

The list of academic disciplines of the university component

8D07 - Engineering, manufacturing and construction industries
(Code and classification of the field of education)

8D072 - Industrial and manufacturing branches
(Code and classification of the direction of training)

0720
(Code in the International Standard Classification of Education)

D111 - Food production
(Code and classification of the educational program group)

8D07202 - Food Safety
(Code and name of the educational program)

Doctor of philosophy (PhD)
(Level of preparation)

set of 2024

Developed

By the Academic Committee of the OP
The head of the AK Nurymkhan Gulnur Nesiptaikyzy
OP Manager Zhumanova Gulnara

Reviewed

at a meeting of the Academic Quality Committee of the Faculty of Engineering and Technology
Protocol No. 3 dated 15.01.2024
at a meeting of the Academic Quality Committee of the Research School of Food Engineering
Recommended for approval by the Academic Council of the University
Protocol No. 1 , dated 06.06.2024

Approved

at a meeting of the University Academic Council by protocol No. 6/1 of January 19, 2024.
at a meeting of the University Academic Council by protocol No. 11 of June 28, 2024.

Statistics and experimental design using R

Discipline cycle	Basic disciplines
Course	1
Credits count	3
Knowledge control form	Examination

Short description of discipline

The course provides an in-depth study of statistical methods and principles of experimental design using the R programming language. The course examines real-world research examples, starting with descriptive statistics and ending with complex experimental designs. The course will prepare students to independently perform data analysis, design experiments and interpret the results.

Purpose of studying of the discipline

Doctoral students will master modern statistical methods of data analysis and the principles of experimental design using the R programming language, which will allow them to effectively apply this knowledge in scientific research.

Learning Outcomes

ON2 Be able to conduct an analysis of foreign methods and means of ensuring the continuous improvement of the effectiveness of the international food safety management system

ON7 Use the knowledge of basic sciences in the design and development of food safety management systems; be able to organize research activities in the study of physico-chemical, toxicological, microbiological properties in food products, methods of their processing

Learning outcomes by discipline

Knowledge of basic statistical concepts and methods. The ability to use R software for statistical data analysis. Skills of independent design of experiments and interpretation of their results. The ability to use the results obtained in real scientific and applied research.

Негізгі статистикалық ұғымдар мен әдістерді білу.

Prerequisites

Masters degree course

Postrequisites

Research work of the doctoral student, including internship and doctoral dissertation II

Research methods

Discipline cycle	Basic disciplines
Course	1
Credits count	5
Knowledge control form	Examination

Short description of discipline

Functions of science. Scientific education, its principles, patterns of ownership, levels of education. Logic of scientific research. Study forecast. Paths for the development of science and scientific research, the role of technical sciences, computer science and engineering research in modern science. Systems approach in science and technology. Informational approach in the study. Modeling. Change in information during the study.

Purpose of studying of the discipline

Provision of conditions for obtaining high-quality professional education, acquisition of research, General cultural and professional competencies in the field of quality control and food safety.

Learning Outcomes

ON3 Apply the general principles of planning and implementation of the HACCP system

ON4 Understands the genetic toxicity of substances, toxicological and hygienic problems arising in the food industry

Learning outcomes by discipline

Apply the general principles of planning and implementation of the HACCP system.

Understands the genetic toxicity of substances, toxicological and hygienic problems arising in the food industry.

Prerequisites

Masters degree course

Postrequisites

Doctoral student research work, including internship and doctoral dissertation VI

Scientific Basics of Food Safety

Discipline cycle	Basic disciplines
Course	1
Credits count	5
Knowledge control form	Examination

Short description of discipline

Knowledge of general theoretical technology and technology for the analysis, synthesis and assessment of phenomena, methodological and regulatory materials on technological preparation of production, knowledge on ensuring the safety of food raw materials and food products. Food safety concept, terms and definitions. Food safety controls, challenges and perspectives. Risks and controls in the food supply system. HACCP Quality Control, Risk Assessment.

