

## 6B01501-Mathematics

**The purpose of the educational program:** Training of competitive specialists with professional competencies in the field of mathematics and methods of teaching mathematics, modern pedagogy and psychology, who knows the modern information technology, possessing theoretical and practical knowledge to determine and solve research problems in the field of mathematics education

### 1.2 VISION, MISSION, PROGRAM GOAL, VALUES, UNIVERSITY GRADUATE ATTRIBUTES

**Vision:**

An intellectual platform that develops educators who are open to new ideas and able to lead in a rapidly changing world.

**Mission:**

Developing teacher leaders, who can create, develop, and disseminate advanced knowledge and values in education for the benefit our country and the world.

**Program goal:**

Our University aims to become a hub for innovative teaching, learning, research as well as the development of rural education in Central Asia.

**Values:**

Integrity, commitment, care.

**University graduate attributes:**

- Self-guided learners and reflexive practitioners
- Responsible personalities with moral and ethical values
- Professionals with deep subject knowledge and digital skills
- Creative and critical thinkers and excellent team players and communicators
- Adaptive leaders in teaching and learning
- Diverse, inclusive and for equality of opportunity in society

### 1.3. THE RATIONALE BEHIND THE EDUCATION PROGRAM

*Topically of educational program.* The educational program is designed to teach mathematics in educational institutions using modern information and communication technologies. The program reveals the use of IT tools in the organization and planning of teaching mathematics according to the updated educational program in high school.

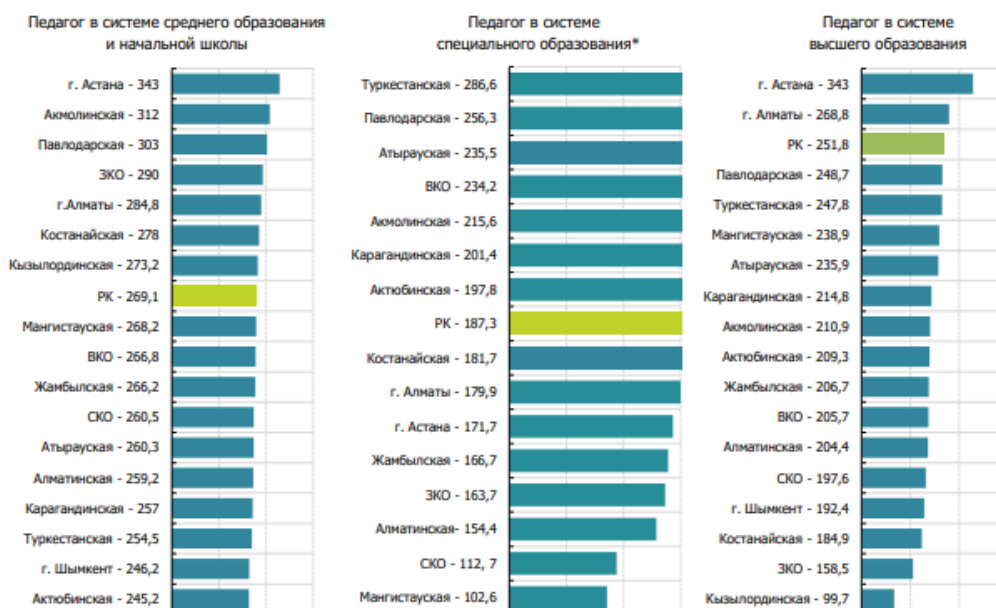
Within the framework of the Law "On the Status of a teacher", the working conditions of a teacher have been improved and the prestige of the profession has increased. Since 2020, teachers' salaries have been increasing by 25% annually and will increase by 2 times by 2023. According to the amendments made to the Remuneration System of civil servants, employees of organizations maintained at the expense of the state budget, employees of state-owned enterprises, additional payments are established: for mentoring – 100% of the BDO; conducting extracurricular sports activities - 100% of the BDO; master's degree in scientific and pedagogical direction - 10 MCI. From September 2020 surcharges for classroom guidance and checking notebooks have been increased by 2 times. As material incentive mechanisms, the state award "Kazakstannyn enbek sinirgen ustazy" was introduced, the children of teachers are given priority places in kindergartens. Measures have been taken to attract talents to the teaching profession.

The average monthly nominal salary of teachers varies markedly depending on the level of education and the region of residence. In 2021, on average, teachers in the secondary and primary education system earned 269.1 thousand tenge, university teachers – 251.8 thousand tenge, teachers in the secondary education system – 187.3 thousand tenge. In the most minimal comparison, the salary of teachers of secondary schools is 245.2 thousand tenge, which is 142.6 thousand and 145.5 thousand tenge

more than that of teachers of special and higher education, respectively. Thus, teachers in primary and secondary education receive the highest salaries in all regions than their counterparts at other levels of education. For example, teachers in the northern regions (Astana, Akmola and Pavlodar regions) earn more than 300 thousand tenge per month. However, teachers in the field of special education receive the lowest wages, in particular in Mangistau (102.6 thousand tenge) and North Kazakhstan (112.7 thousand tenge) regions. Only in Astana, the same level of wages was registered among teachers in the system of primary and secondary education and university teachers. There is a regional gap in the average monthly salary, especially in higher education. Thus, the salaries of university teachers in 14 regions do not reach the average level in the Republic of Kazakhstan. By region, the highest salaries were received in Astana (343 thousand tenge) and Almaty (268.8 thousand tenge), and the lowest in the Kyzylorda region (99.7 thousand tenge) (Fig. 1.1.11). Such differences in the remuneration of teachers, depending on the level of education, require the search for optimal solutions at the level of regions and individual universities.

