



THE MINISTRY OF SCIENCE AND HIGHER EDUCATION OF RUSSIAN FEDERATION
The Federal state autonomous educational institution higher education
"Far Eastern Federal University"
(FEFU)

SCHOOL OF MEDICINE

FUND OF ASSESSMENT TOOLS
on the subject "Medical Informatics, Medical Statistics"
Specialty 33.05.01 Pharmacy
Full-time training

Vladivostok 2023

The list of assessment forms used at various stages of the formation of competencies in the course of mastering the discipline “Medical Informatics, Medical Statistics”

№ п/п	Controlled sections / topics of disciplines	Codes and stages of competence formation		Position tools	
				Formative assessment	Midterm control / exam
	Section 1. Basic Elements of Informatics	ПК-1.4	Know	Poll Test control Presentation	Question for exam 1-25
			Can	task	assignment
			Master	test	assignment
	Section 2. Analysis of data in medicine	ПК-1.4	Know	Poll Test control Presentation	Question for exam 26-50
			Can	task	assignment
			Master	test	assignment
	Section 3. Information technologies in medicine	ПК-1.4	Know	Poll Test control Presentation	Question for exam 51-75
			Can	task	assignment
			Master	test	assignment

Scale for assessing the level of achievement of learning outcomes for the current and intermediate certification in the discipline “Medical Informatics, Medical Statistics”

Points (rating score)	Levels of achievement of learning outcomes		Requirements for the formed competencies
	Current and intermediate certification	Intermediate certification	
100 – 86	Elevated	«"credit" / "excellent"	The student freely and confidently finds reliable sources of information, operates with the information provided, has excellent skills in analyzing and synthesizing information, knows all the main methods for solving problems provided for by the curriculum, knows typical mistakes and possible difficulties in solving a particular problem, and is able to choose and effectively apply appropriate method for solving a specific problem

85 – 76	Base	"credit" / good	The student in most cases is able to identify reliable sources of information, process, analyze and synthesize the proposed information, choose a method for solving the problem and solve it. Makes single serious mistakes in solving problems, experiences difficulties in rare or difficult cases of solving problems, does not know typical mistakes and possible difficulties in solving a particular problem
75 – 61	Threshold	"credit" / "satisfactory"	The student makes mistakes in determining the reliability of information sources, is able to correctly solve only typical, most common problems in a particular area (process information, choose a method for solving a problem and solve it)
60 – 0	Level	"not credit" / "not satisfactory"	The student does not know a significant part of the program material, makes significant mistakes, performs practical work uncertainly, with great difficulty.

Evaluation tools for the current attestation

Control tests are designed for the students studying the course “**Medical Informatics, Medical Statistics**”.

The tests are necessary for the control of knowledge during the current interim attestation, and for the evaluation of knowledge and thus to get credit for course.

While working with tests the student is asked to select one answer from the three - four proposed. At the same time the tests are not identical in their complexity.

Offered tests contain several variants of correct answers. The student must select all the correct answers.

The tests are designed both for individual and collective solving them. They can be used in the process both classroom lessons and independent work. The tests, required for the control of knowledge, are chosen in the process of the intermediate certification by each teacher individually.

The results of the test tasks are evaluated by a teacher on a five-mark grading scale

Evaluation of "**excellent**" is got by student at the correct answer to more than 90% of the proposed tests.

Evaluation of "**good**" getting - at the correct answer by more than 80% of tests.

tests

Evaluation of "**satisfactory**" - at the correct answer to 60% of the offered

Examples of the test tasks

1. What is the general population?

- a. part of a whole
- b. all objects of the studied category+
- c. the size of the attribute of the object

2. What is a sample?

- a. the value of the attribute of the object
- b. indicator of evaluation of the attribute
- c. part of the general population+

3. What indicators of variability are known to you?

- a. moda
- b. median
- c. limits, standard deviation, coefficient of variation+

4. What determines the variant (date) in statistics?

- a. numerical value of the attribute size of the object +
- b. distance between objects
- c. rate of evolution in biology

5. What is regression?

- a. change in hereditary material
- b. partial return of offspring to the average level for the population +
- c. variability of signs of an organism group

6. What factor determines the correlation?

- a. independent segregation of chromosomes in meiosis
- b. relationship between attributes +
- c. change in genetic material

7. Indicate the degree of relationship between attributes

- a. positive, negative
- b. direct, reverse
- c. strong, moderate, weak+

8. What constants of the variational series are considered to be the main ones?

- a. coefficients of heritability and repeatability
- b. arithmetic mean, standard deviation, statistical error+
- c. coefficients of correlation and regression.

