educational Activities ("Methodological recommendations for the development of curricula for educational programs of higher education - undergraduate programs, specialist's programs, master's programs implemented at FEFU in the 2022-2023 academic year year, and the calendar study schedule"), agreed and approved along with the curriculum. The summary calendar study schedule of the educational process is presented in Appendix 1 to the Educational Program.

1.2. Syllabus

The curriculum for the educational program in the field of study 19.04.01 Biotechnology, Agri-Food Biotechnology is drawn up in accordance with the requirements for the structure of the BEP, formulated in the relevant section of the educational standard for the field of study, in the form determined by the Department for the Organization of Educational Activities, and in the form developed by LLC "MMIS Laboratory (Shakhty)", approved by the decision of the FEFU Academic Council, approved by the school (branch) administration, the Department for Organization of Educational Activities and approved by the Vice-Rector for Academic and Educational Work. The curriculum contains a list of disciplines (modules), practices, attestation tests for the state final attestation of students, other

types of educational activities, indicating their volume in credit units, sequence and distribution by periods of study. The curriculum highlights the amount of work of students in interaction with the teacher (by type of training) and independent work of students. For each discipline (module) and practice, a form of intermediate certification of students is indicated, as well as some forms of current control: specific forms are indicated (term papers / projects, tests, etc.) The content of the OBEP curriculum is determined by the educational standard, on the basis of which program.

The form of the title page of the curriculum is presented in Appendix 2 to the Educational Program:

- according to the EP implemented independently.

1.3. Collection of annotations of work programs of disciplines

A collection of annotations of the work programs of disciplines (modules) is presented in Appendix 3 to the Educational Program.

1.4. Work programs of disciplines

Work programs are developed for all disciplines (modules) of the curriculum.

The structure of the RPD includes the following sections:

- title page;
- annotation;
- the structure and content of the theoretical and practical parts of the course, indicating the amount of hours in the form of practical training (if any), providing for the participation of students in the performance of individual elements of work related to future professional activities, in accordance with the curriculum;
- educational and methodological support for independent work of students;
- learning outcomes, which should be correlated with the indicators of achievement of competencies established in the educational program;

- monitoring the achievement of the course goals (assessment funds for conducting intermediate certification of students in the discipline; description of assessment tools for ongoing monitoring);

- a list of educational literature and information support of the discipline (a list of basic and additional educational literature, resources of the information and telecommunication network "Internet");

- methodical instructions for mastering the discipline;

- list of information technologies and software;

- material and technical support of discipline;

- Funds of appraisal funds.

Funds of assessment tools for conducting intermediate certification of students in the discipline (module) are an integral part of the RAP, which includes:

- description of indicators of achievement of competencies, description of assessment scales;

- a list of control tasks or other materials necessary to assess knowledge, skills and (or) experience;

- a description of the procedure for assessing knowledge, skills and (or) experience.

The work programs also include a description of the forms of current control by discipline.

Work programs of disciplines for the direction of training 19.04.01 Biotechnology, Agri-food biotechnology are compiled taking into account the latest achievements in the field of physics and biomedical technologies and reflect the current level of development of science and practice.

Work programs of disciplines (modules) are presented in Annex 4 to the Educational Program.

1.5. Collection of work programs of practices

The curriculum of the FEFU OPOP in the field of study 19.04.01 Biotechnology, Agri-Food Biotechnology provides for the following types and types of practices: the name, form and methods of conducting, purpose, and a brief description of each type of practice provided for by the OPOP are given.

The work programs of practices are developed in accordance with the Regulations on the Practice of Students Mastering Educational Programs of Higher Education - Bachelor's Programs, Specialist's Programs and Master's Programs in FEFU Schools (approved by order of the rector of May 14, 2018 No. 12-13-870), by order of the Ministry of Education and Science of Russia and the Ministry of Education of Russia dated 05.08.2020 No. 885/390 "On the practical training of students" and include:

- indication of the type, type of practice, method and form (forms) of its implementation;
- a list of planned learning outcomes during internship, correlated with the planned results of mastering the educational program;
- indication of the place of practice in the structure of the educational program;
- indication of the amount of practice in credit units and its duration in weeks or in academic/astronomical hours;
- an indication of the number of hours in the form of practical training, which provides for the participation of students in the performance of individual elements of work related to future professional activities, in accordance with the curriculum;
- the content of practice, including practical training;
- indication of reporting forms for practice;
- a fund of assessment tools for conducting intermediate certification of students in practice;
- a list of educational literature and resources of the information and telecommunications network "Internet" necessary for the practice;
- a list of information technologies used in the practice, including a list of software

and information reference systems (if necessary);

- description of the material and technical base necessary for the practice.

Practice work programs and related documents (contracts with employers, a detailed description of the practice base, etc.) are presented in Appendix 5 to the Educational Program.

1.6. State Final Attestation Program

State final certification of FEFU graduate in the direction of training 19.04.01 Biotechnology, Agri-food biotechnology is mandatory and is carried out after mastering the main professional educational program in full.

The state final certification includes the defense of the final qualifying work. A state exam has been introduced as part of the state final attestation. List of specific forms of GIA

for implemented EP HE is annually approved by the FEFU Academic Council on the proposal of the academic councils of schools (councils of branches) of FEFU.

The program of the state final certification has been developed in accordance with the Regulations on the state final certification for educational programs of higher education - bachelor's, specialist's, master's programs of FEFU, approved by order of the rector of 05/24/2019 No. 12-13-1039.

