

## The list of academic disciplines of the university component

**6B01 - Pedagogical sciences**

(Code and classification of the field of education)

**6B015 - Teacher training in natural science subjects**

(Code and classification of the direction of training)

**0114**

(Code in the International Standard Classification of Education)

**B009 - Math teacher training**

(Code and classification of the educational program group)

**6B01502 - Mathematics-Informatics**

(Code and name of the educational program)

**bachelor**

(Level of preparation)

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**Developed**

Academic Committee of the OP  
Head of JSC Mukaev Zh.T.  
Manager OP Sagitova Sh. G.

**Reviewed**

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Natural and Mathematical of the faculty  
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Chairman of the Commission Zheldybaeva B.S.

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**Approved**

at the meeting of the Academic Council of the University  
Protocol № 1 "01" of September 2023  
Chairman of the Academic Council of the University Orynbekov D.R.

## Introduction to the profession of a teacher of mathematics and computer science

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

### Short description of discipline

*The discipline is intended for familiarization with pedagogical activity and its role in society, consideration of normative legal documents related to pedagogical activity, the law "On the status of a teacher", which establishes the rights, social guarantees and restrictions, duties and responsibilities of a teacher. The professional abilities and ethics of teachers of mathematics and computer science are considered. The requirements for the level of professional competence and education are formulated. The features of teaching mathematics and computer science in secondary schools are formulated.*

### Purpose of studying of the discipline

*Familiarization with the psychological and pedagogical features of the teacher's profession, the formation of skills to work with a person, the definition and analysis of fundamental documents in the specialty.*

### Learning Outcomes

*ON3 Apply fundamental knowledge of modern mathematics in solving practical problems in various fields of human activity. Interpret the results obtained, build hypotheses about the further course of solving the problem.*

### Learning outcomes by discipline

- has a culture of thinking, is capable of generalization, analysis, perception of information, setting goals and choosing ways to achieve it;
- ready to use regulatory legal documents in my activities;
- is aware of the social significance of his future profession, has motivation to carry out professional activities.

### Prerequisites

*School course*

### Postrequisites

*Pedagogical practice (psychological and pedagogical)*

## Age psychology and physiology

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

### Short description of discipline

*The course allows you to form an idea of human anatomy and physiology, the specifics and features of age-related development, the patterns of higher nervous activity and functional features of the human nervous system are considered. Forms students' systematic understanding of mental and physiological development in ontogenesis, the main patterns of development and neoplasms of age, the most important mental features of the emerging personality of the child on the basis of taking into account psychophysiological norms.*

### Purpose of studying of the discipline

*Formation of students' ideas about the diversity of approaches to the development of correct, scientific knowledge, mental and physiological development of a person in ontogenesis on the most important issues of psychology and physiological development in the aspect of cultural development. To equip students with theoretical and practical knowledge that contributes to strengthening their professional psychological, pedagogical and physiological training, in-depth study of the section of psychological and physiological knowledge.*

### Learning Outcomes

*ON2 Apply modern teaching technologies and criteria-based assessment, taking into account the individual, physiological and psychological characteristics of students.*

### Learning outcomes by discipline

1. the formation of an understanding of the mental and physiological development of a person about different views on the most important issues of physiological development with psychology in the aspect of cultural development.
2. strengthens the professional psychological, pedagogical and physiological training of students.
3. equipping with theoretical and practical knowledge, contributing to the improvement of psychophysiological knowledge.

