




**THE PROGRAM**  
**of the entrance exam for doctoral studies in the educational programs «Public health», «Medicine»**

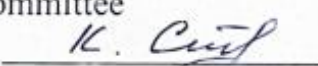
ОҢТҮСТІК ҚАЗАҚСТАН <b>MEDISINA</b> <b>AKADEMIASY</b> «Оңтүстік Қазақстан медицина академиясы» АҚ	 <b>SKMA</b> -1979-	SOUTH KAZAKHSTAN <b>MEDICAL</b> <b>ACADEMY</b> АО «Южно-Казахстанская медицинская академия»
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The program of the entrance exam was compiled on the basis of the Order of the Minister of Education and Science of the Republic of Kazakhstan dated October 31, 2018 No. 600 "On approval of the Standard Rules for admission to study in educational organizations implementing educational programs of higher and postgraduate education"7

The program of the entrance exam was discussed at a meeting of the Scientific Committee on Public Health7


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Chairman of the Scientific  
Committee on Public Health  Sarsenbayeva G. J.

Secretary of the Scientific Committee  
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Approved by the Scientific Council of SKMA

Protocol № 2 from «19» 02 2026.

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## Introduction

The purpose of the educational program of doctoral studies in the specialties "Medicine", "Public Health" is to train competitive, competent scientific and pedagogical personnel with professional and scientific competencies and skills of implementation in practical and scientific activities to meet the needs of the science, education and healthcare system.

In the context of improving the healthcare system, it has become necessary to master the knowledge and skills of managing the activities of medical organizations based on the achievements of modern science, clinical mentoring is being introduced and developed. A highly qualified doctor is required to possess not only professional qualities, but also the knowledge and skills to analyze, monitor, control activities, transfer knowledge to young professionals and students. The issues of integration of practice, science and education are being updated.

The educational program for the preparation of a doctor of philosophy (PhD) in the specialties "Medicine", "Public Health" has a scientific and pedagogical orientation and provides fundamental educational, methodological and research training and in-depth study of medical disciplines for the system of higher, postgraduate education and the research sector.


**1.The purpose of the entrance exam:** Identification of the knowledge and competencies necessary for the successful development of the educational program with the further application of the acquired knowledge in professional activities in the field of science, education and health.

**2.The tasks of the entrance exam:**

- Formation of students' ability to self-improvement and self-development, needs and skills of independent creative acquisition of new knowledge throughout their active life;
- Formation and solution of modern scientific and practical problems, teaching at universities, successfully carrying out research and management activities;
- to know the current state and prospects for the development of the healthcare system in order to create new effective and safe methods of patient management and management;
- to know modern research methods;
- to know the basics of pedagogy in higher education.
- possess management skills in a medical organization.

**3.The name of the disciplines and their main sections**

**Methodology of scientific research.** Methodology. Definition of science. The main stages of the development of science. Methods of scientific knowledge. Methods and objectives of choosing the direction of scientific research. Requirements, methods and methods of conducting theoretical and experimental

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research. Theoretical research. Applied research. Scientific and technical information. Media. Information search.


**Fundamentals of pedagogy of the Higher School of the Republic of Kazakhstan.** Education as a socio-cultural phenomenon. The education system of the Republic of Kazakhstan. The basic laws and institutions of the education system of the Republic of Kazakhstan. A comprehensive school in the education system. Continuing education and self-education as a means of personal development. Pedagogical activity: essence, structure, functions. The essence and structure of pedagogical activity. Types, levels and criteria for evaluating pedagogical activity. A teacher as a subject of pedagogical activity. Pedagogical interaction. The professional competence of the teacher. Higher school pedagogy is a branch of pedagogical science. The object and subject of this science, its leading tasks. The peculiarity of Higher School pedagogy as a science. Prospects for the development of Higher school pedagogy as a science. An axiological approach to the study of pedagogical phenomena.

**Biostatistics.** Fundamentals of biostatistics. A selective approach. Fundamentals of biostatistics. A selective approach. The essence of biostatistics is to study the true nature of the phenomenon under study. The roles of F. Galton, R. Fisher and K. Pearson in the development of biometrics. Forms, goals and objectives of biostatistics. The main types of measuring scales used in biomedical research. Quantitative and qualitative signs. A graphical method for displaying statistical data. Reliability and reliability of measurements in biostatistics. Analysis of the application of statistical methods in articles and dissertation research. Population health statistics. Statistics of the healthcare system. Statistics of biomedical research.