9. How to establish the reliability of the results by statistical error?

- a. if the parameter $>$ its error by 3 times or more, then it is reliable+
- b. the number of errors in the recombination of genetic material
- c. by the method of heteroploidy

10. Absolute growth is:

- a. percentage of absolute growth to the previous level
- b. the difference between the level of the current year and the previous one+

11. The growth rate is:

- a. percentage of absolute growth to the previous level +
- b. the difference between the level of the current year and the previous one

12. What is a variation series?

- a. the number of observation units is not more than 30
- b. a series of numerical values of the attribute under study, arranged in a certain order+
- c. connection between phenomena, which does not appear in each specific case, but in a mass comparison

13. Morbidity is:

- a. a set of new, nowhere registered, not accounted for, detected diseases for the first time in a given year
 - a. the totality of all existing diseases, first detected both this year and in previous years, but for which patients again applied in this year +
 - b. the totality of all existing diseases, first identified by medical examinations

14. What is the file name extension for a document created in Excel spreadsheets

- a. .xcs
- b. .exe
- c. .xsl+
- d. .doc

15. What determines the address of a cell in an Excel table?

- a. digits of the column name and letters of the row designation at the intersection of which this cell is located
- b. letters of the column name and numbers of the row designation at the intersection of which this cell is located +
- c. letters of the column name and worksheet number of the spreadsheet;
- d. digits designate the line and file name of the spreadsheet

16. How to remove the malicious program "Virus"?

- a. computer restart
- b. turning off the computer from the electrical outlet. with the help of special programs +
- d. mechanically

17. How are Excel spreadsheets organized?

- a. they are a workbook that can consist of several worksheets+
- b. they are a blank sheet
- c. they are a set of charts

18. What data can Excel table cells contain?

- a. numerical
- b. text
- c. formulas
- d. all of the above +

19. What is technical support?

- a. it's computers
- b. a set of technical means intended for the operation of the information system, as well as the relevant documentation for these tools and technological processes +

- c) it's software

20. "Mednet" is

- a. Russian telecommunications medical network+
- b. automated monitoring of public health
- c. automated control system
- d. automated workplace

21. Automated screening is

- a. telecommunications network
- b. Automated Targeted Medical Exam+
- c. local pediatrician automated workplace
- d. automated control system

21. The sample population in relation to the general population should

be

- a. middle
- b. representative+
- c. group
- d. relative

22. The following statistical methods are used in the practice of a doctor:

- a. graphic
- b. sociological
- c. calculation of intensive quantities
- d. all of the above +

23. Variant is:

- a. numeric expression of feature+
- b. average value
- c. relative indicator

d. absolute value

24. The criteria for the diversity of a trait are:

- a. amplitude
- b. standard deviation
- c. the coefficient of variation
- d. all of the above +

25. Statistics as a science studies:

- a. single phenomena
- b. mass phenomena+
- c. periodic events

26. Statistics studies phenomena and processes by studying:

- a. certain information
- b. statistical indicators +
- c. signs of various phenomena

27. A series of distribution is:

- a. ordered arrangement of units of the studied population by groups+
- b. a series of indicator values arranged randomly

28. The values of the attribute, repeated with the greatest frequency, are called

- a. moda+
- b. median

29. What is understood in statistics by the term "variation of the indicator"?

- a. change in indicator value+
- b. indicator name change
- c. change in indicator dimension

30. Standard deviation characterizes

- a. data relationship
- b. scatter of data+
- c. data dynamics

Methodical recommendations for the final evaluation of the subject development

The intermediate attestation of students. The interim attestation of students on the subject " Medical Informatics. Mathematics " is carried out in accordance with the local regulations of the Far Eastern Federal University and is obligatory.

Passing the exam orally suggests as an interim attestation.