### Prerequisites

*School course*

### Postrequisites

*Pedagogical practice (psychological and pedagogical)*

## Bases of economics, law and ecological knowledge

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

### Short description of discipline

*The discipline is integrated, which includes the main issues and principles in the field of fundamentals of law and anti-corruption culture, economics, entrepreneurship and leadership, ecology and life safety. Features of the use of regulatory legal acts, the ability to use business, ethical, social, economic, entrepreneurial and environmental norms of society. The specifics of environmental, legal, economic, entrepreneurial relations, leadership qualities and principles of the fight against corruption.*

### Purpose of studying of the discipline

*It consists in studying the basic patterns of the functioning of living organisms, the biosphere as a whole and the mechanisms of their sustainable development under the conditions of anthropogenic impact and emergency situations; in understanding the concept of*

corruption, the legitimacy of the fight against it, the content of the state penal policy; in the formation of students' basic fundamental stable knowledge on the basics of economic theory, in instilling the skills and abilities of economic thinking; in introducing students to the theory and practice of entrepreneurship, to the basics of creating their own business; in the formation of theoretical knowledge and practical skills for the development and improvement of leadership qualities.

### Learning Outcomes

ON 1 Demonstrate socio-cultural, economic, legal, environmental knowledge, communication skills, apply information technology, taking into account modern trends in the development of society.

### Learning outcomes by discipline

- analyzes the issues of safety and conservation of the natural environment as the most important priorities of life;
- demonstrates knowledge of the fundamentals of nature management and sustainable development, assesses the impact of man-made systems on the environment;
- shows knowledge of the main regulatory legal acts of the Republic of Kazakhstan, their understanding and application;
- shows knowledge of the patterns of development of economic processes, clearly formulates his own position, finds and clearly sets out arguments in its defense;
- is able to characterize the types of entrepreneurial activity and the entrepreneurial environment, draw up a business plan, create an entrepreneurial structure and organize its activities;
- knows the fundamental provisions about the role of leadership in managing large and small social groups.

### Prerequisites

School course

### Postrequisites

Basic and profile disciplines of the EP

## Mathematical analysis 1

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

### Short description of discipline

A branch of mathematics in which the discipline teaches the method of studying the processes of change, movement, and dependencies between quantities in terms of their quantitative relations. When studying the discipline, the general theory of functional dependencies is considered, the real set of numbers, the sequence of numbers, the limit of the sequence, the concept of a function, the limit of a function at a point, the derivative of a function, methods of plotting a function using a derivative are studied. The student acquires fundamental knowledge of the theory of differential calculations.

### Purpose of studying of the discipline

To introduce fundamental research methods by analyzing the finite quantities that make up the differential calculations of a function of one variable.

### Learning Outcomes

ON3 Apply fundamental knowledge of modern mathematics in solving practical problems in various fields of human activity. Interpret the results obtained, build hypotheses about the further course of solving the problem.

### Learning outcomes by discipline

- to master the limit and continuity of the function, the connection between them;
- be able to apply the differential calculus of a function in practical tasks;
- be able to calculate the differentials of elementary and complex functions.

### Prerequisites

School course

### Postrequisites

Mathematical analysis 2

## Pedagogy

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

### Short description of discipline

The content of the discipline is aimed at forming students' holistic understanding of the theoretical and methodological foundations of pedagogical science and the essence of professional pedagogical activity. Studying the course allows you to form the necessary knowledge about the content, principles, forms and methods of organizing a holistic pedagogical process in an educational environment. The study of the course forms the necessary competencies for the successful implementation of modern approaches in teaching and learning.

### Purpose of studying of the discipline

Pedagogy as an academic discipline aims to form students' knowledge about the object and subject of pedagogy, its functions, categorical apparatus, methodology of science.

The study of the course provides for the formation of the necessary competencies in the design and evaluation of the pedagogical process in the conditions of an educational institution. The content of the discipline topics allows you to acquire knowledge and skills in the selection and successful application of forms, means, methods of teaching and upbringing.

### Learning Outcomes

ON2 Apply modern teaching technologies and criteria-based assessment, taking into account the individual, physiological and psychological characteristics of students.

