МИНИСТЕРСТВО НАУКИ И ВЫСШЕГО ОБРАЗОВАНИЯ РОССИЙСКОЙ ФЕДЕРАЦИИ
Федеральное государственное автономное образовательное учреждение высшего образования
«Дальневосточный федеральный университет»
(ДВФУ)
ШКОЛА БИОМЕДИЦИНЫ

«СОГЛАСОВАНО»	«УТВЕРЖДАЮ»
Руководитель ОП	Директор Департамента пищевых наук и технологий
_____ Каленик Т.К.	_____ Ю.В. Приходько
(подпись) (Ф.И.О. рук. ОП)	(подпись) (Ф.И.О.)
«12» июля 2018 г.	«12» июля 2018 г.

РАБОЧАЯ ПРОГРАММА ПРАКТИКИ

RESEARCH WORK / НАУЧНО-ИССЛЕДОВАТЕЛЬСКАЯ РАБОТА

(наименование производственной практики)

Направление подготовки 19.04.01 Биотехнология
Профиль подготовки Agri-Food Biotechnology

Квалификация (степень) выпускника магистр
(бакалавр, магистр, специалист)

г. Владивосток
2018

1. General provisions of the Program

1.1. This Program is developed in accordance with the current legislation in the field of science and innovation.

1.2. Research work is an obligatory section of the main educational program for the training of masters and is aimed at the formation of professional competencies in accordance with the requirements of the educational standard, independently established by the Far East Federal University, a federal state autonomous educational institution of higher education, which was adopted by the decision of the FEFU Academic Council, protocol No. 06-15 from 06/04/2015, and entered into force by order of the rector of the Far East U dated 07.07.2015 № 12-13-1282.

1.3. The student's research work includes research work in the semester (work within the framework of a scientific seminar, preparation of term papers, writing scientific articles, participation in scientific events), research practice, preparation and defense of the final qualification work (master's thesis).

1.4. The volume (total number) of hours allocated to research work is determined by the educational standards of higher education in the areas of training and curricula.

1.5. The content of the research work of students is determined in accordance with the profile of the training program, the topic of scientific research of the department, contractual topics and more. Specific types, forms of research work and the timing of their implementation are indicated in the individual plan of the student's research work.

1.6. An individual plan is developed by the student in conjunction with the supervisor for each academic year, taking into account semester work and approved by the student's supervisor (Appendix 1).

1.7. The general management of the research work on the program is carried out by the head of the educational program. The direct management of the research work of students is carried out by supervisors appointed in accordance with the order of the principal.

1.8. The organization of the research practice of undergraduates is carried out in accordance with the Regulation on Practices in FEFU.

2. The goals and objectives of the research work

2.1. The goal of the research work in the semester is to form the student's skills and develop the competencies of the research work, allowing to conduct research work both individually and in a team.

2.2. The research work in the semester is carried out by the student - under the guidance of the supervisor. The direction of the student's research work is determined in accordance with the profile of the master's training program.

2.3. Research work should ensure the acquisition by students of professional competencies:

- OPK-1 ability to professionally use modern biotechnological equipment and scientific instruments;

- OPK-2 readiness for communication in oral and written forms in the state language of the Russian Federation and a foreign language for solving problems;

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

- OPK-5 ability to use modern information technology 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 - the "Internet" network) to solve tasks of professional activity;

- OPK-6 readiness to protect intellectual property and commercialization of rights to intellectual property;

- PK-1 readiness for planning, organizing and conducting research in the field of biotechnology, the ability to correctly process the results of experiments and make informed conclusions and conclusions;

- PC-2 ability to analyze scientific and technical information in the field of biotechnology and related disciplines with the aim of scientific, patent and marketing support for ongoing basic research and technological development;

- PC-3 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 capabilities of information technology and taking into account the requirements for the protection of intellectual property;

- PK-9 readiness to use the basic principles of organization of metrological support of production.

2.4. The following types and stages of the implementation and control of the student's research work are provided:

- planning of research work, including familiarization with the topic of research in this area and the main trends in the development of scientific research, and the choice of research topic;

- Selection, development and conduct of research work in the chosen direction;

- Adjustment of the research plan;

- Preparation of a report on research work;

-Protection of the work performed.

The main form of planning and adjustment of individual plans for research work of students is the substantiation of the topic, discussion of the plan and the intermediate results of the study in the framework of the research seminar.