Evaluation tools for intermediate certification

Questions for the exam on the subject " Medical Informatics. Mathematics "

1. Time series: definition, constituent elements.
2. Classification of time series.
3. What is a trend? Ways of representing the trend.
4. The main types of trend. Methods used to directly identify the trend.
5. What is Medical Information Systems?
6. What is Medical Informatics?
7. The subject, object and purpose of medical informatics. What is "Information" and "Medical Information"?
8. How is biological signal converted into medical information? Explain.
9. What are the types of medical information?
10. What components ensure the availability of medical information?
11. How is the information classified according to the degree of relevance? Explain.
12. What is Health Informatization? What is the main goal of informatization of health care?
13. List the functions of informatization of health care. Explain.
14. List the objectives of the development of health informatization?
15. What is software?
16. What is the operating system? The main functions of the operating system.
17. Classification of medical resources and Internet services.
18. Telemedicine. Directions in the use of telecommunication technologies. History of telemedicine.
19. Standardization of information in telemedicine. Telemedical centers.
20. What is a text editor?
21. List the main elements of the Microsoft Office Word 2007 interface. What are they for?
22. What is a "Header Line"? What does it contain? Describe.
23. What is the Menu Bar of Word? What tabs does it consist of? Describe each tab.
24. What is the "Toolbar". What is it for? What does it include? Describe.
25. What is an information system? For what it is intended.
26. What is a medical information system (IIA)?
27. List the functions of IIAs.
28. What properties should the IIAs possess?
29. List the main tasks of IIAs.
30. Classification of medical information systems by levels. Describe each level.
31. What activities should be automated based on IIAs?
32. List the main types of IIAs and their purpose.

33. List the IIAs for treatment and prevention facilities and characterize them.
34. What is Microsoft Excel for?
35. What is a spreadsheet?
36. What tasks does the spreadsheet solve?
37. List the main types of data.
38. Purpose of computer networks.
39. Classification of computer networks.
40. Special medical computer networks.
41. Describe the stages of processing information in the "doctor-patient" system.
42. What is an Automated Workstation (AWP)?
43. Which components are part of the workstation?
44. List the general principles of creating workstations.
45. What is the structure of the workstation?
46. What is a medical database?
47. What is the medical data.
48. What types of medical information should be shared?
49. What is an electronic document?
50. What is meant by the electronic history of the disease?
51. Modeling. The main types of modeling. Examples
52. Computer modelling. The main stages of computer simulation.
53. Model of natural population growth.
54. Model of change in population size in the presence of competition between individuals.
55. Pharmacokinetic model (single administration of the drug).
56. Pharmacokinetic model (continuous administration of the drug at a constant rate).
57. Information model of therapeutic and diagnostic process.
58. Laboratory Information Systems (LIS). The main components of LIS. 59. The main functions of laboratory information systems.
60. The concept of medical instrument-computer systems (MPCS).
61. Principles of construction of medical instrument-computer systems. Examples of MICS.
62. Classification of medical instrumentation and computer systems by functionality and purpose. Examples
63. Electrocardiography. The main types of leads. Use in medicine. Rheography. The use of rheography in medicine.
64. Electroencephalography. Use in medicine. Polygraphy. The complex of

technical means for printing. Spirography The use of spirography in medicine.

65. The main types of clinical monitoring and its purpose.

66. Digital image processing. Main steps. Computer image processing.

67. Theory of color vision. Imaging devices.

68. Diagnostic decision support systems. Expert systems of intellectual support for the interpretation of laboratory data.

69. Medical Information Systems (MIS). The main tasks of the IIA. The functionality of medical information systems.

70. The main groups of IIA health care facilities (list). MIS LPU: IP advisory points, information banks of medical institutions and services, banks and databases, screening systems.

71. Information systems of health facilities: Hospital (tasks of this system.).

72. Information systems of scientific research institutes and universities.

73. Diagnostics. Causes of diagnostic errors of the doctor. Basics of computational diagnostics. The main stages of automatic medical diagnosis. Medical diagnostic systems with the use of computers (structure, advantages and disadvantages).

74. The use of computers in the treatment process. Block diagram of the cycle of automation of the treatment process. Information systems of operative medical control. Device and appointment.

75. The concept of ACS "Health". Main tasks. The structure of the hospital ACS. The structure of the ACS "Pharmacy".