### Learning outcomes by discipline

1. Knows the basic concepts of the theory of the subject

2. Has knowledge in the system of pedagogical training and makes decisions taking into account the holistic pedagogical process

3. Applies the basic skills of the teacher's profession

### **Prerequisites**

School course

### **Postrequisites**

Basic and profile disciplines of the EP

## **Training practice**

Discipline cycle	Basic disciplines
Course	1
Credits count	2
Knowledge control form	Total mark on practice

### **Short description of discipline**

It is carried out for students in an organization that, by its introductory nature, is the object of future professional activity. The educational practice is aimed at understanding the content of the future profession. During the practice, primary professional competencies of students are formed, including the development of general cultural competencies, consolidation and deepening of theoretical knowledge acquired in the course of training, acquisition of primary research skills, practical and working skills in accordance with the educational program.

### **Purpose of studying of the discipline**

the development of general cultural competencies of students, the acquisition of primary professional competencies, including the consolidation and deepening of theoretical knowledge gained in the learning process, obtaining the first skills of research, business correspondence skills, the acquisition of practical skills and work skills in accordance with the educational program

### **Learning Outcomes**

ON3 Apply fundamental knowledge of modern mathematics in solving practical problems in various fields of human activity. Interpret the results obtained, build hypotheses about the further course of solving the problem.

### **Learning outcomes by discipline**

Consolidation of theoretical knowledge gained in the process of studying at the university.

### **Prerequisites**

Introduction to the profession of a teacher of mathematics and computer science

### **Postrequisites**

Pedagogical practice (psychological and pedagogical)

## **Elementary mathematic**

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

### **Short description of discipline**

The formation of students' general cultural, general professional, professional and special competencies that contribute to the systematization of knowledge and their addition with new interesting facts from various sections of elementary mathematics, as well as teaching students to prove course theorems and solve school mathematical problems in different ways, which allows you to see the intra- and interdisciplinary connections of mathematics.

### **Purpose of studying of the discipline**

Instilling in students the skills of mathematical thinking, mathematical analysis of applied problems and conducting research using basic mathematical methods. Systematization of knowledge, skills and abilities acquired in the school mathematics course.

### **Learning Outcomes**

ON3 Apply fundamental knowledge of modern mathematics in solving practical problems in various fields of human activity. Interpret the results obtained, build hypotheses about the further course of solving the problem.

### **Learning outcomes by discipline**

- explain educational mathematical material (within the framework of basic general and secondary general education programs) and solve and explain the solution of elementary mathematics problems
- to carry out contextual analysis of educational mathematical texts
- determine and evaluate the practical consequences of possible solutions to the problem
- in the process of solving the problem, make correct mathematical conclusions
- freely apply elementary mathematical solutions in the field of advanced study of mathematics.

### **Prerequisites**

School course

### **Postrequisites**

Basic and profile disciplines of the EP

## **Analitic geometry**

Discipline cycle	Basic disciplines
Course	2
Credits count	5
Knowledge control form	Examination

### **Short description of discipline**

The content of the discipline deals with the equations of straight lines on the plane and the theory of curves of the second order. Equations of straight lines and planes in space, second-order surfaces and related concepts, elements of vector algebra and their application in solving various problems are studied. In the process of mastering the discipline, students deepen their knowledge on

topics necessary in accordance with the school mathematics program, and problem-solving skills are formed.

### **Purpose of studying of the discipline**

To introduce students to the main sections of analytical geometry, to teach techniques for solving problems by presenting knowledge about a straight line, plane, curves and surfaces of the second order.

### **Learning Outcomes**

ON3 Apply fundamental knowledge of modern mathematics in solving practical problems in various fields of human activity. Interpret the results obtained, build hypotheses about the further course of solving the problem.

### **Learning outcomes by discipline**

- owns the elements of analytical geometry on the plane and in space;
- he is able to analyze problems on a straight line, plane, curves and surfaces, choose effective solutions, present the results in an understandable form;
- he is able to apply the learned theoretical material in the school mathematics course.