2.5. According to the results of research work, the student should:

Know:

- Main scientific problems of agricultural biotechnology, its role and place in modern biotechnology;

- The degree of scientific development of the investigated problem in the field of biotechnology of products from raw materials of plant and animal origin;
- The specifics of the technical presentation of scientific material;

Own:

- Current issues of the biotechnological branch of knowledge;
- basic biotechnological methods for creating new food products;
- skills of scientific discussion;

Be able to:

- apply modern methods of food analysis in scientific research;
- practically carry out scientific research, experimental work in their scientific field related to the implementation of qualification work;
- search for bibliographic sources in both Russian and foreign databases;
- Work with information software products and Internet resources, etc.

3. Organization of research work

3.1. Research work in the semester can be carried out in the following forms:

- Fulfillment of the tasks of the supervisor in accordance with the approved individual plan of research work (Appendix 2);

- Participation in scientific events at FEFU, the School of Biomedicine and the Department of Biotechnology and Functional Nutrition;

-preparation of reports and speeches at scientific conferences, seminars, symposiums and other scientific events at the regional, all-Russian and international levels;

- Preparation and publication of abstracts of reports, scientific articles;

- Participation in research projects carried out at the university as part of research programs,

- Preparation and defense of qualification work.

3.2. The content of the research work

The research work is included in the block 2 “Practices” of the educational standard, independently established by the Far Eastern Federal University, a federal state autonomous educational institution of higher education in the direction of “Biotechnology” on April 19, 01, which was adopted by the decision of the FEFU Academic Council, protocol No. 06- 15 dated 04.06.2015, and entered into force by order of the rector of the FEFU on 07.07.2015 No. 12-13-1282., Is obligatory, variable and represents a type of training session, directly oriented trained on professional and practical training of students.

Method of conducting research: dispersed (in the third semester 216 hours and 180 hours in the fourth semester of 2 courses).

3.2.1 Research work in the third semester:

- Planning of research work and approval of an individual plan of research work.

- Choice and approval of the research direction, justification of relevance and theoretical significance, the study of the degree of scientific development of the problem

- selection, processing and analysis of scientific, technical and patent information on research topics using specialized databases using information technology.

- writing an abstract or review article on a selected topic.

3.2.2 Research work in the fourth semester:

- search and development of new effective ways to obtain biotechnological products, the creation of modern biotechnology, including nanobiotechnology, recombinant deoxyribonucleic acid technology, cell technology;

- isolation, identification and analysis of biosynthesis and biotransformation products, obtaining new strains producing biological preparations;

- the study of biochemical and biological laws of biosynthesis, micro- and macrostoichiometry, micro- and macrokinetics of the growth of populations of microorganisms and cell cultures, the interaction of microorganisms, viruses with

cells, metabolic pathways and the characteristics of substrate utilization and synthesis of metabolic products.

- preparation of a report on research and its protection.

3.3. Certification Form

For certification according to the results of research, the student must provide a report on research (the form of the title page in Appendix 1) with a mark of the head.

Certification based on the results of research is carried out in the form of a report protection in the form of a presentation. Reporting form "offset with assessment".

According to the results of the defense, a test is set with a rating (excellent, good, satisfactory, unsatisfactory):

“Excellent” - the necessary practical work skills and professional competencies provided for by the training program are fully formed, tasks are completed, the quality of their implementation is estimated by the number of points close to the maximum.

“Good” - the necessary practical work skills and professional competencies provided for by the training program are fully formed, the tasks are completed, the quality of execution of none of them is estimated by the minimum number of points, some types of tasks are completed with errors or not thoroughly enough.

“Satisfactory” - the necessary practical work skills and professional competencies are mainly formed, the gaps are not significant, some of the completed tasks contain errors.

“Unsatisfactory” - the necessary practical work skills and professional competencies provided for by the training program have not been formed, all completed training tasks contain gross errors, additional independent work on the report materials will not lead to any significant improvement in the quality of the tasks.