In all regions, the need for teachers is gradually decreasing. The largest influx of young specialists over the past three years has been observed in Almaty (3805 people), Zhambyl (2,405 people) regions. Exceeding the average value of the share of young specialists in the Republic of Kazakhstan for three years has been noted in the Mangystau region. In general, the influx of young specialists across the country has reduced the shortage of pedkadrov by 2 times since 2019 (Table 2.2.4). At the same time, the need for teachers as of 2021 amounted to more than 3 thousand people. The most vacant places are for teachers of Russian language and literature (814), primary classes (517), mathematics (471), physics (161), music (163). With the increase in the birth rate of children, a record number of first-graders are entering schools, which requires the provision of additional student places and the construction of new schools in the coming years. Accordingly, the need for teaching staff will grow even more. In this regard, the Ministry will develop special programs to attract the best teachers with an appropriate package of support measures for the regions where there is the greatest shortage of teachers.

**Рисунок 1.1.11. Среднемесячная номинальная заработная плата одного педагогического работника по отдельным должностям в разрезе регионов, 2021 г., тыс. тенге**



#### 1.4. DISTINCTIVE FEATURES OF THE EDUCATIONAL PROGRAM

Additional education (Minor)	1. Mathematical modeling
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#### Coincidence with similar EP of leading universities in the near and far abroad

Harvard University - 44%

University Of Sussex-71%

Jagiellonian University - 63%

#### 1.5. GRADUATE CAREER OPPORTUNITIES

A graduate of the educational program 6B01501-mathematics can work as a mathematics teacher in educational and scientific institutions, institutions of additional education and educational centers.

#### 1.6. AREAS OF PROFESSIONAL COMPETENCE

Bachelor of Education in the educational program 6B01501-Mathematics can perform the following types of professional activities:

- in the field of educational activities;
- in the field of research activities;
- in the field of socio-pedagogical activity.

##### Area of professional competence 1

In the field of educational activities: - organization of the process of training and development, training and education of students, design and management of the pedagogical process, correction, design, diagnostics of the results of pedagogical activity; - mastering the basics of pedagogical skills, which form professional qualifications in the field of mathematical disciplines;

##### Area of professional competence 2

In the field of research activities: - study of scientific and methodological literature; - study and generalization of advanced pedagogical experience in the field of mathematical education; - conducting a pedagogical experiment, introducing its results into the educational process;

##### Area of professional competence 3

In the field of socio-pedagogical activity: - the formation of a multicultural personality; - creation of favorable conditions for life, education and development of students and the provision of pedagogical support;

#### 1.7. EDUCATIONAL PROGRAM LEARNING OUTCOMES:

**LO 1** - Applies a variety of communication formats taking into account socio-cultural diversity, adheres to the principles of equality and accessibility in education, to create a prosperous and inclusive environment, has leadership qualities and is able to apply them to develop collective potential

**LO 2** – Possess high-level critical and creative thinking skills, are capable of self-regulation and reflection to solve professional problems

**LO 3** – Demonstrate knowledge of and adherence to ethical and legal norms in research and use of digital technologies. Apply security measures when working with digital

information and data protection, promote the active, safe and ethical use of digital resources.

**LO 4** – identifies current problems in the field of education and conducts pedagogical research using systematized theoretical and practical knowledge of higher mathematics and mathematical education.

**LO 5** – defines the goals and objectives of education, plans and implements an effective educational process, identifying and using interdisciplinary connections of mathematics with other subject areas;

**LO 6** – solves applied problems by creating mathematical models using knowledge integration skills in various branches of mathematics

**LO 7** – analyzes and selects optimal methods for solving problems of increased complexity in various branches of mathematics and solves non-standard problems, relying on the skills of logical, critical and systematic thinking

**LO 8** – involves students, including those with special needs, in the learning process, develops their creative potential and cognitive activity in teaching mathematics using innovative educational technologies.

**LO 9** – is able to evaluate the results of achievements in order to improve the educational process and develop professional competence, is engaged in self-development and continuous professional development

#### Matrix for correlating EP learning outcomes with graduate attributes

	LO 1	LO 2	LO 3	LO 4	LO 5	LO 6	LO 7	LO 8	LO 9
<b>GA1</b>			+		+			+	+
<b>GA 2</b>		+		+	+	+	+	+	+
<b>GA 3</b>		+	+		+	+	+		
<b>GA 4</b>	+	+		+	+		+	+	
<b>GA 5</b>	+		+				+		
<b>GA 6</b>	+				+			+	+

## 1.8. REFERENCES

**The educational program is developed based on the following legal acts:**

1) Order of the Minister of Science and Higher Education of the Republic of Kazakhstan dated July 20, 2022 No. 2 "On approval of state compulsory standards of higher and postgraduate education".

2) Order and. O. Minister of Education and Science of the Republic of Kazakhstan dated December 15, 2022 No. 500 "On approval of the professional standard "Teacher".

3) order dated March 27, 2023 No. 125 "On the approval of methodological recommendations for the organization and conduct of pedagogical practice for students in the educational field "pedagogical sciences"