### **Prerequisites**

School course

### **Postrequisites**

Methods of geometric problems solution

## **Inclusive education**

Discipline cycle	Basic disciplines
Course	2
Credits count	3
Knowledge control form	Examination

### **Short description of discipline**

When studying the discipline, students acquire knowledge about the principles and methodological foundations of inclusive education. Ideas are being formed about modern models of psychological and pedagogical support for children with special needs, the elimination of existing barriers in the legal support of inclusive education and the competence of organization and management in the area of inclusive practice. Get an idea about the models of psychological and pedagogical support for children with disabilities in educational institutions.

### **Purpose of studying of the discipline**

The purpose of this discipline is to familiarize students with the basic provisions of the organization and management of inclusive processes in education; the formation of a dynamic, effective, self-improving specialist, ready for professional activity in an inclusive education, owning innovative technologies for building an educational route for all students, taking into account their individual needs and capabilities, able to provide social psychological and pedagogical support for children and their families.

### **Learning Outcomes**

ON2 Apply modern teaching technologies and criteria-based assessment, taking into account the individual, physiological and psychological characteristics of students.

### **Learning outcomes by discipline**

1. Scientific and practical ideas about the integration of children with disabilities are being formed.
2. Acquainted with the methodological and managerial work of educational organizations in the context of inclusive practice.
3. Understands the peculiarities of the education of children with disabilities in the educational process in inclusive educational organizations.

### **Prerequisites**

Age psychology and physiology

### **Postrequisites**

Basic and profile disciplines of the EP

## **Mathematical analysis 2**

Discipline cycle	Basic disciplines
Course	2
Credits count	5
Knowledge control form	Examination

### **Short description of discipline**

The discipline is designed to teach integral calculus of a function of one variable and differential calculus of a function of several variables. In the process of studying the discipline, students master the concept of a primitive function, an indefinite and definite integral, ways of integrating various functions, the use of a certain integral, deepen the theoretical knowledge gained in the school mathematics course. It covers the study of the basic concepts of several variable functions, continuity, derivatives and differentials.

### **Purpose of studying of the discipline**

To introduce fundamental research methods using the analysis of infinite sets that make up the theory of integral calculations of functions of one variable. Determination of the practical application of a certain integral. Teaching differential calculus of functions of multiple variables.

### **Learning Outcomes**

ON3 Apply fundamental knowledge of modern mathematics in solving practical problems in various fields of human activity. Interpret the results obtained, build hypotheses about the further course of solving the problem.

### **Learning outcomes by discipline**

- possess methods for calculating definite and indefinite integrals;
- be able to apply integral function calculations in practical tasks;
- be able to apply differential calculations of one variable when studying differential calculus of functions of several variables.

### **Prerequisites**

Mathematical analysis 1

### **Postrequisites**

## Technologies of the updated content of education and criteria assessment

Discipline cycle	Basic disciplines
Course	2
Credits count	5
Knowledge control form	Examination

### Short description of discipline

The course is designed to familiarize students with the technology of updated educational content and the features of criteria assessment. During the course, the main documents for secondary schools will be studied, ways of applying the basic principles of organization and planning of educational work, which have gained a permanent place in the practice of many teachers around the world, will be considered. Students master the types of criteria assessment and their features.

### Purpose of studying of the discipline

To introduce the technology of the updated content of education and the features of criteria assessment, to form students' skills, such as becoming independent, self-motivated, enthusiastic, confident, responsible individuals with developed critical thinking, showing competence in digital technologies.

### Learning Outcomes

ON2 Apply modern teaching technologies and criteria-based assessment, taking into account the individual, physiological and psychological characteristics of students.

### Learning outcomes by discipline

- to know about the requirements for the updated content of education, the basic values defined by the content of general secondary education, the basic content of general secondary education;
- to master the methodology of activating the process of involving future teachers in teaching students;
- own a system for assessing students' knowledge.