4. Educational-methodical and informational support of research

Main literature:

1. Scientific research work of the student: educational-practical manual / N. M. Rozanova. Moscow: KnoRus, 2016 .-- 255 p. http://lib.dvfu.ru:8080/lib/item?id=chamo:797721&theme=FEFU

2. General biology and microbiology: guidelines for laboratory work, part 3 / Pacific State University of Economics; [comp. : J. G. Prokopets, E. S. Fischenko, S. V. Zhuravlev]. Vladivostok: Publishing House of the Pacific Economic University, 2010. - 44 p. http://lib.dvfu.ru:8080/lib/item?id=chamohaps5757292&theme=FEFU

3. Sarafanova, L.A. Nutritional Supplements: Encyclopedia - 3rd ed., Revised. and add. / L.A. Sarafanova. - St. Petersburg: Profession, 2011 .-- 776 p. http://lib.dvfu.ru:8080/lib/item?id=chamo:342063&theme=FEFU

4. Chemistry of food products: Per. from English / ed. : Srinivasan Damodaran, Kirk L. Parkin, Owen R. Fennema. St. Petersburg: Profession, 2012 .-- 1039 p. http://lib.dvfu.ru:8080/lib/item?id=chamo:675478&theme=FEFU

Additional literature:

1. Auerman, L.Ya. Technology of baking production: Textbook / L.Ya. Auerman. - 9th ed., Revised. and add. / Under the total. ed. L.I. Puchkova. - St. Petersburg: Profession, 2009 .-- 416 p. http://lib.dvfu.ru:8080/lib/item?id=chamo:316025&theme=FEFU

2 .Borisenko, L.A. Biotechnological basis for the intensification of production of salted meat products / A.A. Borisenko, A.A. Bratsikhin. - M .: DeLi print, 2010 .-- 163 p. http://lib.dvfu.ru:8080/lib/item?id=chamo:342770&theme=FEFU

3. Ivashov, V.I. Technological equipment for meat industry enterprises: a textbook for high schools / V.I. Ivashov. - St. Petersburg .: GIORD, 2010. - 736 pp. Http://lib.dvfu.ru:8080/lib/item?id=chamo{59114&theme=FEFU

4. Rogov, I.A. General technology of meat and meat products / I.A. Rogov, A.G. Zabashta, G.P. Kazyulin. - M.: KolosS, 2010 .-- 367 p. http://lib.dvfu.ru:8080/lib/item?id=chamo{40686&theme=FEFU

5. Krus, G.N. Technology of milk dairy products: Textbook / G.N. Krus, A.G. Khramtsov, 3.V. Volokitina, S.V. Karpychev; Ed. A.M. Shalyginoy. - M: KolosS, 2006 .-- 455 p. http://lib.dvfu.ru:8080/lib/item?id=chamo:351156&theme=FEFU

The list of resources of the information and telecommunication network "Internet".

1. http://elibrary.ru Scientific Electronic Library eLIBRARY.RU
2. The electronic library system "Doe" http://e.lanbook.com/
3. The electronic library system "IPRBOOK" http://www.iprbookshop.ru
4. Scopushttp database: //www.scopus.com/home.url
5. Web of Science database http://apps.webofknowledge.com/
6. Database of full-texting academic journals in China http://oversea.cnki.net/
7. The electronic library of dissertations of the Russian State Library http://diss.rsl.ru/
8. EBSCO Electronic Databases http://search.ebscohost.com/

Compiled by (s):

Professor of the Department of Food Sciences and Technology, Doctor of Biological Sciences, Professor Kalenik T.K.

Assistant professor, Department of Food Sciences and Technology, T. Senotrusova

The practice program was discussed at a meeting of the Department of Food Sciences and Technology, protocol No. 1 dated July 11, 2018.

ANNEX 1

Research report title page form

MINISTRY OF EDUCATION AND SCIENCE OF THE RUSSIAN FEDERATION
Federal state autonomous educational institution
of higher education
«Far Eastern Federal University»
(FEFU)

SCHOOL OF BIOMEDICINE

The report is protected with a rating of _____
"_____" _____ 20__ Y

Director of DPNiT
_____ Full name

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REPORT

On practical training (Research work) on the topic
_____
(Full name of the enterprise)

Student gr. _____ groups _____ (_____)
Signature full name
Supervisor
from the university _____ (_____)
Signature full name

ANNEX 2

MINISTRY OF EDUCATION AND SCIENCE OF THE RUSSIAN FEDERATION
Federal state autonomous educational institution
of higher education
«Far Eastern Federal University»
(FEFU)

SCHOOL OF BIOMEDICINE

«AGREED»
Head of education program

_____FULL NAME.
"___" _____20__

INDIVIDUAL JOB

By _____

(Type of practice)

Student ___ group's _____

(Name of student)

Educational program _19.04.01 "Biotechnology"

Base (place, organization) of practice
_____

Duration of practice from _____20___Y. To _____ 20___ Y

Generalized wording of the assignment	

Task Schedule

The name of the tasks (activities) that make up the task	Date of completion of the task (event)
1.	
2.	
3.	

Head of Practice _____ _____

signature full name, position