MEDICAL UNIVERSITY OF KARAGANDA

THE PROGRAM OF THE ENTRANCE EXAM TO THE DOCTORAL PROGRAM
8D10100 – MEDICINE
Direction of training: scientific and pedagogical, profile

KARAGANDA 2023

The program of the entrance exam to the doctoral program of the educational program 8D10100 - "Medicine" is compiled on the basis of standard programs in the disciplines "Biostatistics", "Epidemiology".

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

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 8D10100 "Medicine" 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 "Medicine" and an interview.
The program of the entrance exam includes the fundamental topics of the disciplines "Biostatistics", "Epidemiology".

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 "Epidemiology"	
№	**Content of the discipline**
1	Definition and history of epidemiology. Epidemiology of non-communicable diseases: Fundamentals of prevention. Prevention levels. Screening. Epidemiology of infectious diseases: Epidemiological surveillance and response measures. Epidemics and endemic diseases. Links of the epidemic process. Measuring the frequency of the disease: A risk group. Morbidity and prevalence. Mortality and lethality. Design of epidemiological studies. Observational epidemiology: Descriptive studies. Environmental studies. Cross-sectional studies. Case-control studies. Cohort studies. Experimental epidemiology: Randomized controlled trials. Field research. Community research. Possible errors in epidemiological studies: Accidental error. Sample size. A systematic mistake. Selection criteria. Measurement error. Environment and health: The impact of environmental factors. Evaluation of preventive measures.

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.

Disicipline "Epidemiology":
basic:
1. Pokrovsky V.I., Briko N.I. General epidemiology with the basics of evidence-based medicine: textbook / ed.: Pokrovsky V.I., Briko N.I. - 2nd ed., ispr. and add. - M.: GEOTAR-Media, 2012. - 496 p.
2. Pokrovsky V.I., Briko N.I. General epidemiology with the basics of evidence-based medicine: hands-on to practical classes / ed.: Pokrovsky V.I., Briko N.I. - M.: GEOTAR-Media, 2010. - 400 p.
3. Briko N.I., Zueva L.P., Pokrovsky V.I. et al. Epidemiology: Textbook in 2 volumes: Volume 1. Moscow: MIA. – 2013. – 832 p.
4. Briko N.I., Zueva L.P., Pokrovsky V.I. et al. Epidemiology: Textbook in 2 volumes: Volume 2. M.: MIA. – 2013. – 656 p.
5. Brazhnikov A.Yu. General epidemiology with the basics of evidence-based medicine: a guide to practical classes [Electronic resource] / Brazhnikov A.Yu., Briko N.I., Kiryanova E.V., Mindlina A.Ya., Pokrovsky V.I., Polibin R.V., Torchinsky N.V., I.P. Paltysheva. - M.: GEOTAR-Media, 2017. - 496 p. - ISBN 978-5-9704-4255-5 - Access mode: http://www.studmedlib.ru/book/ISBN9785970442555.html

additional:

1. Briko N.I., Pokrovsky V.I. Epidemiological textbook: textbook / ed.: Briko N.I., Pokrovsky V.I. - M.: MIA, 2011. - 400 p.
2. Yushchuk N.D., Martynov Yu.V., Kukhtevich E.V., Grishina Yu.Y. Epidemiology of infectious diseases. Textbook. – 3rd ed., reprint. and additional – M.: GEOTAR-Media, 2014. – 496 p.