### Prerequisites

Pedagogy

### Postrequisites

Basic and profile disciplines of the EP

## World of Abai

Discipline cycle	Basic disciplines
Course	2
Credits count	3
Knowledge control form	Examination

### Short description of discipline

The discipline is aimed at studying historical facts, the philosophical and artistic foundations of the works of Abay Kunanbaev, Shakarim Kudaiberdiev, which form worldview and aesthetic values, the student's ability to express his opinion, practical skills and perception of such human qualities as morality, honesty, artistic character. The genius of the writers of Kazakh literature and the role of M. Auezov in the study and popularization of Abai's heritage, the significance of his works for history, literature and science are determined.

### Purpose of studying of the discipline

Formation of the meaning of philosophical and ideological being, understanding of the problems raised in the works of Abai Kunanbayuly, Shakarim Kudaiberdiyuly, Mukhtar Auezov and application of the acquired knowledge in the practice of everyday life.

### Learning Outcomes

ON 1 Demonstrate socio-cultural, economic, legal, environmental knowledge, communication skills, apply information technology, taking into account modern trends in the development of society.

### Learning outcomes by discipline

- 1) Analyzes the philosophical and artistic foundations of works, historical facts related to the creative heritage of Abai Kunanbayev, Shakarim Kudaiberdiyev, Mukhtar Auezov
- 2) Uses in practice the humanistic ideas of Abai's philosophical and artistic works
- 3) Assesses the place and significance of Abai's works in the history of literature and science

### Prerequisites

Kazakh language The module of socio-political knowledge (sociology, political science, cultural studies, psychology)

### Postrequisites

Basic and profile disciplines of the EP

## Pedagogical practice

Discipline cycle	Basic disciplines
Course	2
Credits count	3
Knowledge control form	Total mark on practice

### Short description of discipline

Pedagogical practice is aimed at the practical application of theoretical knowledge gained in the study of psychological, pedagogical, social and special disciplines. Students develop the skills of organizing and conducting extracurricular, educational work on the subject. In general education schools, in accordance with the requirements of the updated content of education, they master the methods of processing the necessary documents for work, methods of working with information tools.

### Purpose of studying of the discipline

Consolidation and deepening of knowledge in general scientific, cultural, psychological and pedagogical, methodological and special disciplines, as well as the formation of pedagogical skills, skills and competencies based on theoretical knowledge.

### Learning Outcomes

ON2 Apply modern teaching technologies and criteria-based assessment, taking into account the individual, physiological and psychological characteristics of students.

### **Learning outcomes by discipline**

- to know the ways of interaction of the teacher with various subjects of the pedagogical process;
- to design, organize and carry out educational work in the classroom, assesses its results, carries out its reflection;
- to provide pedagogical support for the processes of socialization and professional self-determination of students.

### **Prerequisites**

Pedagogy

### **Postrequisites**

Pedagogical practice

## **Pedagogical practice (psychological and pedagogical)**

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

### **Short description of discipline**

The content of psychological and pedagogical practice is aimed at forming an idea about the peculiarities of the organization of the educational and pedagogical process and the management system in the holistic pedagogical process of the school. The student gets acquainted with all types and directions of the teacher's activities, including the system of work of the class teacher, observation during lessons and extracurricular activities, psychological and pedagogical diagnostics of the age characteristics of the development of students, conducts psychological and pedagogical educational work.

### **Purpose of studying of the discipline**

The purpose of pedagogical practice is the formation of professional pedagogical competencies related to the design and implementation of the educational process of teaching in the education system, providing conditions for the social and professional adaptation of students, mastering the norms and values of the teaching profession, gaining experience in practical pedagogical activity, becoming a professional orientation of their personality

### **Learning Outcomes**

ON2 Apply modern teaching technologies and criteria-based assessment, taking into account the individual, physiological and psychological characteristics of students.

### **Learning outcomes by discipline**

1. Demonstrate theoretical knowledge in practice.
2. Own methods of organization of psychological and pedagogical work.
3. Apply training and education methods.