Purpose of studying of the discipline

In the food industry, one of the main consumer requirements is food safety. Food safety is a mandatory component of all aspects of product quality. The Law of the Republic of Kazakhstan dated July 21, 2007 No. 301 "On Food safety" was adopted, in connection with which the legal basis for ensuring food safety was established to protect human life and health, the legitimate interests of consumers and the environment. Within the framework of this law, the state control and supervision of food safety is the organization of laboratories to determine the qualitative and quantitative composition of genetically modified objects and the level of harmful impurities, laboratories of the state veterinary and sanitary and epidemiological expertise in accordance with international requirements.

In accordance with the above-mentioned technical regulations and the Law of the Republic of Kazakhstan, by placing high requirements on the safety and quality of food products intended for general consumption, it is possible not only to improve nutrition, but also to improve the health of the population of the country. Therefore, this course is aimed at familiarizing doctoral students with the basic rules in the field of food safety, teaching them how to ensure production at all levels.

Learning Outcomes

ON5 Identify the threats of preliminary measures identified by analyzing hazards that threaten food safety at work

ON6 Monitor compliance with the technological process, take part in the implementation of measures to ensure the safety of food production

Learning outcomes by discipline

Identify the threats of preliminary measures identified by analyzing the hazards that threaten the safety of food products for production.

To monitor compliance with the technological process; to take part in the implementation of measures to ensure the safety of food production.

Prerequisites

Masters degree course

Postrequisites

Doctoral student research work, including internship and doctoral dissertation VI

Doctoral student research work, including internship and doctoral dissertation I

Discipline cycle	Profiling discipline
Course	1
Credits count	15
Knowledge control form	Total mark on practice

Short description of discipline

organization of scientific research, search and exchange of scientific information

Purpose of studying of the discipline

acquisition of knowledge concerning the object of scientific research

Learning Outcomes

ON7 Use the knowledge of basic sciences in the design and development of food safety management systems; be able to organize research activities in the study of physico-chemical, toxicological, microbiological properties in food products, methods of their processing

Learning outcomes by discipline

Collect, process, analyze, systematize scientific and technical information on the topic under consideration and develop and implement a food safety management system

Prerequisites

Masters degree course

Postrequisites

Doctoral student research work, including internship and doctoral dissertation VI

Doctoral student research work, including internship and doctoral dissertation II

Discipline cycle	Profiling discipline
Course	1
Credits count	20
Knowledge control form	Total mark on practice

Short description of discipline

to monitor compliance with the process; to take part in the implementation of measures to ensure the safety of food production

Purpose of studying of the discipline

search and exchange of scientific information in the organization of scientific research

Learning Outcomes

ON7 Use the knowledge of basic sciences in the design and development of food safety management systems; be able to organize research activities in the study of physico-chemical, toxicological, microbiological properties in food products, methods of their processing

Learning outcomes by discipline

Use general scientific methodology and terminology in the field of food safety; methods of scientific research necessary for independent research work

Prerequisites

Basic and profile disciplines of the EP

Postrequisites

Doctoral student research work, including internship and doctoral dissertation VI

Pedagogical practice

Discipline cycle	Basic disciplines
Course	2
Credits count	10
Knowledge control form	Total mark on practice

Short description of discipline

pedagogical practice is aimed at achieving a high quality of postgraduate professional education, the implementation of theoretical knowledge, the development of professional qualities of a university teacher and the formation of competencies

of doctoral graduates in pedagogical activity and educational sphere Pedagogical practice is aimed at the formation of functional competencies, the development of abilities to perform tasks in professional and educational spheres. Pedagogical practice forms doctoral students` mastery of the skills of the educational process in higher educational institutions

Purpose of studying of the discipline

formation of professional and personal competencies necessary for the organization of the educational process in higher education.

Learning Outcomes

ON10 Implements the system of quality and safety of food products based on the HACCP system

ON11 To participate in the development of high-quality and safe packaging materials and their use in technological and sanitary modes of processing products and requirements for their quality.

Learning outcomes by discipline

Be able to plan laboratory and practical classes, work with methodological, educational literature and programs.

Prerequisites

Basic and profile disciplines of the EP

Postrequisites

Doctoral student research work, including internship and doctoral dissertation VI

Doctoral student research work, including internship and doctoral dissertation III

Discipline cycle	Profiling discipline
Course	2
Credits count	20
Knowledge control form	Total mark on practice

Short description of discipline

to prepare a doctoral student who knows the methodology of scientific knowledge of processes and is able to apply scientific methods in the study of problems of modern production, the final result of whose research activity is the writing and successful defense of a doctoral dissertation.