**The economic basis for the development of healthcare in the Republic of Kazakhstan.** The concept and definition of economics. The economics of healthcare, its main purpose. Scientific and practical significance, the main directions of health economics. Indicators characterizing medical effectiveness. The Code of the Republic of Kazakhstan dated September 18, 2009 №193-IV "On the health of the people and the healthcare system". The healthcare system of Kazakhstan: the stages of formation and the current state.

### **The list of questions for the entrance exam**

1. General fundamentals of pedagogy: basic concepts, methodology, objects and history of development.
2. The main directions and processes of higher education development in the modern world. A new model of education.
3. The essence and structure of pedagogical activity. The personality of the teacher, professional abilities and qualifications.
4. The content and organization of the educational process.
5. Learning quality management system.

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6. The basic principles of the Bologna process.
7. Regulatory and legislative framework for the development of higher education in the Republic of Kazakhstan.
8. Innovative teaching methods.
9. The Law of the Republic of Kazakhstan "On Education". The State program for the development of education in the Republic of Kazakhstan until 2025.
10. Organization and conduct of independent and scientific research work of students.
11. A differentiated approach to learning. Example.
12. The connection of pedagogy with other sciences.
13. Pedagogical research. Research methods in pedagogy.
14. Laws and patterns of the pedagogical process.
15. Didactic theories and concepts.
16. Modern educational paradigms.
17. The most important objective and subjective factors influencing the development of educational content.
18. Theories of formal and material education and their one-sidedness.
19. The state educational standard of higher education, its structure.
20. The main components of higher education.
21. The development of higher education in the modern world.
22. The credit system of higher education.
23. Forms and methods of higher education.
24. University management.
25. Pedagogical communication.
26. Introduction to biostatistics. The subject and objectives of biostatistics.
27. Parametric methods. The applied criteria and their characteristics.
28. Nonparametric methods. The applied criteria and their characteristics.
29. Regression analysis.
30. Calculation of the sample for the study.
31. Average values: definition, types and methods of their calculation.
32. Correlation analysis: terms of use, example and interpretation of the value of the correlation coefficient with the formulation of the conclusion.
33. Assessment of the reliability of the results of the study: standard deviation, standard error of the mean, 95% confidence interval.
34. The concept of a series of variations.
35. Types of variation series.
36. Descriptive research. Concept, application. Example.
37. 12. Experimental studies. Concept, application. Example.
38. Methods of data standardization, application value

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39. Analysis of conjugacy tables using the Chi-square criterion: conditions of use, practical application, example and interpretation of the Chi-square value with the formulation of the conclusion by example.

40. Normal distribution: characteristics, verification criteria, three sigma rule

41. The Mann-Whitney U-criterion

42. Confidence intervals. Concept, meaning, interpretation.

43. The method of standardized indicators

44. Elements of measurement theory

45. Measurement scales

46. Acceptable conversions.

47. Aggregated and integrated assessments.

48. Methods of comparing statistical aggregates.

49. Methods of analyzing the dynamics of phenomena.

50. The use of computer statistical programs.

51. Meta-analysis.

52. Structure and content of scientific publications.

53. Choosing a research topic. The wording of the title of the work.

Development of a research hypothesis.