### **Prerequisites**

Pedagogy

### **Postrequisites**

Pedagogical practice

## **Theoretical basics of informatics**

Discipline cycle	Basic disciplines
Course	2
Credits count	5
Knowledge control form	Examination

### **Short description of discipline**

The subject organizes preparedness in such matters that are related to the theoretical foundations of information processing, using computer technology, students will take concepts about the types and structures of variables that in the future will help students to find out and solve practical problems of improving variables that will arise in the course of professional work. The concepts of important concepts of computer science are established.

### **Purpose of studying of the discipline**

To form an idea of the fundamental concepts of computer science: the foundations of information theory, the theory of digital automata, the theory of algorithms, the analysis of the effectiveness of algorithms, information modeling and the semantic foundations of computer science.

### **Learning Outcomes**

ON6 Master and apply the basic methods of special sections of computer science, theory and methodology of the school course program of informatics.

### **Learning outcomes by discipline**

1. Use the basic concepts and definitions of informatics in professional activities;
2. Carry out basic measures to protect information when solving professional problems;
3. Explore the processes of creation, accumulation and processing of information and methods of information transformation.

### **Prerequisites**

School course

### **Postrequisites**

Databases and Information Systems

## **Theory and methodology of teaching mathematics**

Discipline cycle	Basic disciplines
Course	2
Credits count	5



Knowledge control form

Examination

### Short description of discipline

*The discipline is intended for the development of general laws, goals and content, didactic principles of teaching mathematics, methods of scientific cognition and consideration of methods of teaching topics of the school course of mathematics. Students are invited to analyze mathematics textbooks, additional didactic materials, familiarize themselves with the content of the textbook presentation and perform a system of exercises of a given level of complexity. In the process of studying the discipline, students form the knowledge, skills, and skills necessary for conducting scheduled, extracurricular activities.*

### Purpose of studying of the discipline

*To provide information on theoretical issues of teaching mathematics, didactic principles, methods of scientific cognition, to acquaint with the methodology of teaching mathematics in secondary schools, the peculiarities of the organization of training and to form students' professional competencies necessary in future professional and pedagogical activities.*

### Learning Outcomes

*ON2 Apply modern teaching technologies and criteria-based assessment, taking into account the individual, physiological and psychological characteristics of students.*

*ON4 Analyze and solve problems of the theoretical and methodological course of higher mathematics, demonstrate basic knowledge in the field of pedagogy when conducting classes in a modern school using various techniques and techniques.*

### Learning outcomes by discipline

*- know the didactic principles of teaching mathematics, methods of scientific cognition and be able to use in teaching a school course of mathematics;*

*- possess a system of theoretical and practical knowledge necessary for the formation of competencies;*

*- apply modern teaching methods and technologies;*

*-be able to organize extracurricular activities and extracurricular activities.*

### Prerequisites

*Introduction to the profession of a teacher of mathematics and computer science*

### Postrequisites

*Pedagogical practice*

## Python Programming

Discipline cycle

Basic disciplines

Course

3

Credits count

5

Knowledge control form

Examination

### Short description of discipline

*In the course of studying the discipline, students will learn how to create console programs, consider the syntax of the language, get acquainted with the input / output operators and their parameters, solve many problems in programming linear, branching and cyclic algorithms. They will work with various data types, including string data type, one-dimensional and multidimensional arrays, study the issues of algorithm tracing, get acquainted with the PyGame library for creating 2D games.*

### Purpose of studying of the discipline

*Formation of ideas about programming languages; acquaintance with the fundamental concepts of algorithms and programming languages; learning how to write programs in a high-level language; mastering the Python programming methodology.*

### Learning Outcomes

*ON6 Master and apply the basic methods of special sections of computer science, theory and methodology of the school course program of informatics.*

*ON7 Build logical arguments, hypotheses and rigorous proofs, develop software packages and database components using modern programming tools and technology.*

