MEDICAL UNIVERSITY OF KARAGANDA

THE PROGRAM OF THE ENTRANCE EXAM TO THE DOCTORAL PROGRAM
8D10140 – PHARMACY
Direction of training: scientific and pedagogical, profile

KARAGANDA 2023

The program of the entrance exam to the doctoral program of the educational program 8D10140 – Pharmacy is compiled on the basis of standard programs in the disciplines "Biostatistics", "Management and Marketing in pharmacy".

The developers of the entrance exam program are the Department of Computer Science and Biostatistics, the School of Pharmacy.

Reviewed and approved at the meeting of the Council of the Institute of Life Sciences
"12" 04. 2023 Protocol No. 6

Chairman of the Council _____ Klyuev D.A.

Approved at the meeting of the Senate of the NAO "MUK" "___" May 2023 Protocol No.__

1. The purpose of the entrance exam is to identify the degree of preparedness of persons entering doctoral studies for the successful development of the educational program for the preparation of doctoral students of the educational program 8D10140 "Pharmacy" in accordance with the requirements of the state mandatory standard of education.

2. Tasks
The entrance exam to the doctoral program consists of passing a test on the profile of the educational program "Pharmacy" and an interview.
The program of the entrance exam includes the fundamental topics of the disciplines "Biostatistics", "Management and marketing in pharmacy".

3. Dates of the event:
August of the current year

4. Content of the entrance exam program
The program of the entrance exam includes questions of the main sections of the following disciplines:

Discipline "Biological statistics"	
№	**Content of the discipline**
1	Descriptive statistical characteristics of random variables (mean, confidence interval of the mean, median, mode, variance, standard deviation, standard error of the mean, span, upper quartile, lower quartile, interquartile span, coefficient of variation, coefficient of asymmetry and kurtosis) Graphical representation of data (histogram, box with mustache, scatter plot, pie chart). Checking the distribution of a quantitative random variable. Parametric (Student's t-test for independent and dependent samples, one-factor, two-factor analysis of variance) and nonparametric (Mann Whitney's U-test, Wilcoxon's T-test, X2pirson, X2pirson with Yates correction, Fisher's exact criterion, McNemar's criterion,) criteria for testing statistical hypotheses. Correlation analysis (Pearson correlation coefficient, Spearman correlation coefficient). Regression analysis (simple and multiple linear regression).

Discipline «Management and marketing in pharmacy»	
№	**Content of the discipline**
2	Introduction to Pharmaceutical Management. Management theory. Control systems. Fundamentals of state regulation in the field of pharmacy. Organizational models. Strategic management in pharmacy. Management as a management tool of a pharmacy organization. The head and pharmacy organization. Management styles. Methods and models of decision-making in pharmacy. Personnel management, personnel management. Quality management of pharmaceutical activities. The decision-making process. Fundamentals of office work in a pharmaceutical organization. Pharmaceutical marketing. Marketing management process. Forecasting the need for medicines. Product policy of a pharmaceutical organization. Information support of pharmaceutical activities.

5. Interview evaluation criteria
5.1. Level of motivation, leadership qualities, degree of interest in learning according to the chosen educational program (from 1 to 30 points)
5.2. The level of professional competence / experience / knowledge in the field of research, willingness to conduct research (from 1 to 60 points)
5.3. The level of English for communication in the professional community, participation in professional discussions, publication of research results (from 1 to 10 points)

6. The rules of the entrance exam
6.1. The entrance exam to the doctoral program is conducted in a computer format.
6.2. The duration of the entrance exam is 1 hour, during which the applicant passes a test in disciplines consisting of 100 questions. The list of questions is formed in random order.

6.3. The interview for doctoral studies is conducted on the basis of the Medical University of Karaganda.

7. List of recommended literature

Disicipline "Biological statistics":

basic:

1. Gerasimov A.N. Medical statistics studies.manual / A. N. Gerasimov. - M. : Med.inform. agency, 2007. - 480 p.
2. Bryan Kestenbaum «Epidemiology and Biostatistics. An Introduction to Clinical Research»: Springer. – 2009. - 242 p. (http://link.springer.com/book/10.1007%2F978-0-387-88433-2)
3. Mark Chang «Modern Issues and Methods in Biostatistics»: Springer. – 2011. - 307 p. (http://link.springer.com/book/10.1007%2F978-1-4419-9842-2)
4. http://www.biometrica.tomsk.ru / Website of biostatistics in medicine and biology

additional:

1. Biostatistics : a textbook / B. K. Koichubekov. - Almaty : New book, 2018. - 152 p.
2. Koichubekov, B. K. "Fundamentals of statistical analysis of biomedical data": Textbook-method.manual/KGMA; B.K. Koichubekov.-Karaganda: KSMAA, 2006. -52s.
3. Mathematical and statistical processing of medical research data : scientific edition / V. I. Junkerov, S. G. Grigoriev, M. V. Rezvantsev. - 3rd ed., supplement - St. Petersburg: VMedA, 2011. - 318 s
4. Informatics and medical statistics : textbook / ed. G. N. Tsarik. - M. : GEOTAR-Media, 2017. - 304 p
5. Petri, And "Visual statistics in medicine": Textbook.manual/A. Petri, K. Sabin; Translated from English-M.:GEOTAR-MED, 2nd edition of the translation. and additional, 2009.-144c
6. Kucherenko V.Z. "Application of statistical analysis methods for the study of public health and healthcare": Textbook / ed.Kucherenko, V.Z. - M. : GEOTAR-Media, 2007. - 256 p.
7. How to describe statistics in medicine: a guide for authors, editors and reviewers: trans. from English / T. A. Lang, M. Sesik. - M. : Practical Medicine, 2011. - 480 p.

Discipline «Management and marketing in pharmacy»:

1. Pharmacy management and Economics/Edited by V.L.Bagirova, M.: Medicine, Series: Educational literature for students of pharmaceutical universities and faculties. - 2004
2. Pharmacy management and economics. Textbook. Edited by V.L. Bagirova — M.: Medicine. 2007.
3. Management and economics of healthcare: studies. stipend/Edited by A.I. Vyalkov/ Vyalkov A.I., Kucherenko V.Z., Raizberg B.A. and others – 3rd ed., additional – M.: GEOTAR-Media, 2009. - 664 p.
4. Lozovaya G.F., Lopatin P.V., Glembotskaya G.T. Management of a pharmaceutical organization: a textbook. – M. ICFER, 2000. - 192 p.
5. Bagirova V.L. Management and economics of pharmacy. – Moscow: Medicine, 2004.- pp.490-614.
6. Loskutova E.E. Management and economics of pharmacy. Organization and management. – Moscow: ACADEMIA, 2003.
7. Mnushko Z.N., Pestun I.V. Theory and practice of marketing research in pharmacy. - H.: Publishing House of the National Academy of Sciences, 2008. – 308s.
8. Mnushko Z.N., Dikhtyareva N.M. Management and marketing in pharmacy. – Kharkiv: publishing house of NFIU "Golden Pages". – Part 2. – 2008.
9. Mescon M., Albert M., Khedouri F. Fundamentals of management. - Moscow: Delo, 2001