54. Definition of the object and subject of research.

55. Definition of research objectives.

56. Working with literature. Problems of analysis, dissemination and use of scientific medical information.

57. Selection of the materials under study. The method of selecting patients to participate in a scientific study.

58. The choice of research methods.

59. Conducting research (collecting material).

60. Processing of research results. Formulation of conclusions.

61. Ethical principles of clinical research. Clinical trials.

62. Protection of intellectual property in science.

63. Theoretical research.

64. Experimental studies.

65. Organization of the research process.

66. Methodology as a means of rationalization and optimization of activities.

67. Forms of organization of scientific knowledge.


68. Concepts, categories and structure of scientific research.

69. The relationship between theory and empiricism. The possibilities of confirming and verifying the theory.

70. Classification of scientific research in healthcare.

71. The application of environmental research in medicine.

72. Means and methods of scientific medical research.

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73. Definitions of concepts: "science", "scientific research".
74. Requirements for scientific research in the field of medicine.
75. Forms and methods of scientific research.
76. Cost-effective medical technologies.
77. Economic assessment of scientific innovations.
78. Transfer of medical technology.
79. Technology transfer in the Eurasian Economic Union (EEU).
80. Decisions of the Eurasian Economic Union (EEU) on states registering scientific products.
81. Commercialization of scientific projects.
82. Calculation of expenses of scientific projects.
83. Economic and legal foundations of international cooperation in the field of healthcare.
84. Sources of financing of scientific projects in the Republic of Kazakhstan.
85. Sources of financial support for the healthcare system.
86. Monitoring of financial flows in the healthcare system.
87. Economic problems of healthcare development in the Republic of Kazakhstan.
88. Features of healthcare financing in modern conditions.
89. Development of the healthcare financing system.
90. Cost-effective medical technologies.
91. The state and trends in the development of healthcare in Kazakhstan.
92. Analysis of the factors of competitiveness of health care in the Republic of Kazakhstan.
93. Assessment of the health capacity of Kazakhstan.
94. Development of human resources as a factor in improving the quality of medical services.
95. Improving the competitiveness of healthcare through improving the quality of life of the population.
96. Features of the development of health care models in world practice.
97. Theoretical aspects of competition and competitiveness of healthcare and factors determining it.
98. Methods of assessing the competitiveness of healthcare.
99. Improving the model of compulsory medical insurance in Kazakhstan.
100. The need for medical care and the demand for medical services.

## **1. The list of recommended literature**

### **Main sources:**

1. Afonin I.D. Psychology and pedagogy of higher education - M.: Rusains, 2018 - 256

p.

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2. Gromkova M.T. Pedagogy of higher education. Textbook - Moscow: Unity, 2017 - 80 pages.

3. Stolyarenko L.D. Psychology and pedagogy of higher education. Textbook - Ph/D: Phoenix, 2014 - 336 pages.

4. Andreev G.I. Fundamentals of scientific work and methodology. The methodology of dissertation research. M.: FiS, 2012 - 296 p

. 5. Novikov A.M. Methodology of scientific research - M.: Librikom, 2013 - 272 p.

6. Resolution of the Government of the Republic of Kazakhstan dated December 27, 2019 No. 988 On Approval of the State Program for the Development of Education and Science of the Republic of Kazakhstan for 2020 - 2025

7. Yarovinsky M.Ya. Lectures on the course "Medical ethics" (bioethics) / M. Ya. Yarovinsky. - M. : Medicine, 2004. - 527 p.

8. Application of statistical analysis methods (for the study of public health and public health). Edited by Corresponding Member of the Russian Academy of Sciences, prof. V.Z. Kucherenko. Textbook. – M., GEOTAR - Media, 2011.

9. Code of the Republic of Kazakhstan dated July 7, 2020 № 360-VI SAM. About the health of the people and the healthcare system

10. Novikov A.M., Novikov D.A. Methodology of scientific research. – M.: Librocom, 2010. – 280 p.

11. Message of the President of the Republic of Kazakhstan - Leader of the Nation Nursultan Nazarbayev to the people of Kazakhstan "Strategy "Kazakhstan- 2050": a new political course of the established state"

12. About science

Law of the Republic of Kazakhstan dated February 18, 2011 No. 407-IV.

13. About education

Law of the Republic of Kazakhstan dated July 27, 2007 No. 319-III.

#### **Additional sources:**


1. Gromkova M.T. Pedagogy of higher education. Textbook - Moscow: Unity, 2013 - 447 pages.

2. Shklyar M.F. Fundamentals of scientific research. - M.: Publishing House: Dashkov and Co., 2009. - 244 p.

3. Novikov A.M., Novikov D.A. Methodology of scientific research. – M.: Librocom, 2010. – 280 p.

4. Gorlenko O. A., Borbats N. M. Statistical methods in quality management. Textbook and workshop for spo. M.: Yurait, 2019. 270 p.

5. Gorlenko O. A., Borbats N. M. Statistical methods in quality management. Textbook and workshop. Moscow: Yurait, 2020. 306 p.

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6. Gorobets B. S. Probability theory, mathematical statistics and elements of random processes. Simplified course. M.: Unified URSS, 2020. 232 p.

7. Dalinger V. A., Simonzhenkov S. D., Galyukshov B. S. Probability theory and mathematical statistics using mathcad. Textbook and workshop for SPO. M.: Yurait, 2018. 146 p.

8. Dolgova V. N., Medvedeva T. Y. Statistics. Textbook and workshop for SPO. M.: Yurait, 2019. 246 p.

9. Dolgova V. N., Medvedeva T. Y. Theory of statistics. Textbook and workshop for academic baccalaureate. Moscow: Yurait, 2019. 246 p.