### Learning outcomes by discipline

*1. Write and analyze programs and applications;*

*2. Apply different algorithms to solve problems;*

*3. Use Python libraries.*

### Prerequisites

*Theoretical basics of informatics*

### Postrequisites

*C++ Programming Object Oriented Programming in Python*

## Theory of possibility and mathematical statistics

Discipline cycle

Profiling discipline

Course

3

Credits count

5

Knowledge control form

Examination

### Short description of discipline

*This subject introduces the student to the laws of random events., mass random phenomena. To build a probabilistic model of random phenomena, the basic probability theorems (addition and multiplication theorems, total probability, repetition of tests, etc.), the laws of large numbers are used. Having the school basics of mathematical statistics, the student expands his knowledge of the methods of correlation-regression and variance analysis. When testing hypotheses put forward, learn to apply various criteria of Pearson, Student.*

### Purpose of studying of the discipline

*To teach students the fundamental methods of studying probability theory and mathematical statistics and apply this theory to practical calculations.*

*The basic formulas of the application of probability theory and mathematical statistics in physics, mechanics; axiomatic approach to the definition of probabilities, the main theorems, the Bernoulli scheme, including the local and integral Laplace theorems, the concept of random variables, their numerical characteristics, the simplest random processes - Poisson.*

Basic concepts of set theory, an axiomatic method of presenting probability theory. The main methods of proof and algorithms of probability theory, revealing connections. Modern mathematical modeling methods, the central limit theorem, its consequences and applications in probability theory and in related disciplines such as queuing theory.

To teach how to apply the basic methods of probability theory in solving problems in related fields of mathematics and theoretical physics. Be able to apply doc methods

### Learning Outcomes

ON8 Conduct and design experiments in the field of classical branches of mathematics and computer science.

ON9 Formulate and analyze emerging problems using statistical and applied mathematical methods.

### Learning outcomes by discipline

- master the methods of proof against the contrary, the method of logical following, the method of syllogism, the method of excluded third, the basics of stochastic thinking.

- to have scientific ideas about randomness, to find cause-and-effect relationships without confusing cause with effect.

- possess methods of mathematical information processing, theoretical and experimental research. Possess the skills of applying the basic algorithms of probability theory and mathematical statistics in all sections of mathematical knowledge.

- applies the apparatus of mathematical statistics to hypothesis testing;

- conduct experiments in the field of classical branches of mathematics, describe methods of mathematical reasoning.

### Prerequisites

School course

### Postrequisites

Professional (pedagogical)

## Pedagogical practice

Discipline cycle	Basic disciplines
Course	3
Credits count	5
Knowledge control form	Total mark on practice

### Short description of discipline

Pedagogical practice is aimed at the formation of professional pedagogical competencies related to the design and implementation of the educational process of learning in the education system. Students master the norms and values of the teaching profession, professional orientation is carried out in obtaining experience of pedagogical activity. At the stage of theoretical training at the university, creative, research views are formed using various methods of teaching mathematics and computer science.

### Purpose of studying of the discipline

Formation of professional pedagogical competencies related to the design and implementation of the educational process of teaching in the education system, providing conditions for social and professional adaptation of students, mastering the norms and values of the pedagogical profession, gaining experience in practical pedagogical activity, the formation of professional orientation of their personality.

### Learning Outcomes

ON2 Apply modern teaching technologies and criteria-based assessment, taking into account the individual, physiological and psychological characteristics of students.

### Learning outcomes by discipline

- understand the specifics of the organization of educational, extracurricular, educational work within the framework of the updated content of education on the subject in an educational institution;

- to carry out activities as a subject teacher within the framework of the updated content of education;

- to design an educational process focused on solving modern problems of a specific educational program;

- create didactic materials using modern information resources and technologies;

- work with children with special educational needs.

### Prerequisites

Pedagogical practice (psychological and pedagogical) Pedagogical practice

### Postrequisites

Pregraduation practice Professional (pedagogical)