Purpose of studying of the discipline

conducting research and experimental work on the topic of the dissertation

Learning Outcomes

ON7 Use the knowledge of basic sciences in the design and development of food safety management systems; be able to organize research activities in the study of physico-chemical, toxicological, microbiological properties in food products, methods of their processing

Learning outcomes by discipline

analysis of the collected research results and execution on request

Prerequisites

Doctoral student research work, including internship and doctoral dissertation II

Postrequisites

Doctoral student research work, including internship and doctoral dissertation VI

Doctoral student research work, including internship and doctoral dissertation IV

Discipline cycle	Profiling discipline
Course	2
Credits count	30
Knowledge control form	Total mark on practice

Short description of discipline

the research work of a doctoral student as part of the main educational programs of doctoral training areas contributes to the formation of highly qualified specialists capable of solving scientific and practical issues in engineering and technology.

Purpose of studying of the discipline

collection of information and selection of materials, conducting research on the topic of the dissertation

Learning Outcomes

ON7 Use the knowledge of basic sciences in the design and development of food safety management systems; be able to organize research activities in the study of physico-chemical, toxicological, microbiological properties in food products, methods of their processing

Learning outcomes by discipline

the ability to work with databases and the correct formulation of a query on the research topic

Prerequisites

Doctoral student research work, including internship and doctoral dissertation III

Postrequisites

Doctoral student research work, including internship and doctoral dissertation VI

Research practice

Discipline cycle	Profiling discipline
Course	3
Credits count	10
Knowledge control form	Total mark on practice

Short description of discipline

acquisition of experience in the study of an actual scientific problem, as well as the selection of necessary materials for the dissertation

Purpose of studying of the discipline

obtaining knowledge about innovative technologies of food production, knowledge of the methodology of scientific research

Learning Outcomes

ON9 Applies knowledge of the history and origin of the food safety management system, the hazard analysis system and the critical control points, the Codex Alimentarius Commission activities, implements a food quality and safety system based on the HACCP system
ON10 Implements the system of quality and safety of food products based on the HACCP system

Learning outcomes by discipline

use basic and reference literature; plan research work

Prerequisites

Basic and profile disciplines of the EP

Postrequisites

Doctoral student research work, including internship and doctoral dissertation VI

Doctoral student research work, including internship and doctoral dissertation V

Discipline cycle	Profiling discipline
Course	3
Credits count	20
Knowledge control form	Total mark on practice

Short description of discipline

possession of modern specialized skills and methods necessary for making effective decisions in the field of engineering and technology

Purpose of studying of the discipline

apply measured values when implementing a food safety management system; use knowledge of fundamental sciences in their practical activities to solve research, information retrieval, methodological tasks; in the field of food safety

Learning Outcomes

ON7 Use the knowledge of basic sciences in the design and development of food safety management systems; be able to organize research activities in the study of physico-chemical, toxicological, microbiological properties in food products, methods of their processing

Learning outcomes by discipline

to build an effective integrated documentation system; to evaluate, monitor and analyze data related to documentation management; to conduct a general analysis and assessment of the actual status and relevance of all used documentation

Prerequisites

Doctoral student research work, including internship and doctoral dissertation IV

Postrequisites

Doctoral student research work, including internship and doctoral dissertation VI

Doctoral student research work, including internship and doctoral dissertation VI

Discipline cycle	Profiling discipline
Course	3
Credits count	18
Knowledge control form	Total mark on practice

Short description of discipline

*contribute with their own original research to pushing the boundaries of the scientific field, which may merit publication nationally or internationally
level*

Purpose of studying of the discipline

collection, processing, analysis, systematization of scientific and technical information on the topic under consideration

Learning Outcomes

ON10 Implements the system of quality and safety of food products based on the HACCP system

ON11 To participate in the development of high-quality and safe packaging materials and their use in technological and sanitary modes of processing products and requirements for their quality.

Learning outcomes by discipline

to use the knowledge of fundamental sciences in their practical activities to solve research, information retrieval, methodological problems in the field of food safety.

Prerequisites

Doctoral student research work, including internship and doctoral dissertation V

Postrequisites

Doctoral student research work, including internship and doctoral dissertation VI