The program of the state final certification includes a fund of assessment tools for the state final certification, and also determines the requirements for the content, volume and structure of final qualifying works; requirements for the content and procedure of the state exam (if any).

The fund of assessment funds for the state final certification includes:

- a list of competencies that students must master as a result of mastering the educational program;
- description of indicators of achievement of competencies, assessment scale;

- description of the results of mastering the educational program;
- standard control tasks or other materials necessary for evaluating the results of mastering the educational program;
- methodological materials that determine the procedures for evaluating the results of mastering the educational program.

The program of the state final certification is presented in Appendix 6 to the Educational Program.

1.7. Working program of education

The work program of education for the educational program is developed in accordance with the approved Work program of education of the FEFU (PR-FEFU-726-2021) (reg. No. 12-50-65 dated 06/01/2021).

1.8. Calendar plan of educational work

The calendar plan of educational work for the educational program is developed in accordance with the approximate calendar plan of educational work for the current year (network disk "Accreditation: / BASE OPOP for 2022-2023 academic year").

2. Actual resource support for the implementation of the EPHE

2.1. Information about the staffing of the EPHE

Staffing for the implementation of the educational program complies with the requirements of the Federal State Educational Standard. Information is posted on the FEFU website in the section "Information about the educational organization", subsection "Guidelines. Pedagogical (scientific and pedagogical) staff", link to the website: <https://www.dvfu.ru/sveden/employees/>.

2.2. Information about the availability of the electronic information and educational environment of FEFU

The student during the entire period of study is provided with individual unlimited access to the FEFU electronic information and educational environment from any point where there is access to the Internet information and telecommunication network, both on the territory of FEFU and outside it. The conditions for the functioning of the electronic information and educational environment can be created using the resources of other organizations.

The FEFU electronic information and educational environment provides:

- access to curricula, work programs of disciplines (modules), practice programs, electronic educational publications and electronic educational resources specified in the work programs of disciplines (modules), practice programs;
- the formation of an electronic portfolio of the student, including the preservation of his works and marks for these works.

The electronic information and educational environment of FEFU is additionally provided with a fixation of the course of the educational process, the results of intermediate certification and the results of mastering the educational program.

Implementation of the educational program using e-learning, distance learning technologies:

- conducting training sessions, procedures for assessing learning outcomes, the implementation of which is provided for using e-learning, distance learning technologies;

- interaction between participants in the educational process, including synchronous and (or) asynchronous, through the information and telecommunications network "Internet".

The functioning of the electronic information and educational environment is ensured by appropriate means of information and communication technologies and the qualifications of employees using and supporting it. The functioning of the electronic information and educational environment complies with the legislation of the Russian Federation.

2.3 Information about the material and technical and educational and methodological support

The premises are classrooms for conducting training sessions, equipped with equipment and teaching aids, the composition of which is determined in the work programs of the disciplines (modules).

Premises for independent work of students are equipped with computer equipment with the ability to connect to the information and telecommunications network "Internet" and provide access to the electronic information and educational environment of FEFU.

It is allowed to replace the equipment with its virtual analogues.

FEFU is provided with the necessary set of licensed and freely distributed software, including domestic production (the composition is determined in the work programs of disciplines (modules) and is subject to update if necessary).

Information on the material and technical support of the OBOR, including information on the availability of equipped classrooms, facilities for conducting practical classes and independent work of students with a list of basic equipment,

objects of physical culture and sports, software, are presented in the work programs of disciplines.

2.4 Financial conditions for the implementation of the educational program

Financial support for the implementation of the educational program is carried out in an amount not lower than the values of the basic standards for the provision of public services for the implementation of educational programs of higher education and the values of adjustment factors to the basic cost standards determined by the Ministry of Science and Higher Education of the Russian Federation.

2.5. Conditions for the application of the mechanism for assessing the quality of educational activities and training students in the educational program

The quality of educational activities and training of students under this program is determined within the framework of the system of internal and external evaluation.

In order to improve the educational program, an internal assessment of the quality of educational activities and training of students is carried out with the involvement of employers and their associations. Also, within the framework of the internal system for assessing the quality of educational activities, students are given the opportunity to evaluate the conditions, content, organization and quality of the educational process.

An external assessment of the quality of educational activities under the educational program is carried out as part of the state accreditation procedure in order to confirm the compliance of educational activities under the OBOR with the requirements of the Federal State Educational Standard of Higher Education.

External assessment is carried out within the framework of professional and public accreditation conducted by employers, their associations, as well as organizations authorized by them, including foreign organizations, in order to recognize the quality and level of training of graduates, compliance with the requirements of professional standards (if any), labor market requirements for specialists of the relevant profile.

Лист регистрации изменений (актуализации)
 основной профессиональной образовательной программы
 по направлению подготовки 19.04.01 *Biotechnology*
 «*Agri-food biotechnology*»

№ п/п	Дата и основание внесения изменений	Компонент ОПОП, в который внесены изменения	Вид изменения (изменен, заменен, аннулирован)	Подпись ответственного лица
1	УС ДВФУ протокол №08-21 от 15.07.2021 г. Утверждение основной профессиональной образовательной программы.	Изменение организационной структуры ДВФУ. Программа передана в ИНЖБМ		Новицкая Е.Г. 
2	УС ДВФУ протокол №10-22 от 30.09.2022 Утверждение основной профессиональной образовательной программы.	Изменение организационной структуры ДВФУ. Программа передана в ПИШ (Институт биотехнологий, биоинженерии и пищевых систем)		Новицкая Е.Г. 