



MINISTRY OF SCIENCE AND HIGHER EDUCATION OF THE RUSSIAN FEDERATION
Federal State Autonomous Educational Institution of Higher Education
Far Eastern Federal University
(FEFU)
INSTITUTE OF LIFE SCIENCES AND BIOMEDICINE (SCHOOL)

VALUATION FUND

by discipline

«*Bioinformatics*»

Vladivostok
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**List of Forms of Assessment Used at Various Stages of Competence
Formation in the Course of Mastering the Discipline
«Bioinformatics»**

Item No.	Supervised modules/sections/topics of the discipline	Code and name of the indicator of achievement	Learning Outcomes	Evaluation Tools	
				Current control	Intermediate Attestation
1	Module 1. Introduction to Health Informatics. Basic Concepts of Medical Informatics. Features and types of medical information Topic 1.2	PP-1.1; PC-1.2; PC-1.3	Knows Can Owns	UO-1, PR-1 UO-3, PR-11 UO-2, PR-4	Credit Questions 1-5
2	Module 2. Leveraging MS Excel's Capabilities in Medical Data Processing Topic 3,4,5	PP-1.1; PC-1.2; PC-1.3	Knows Can Owns	UO-1, PR-1 UO-3, PR-11 UO-2, PR-4	Credit Questions 6-10
3	Module 3. Processing and analysis of medical information Topic 6,7,8,9	PP-1.1; PC-1.2; PC-1.3	Knows Can Owns	UO-1, PR-1 UO-3, PR-11 UO-2, PR-4	Credit Questions 11-16

*Recommended forms of evaluation tools:

1) interview (MA-1), colloquium (MA-2); Report, Communication (MA-3); Round Table, Discussion, Polemics, Dispute, Debate (SW-4); etc.

2) tests (PR-1); tests (PR-2), essays (PR-3), essays (PR-4), term papers (PR-5), scientific and educational reports on practices (PR-6); laboratory work (PR-7); portfolio (PR-8); project (WP-9); business and/or role-playing game (PR-10); case problem (PR-11); workbook (PR-12), etc.

3) simulator (TS-1), etc.

Scale for assessing the level of achievement of learning outcomes for current and intermediate certification *in the discipline*
«Bioinformatics»

<i>Points (rating score)</i>	Levels of achievement Training		<i>Requirements for the formed competencies</i>
	Current & Intermediate certification	<i>Intermediate Attestation</i>	
100 – 86	Increased	"Passed" / "Excellent"	Freely and confidently finds reliable sources of information, operates with the information provided, has excellent skills in analyzing and synthesizing information, knows all the basic methods of solving problems provided for in the curriculum, knows typical mistakes and possible difficulties in solving a particular problem and is able to choose and effectively apply an adequate method for solving a particular problem. trouble
85 – 76	Base	"Passed" / "Good"	In most cases, he is able to identify reliable sources of information, process, analyze and synthesize the proposed information, choose a method for solving a problem and solve it. Makes single serious mistakes in problem solving, experiences difficulties in rare or difficult cases of problem solving, does not know typical mistakes and possible difficulties in solving this or that trouble
75 – 61	Threshold	"Passed" / "Satisfied"	Makes mistakes in determining the reliability of sources of information, is able to correctly decide only Typical most often Occur trouble in (process information, choose a method to solve a problem, and solve it)
60 – 0	Level Not Reached	"Failed" / "Unsatisfactorily"	Does not know a significant part of the program material, makes significant mistakes, performs practical work unconfidently, with great difficulty.

Current attestation in the discipline "Bioinformatics"

Current certification of students in the *discipline "Bioinformatics"* is carried out in accordance with the local regulations of FEFU and is mandatory.

Current attestation in the discipline is carried out in the form of control measures, in the form of an interview, to assess the actual results of students' learning and is carried out by the leading teacher.

For each object, a description of the assessment procedures is given in relation to the assessment tools used.

Assessment Tools for Ongoing Monitoring

1. Sample Interview Questions

- 1) What is Medical Informatics?
- 2) Subject, Object and Purpose of Medical Informatics.
- 3) What are "Information" and "Medical Information"?
- 4) How is the biosignal converted into medical information?
- 5) What are the different types of medical information?
- 6) What is "objective and subjective information"?
- 7) What are the ways to obtain reliable medical information?
- 8) What are the components that make health information accessible?
- 9) How is information classified according to its relevance? Explain.

Requirements for the presentation and evaluation of materials (results):
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Oral questioning is one of the main ways of recording knowledge.

A student's detailed answer should be a coherent, logically consistent message on a certain topic, showing his ability to apply definitions and rules in specific cases. When evaluating a student's answer, the following criteria should be followed:

- 1) completeness and correctness of the answer;
- 2) the degree of awareness and understanding of what has been learned;
- 3) the language of the response

A grade of "5" is given if the student:

- 1) fully expounds the studied material, gives correct definitions of concepts;
- 2) shows an understanding of the material, can substantiate his/her judgments, apply knowledge in practice, give the necessary examples not only on the material, but also

independently compiled;

3) presents the material consistently and correctly.

A grade of "4" is given if the student gives an answer that meets the same requirements as for a grade of "5", but makes 1-2 mistakes, which he corrects himself, and 1-2 shortcomings in the sequence and language of the presentation.

A grade of "3" is given if the student demonstrates knowledge and understanding of the main points of the topic, but:

1) presents the material incompletely and allows inaccuracies in the definition of concepts or formulation;

2) is not able to substantiate his/her judgments and give examples in sufficient depth and evidence;

3) presents the material inconsistently and makes mistakes in what is presented.

A grade of "2" is given if the student reveals ignorance of most of the relevant section of the material being studied, makes mistakes that distort their meaning, and presents the material in a disorderly and uncertain manner. A grade of "2" marks such shortcomings in the student's preparation that are a serious obstacle to the successful mastery of the subsequent material.

A grade ("5", "4", "3") can be given not only for a one-time answer (when a certain time is allotted to check the student's preparation), but also for a time-dispersed one, i.e. for the sum of the answers given by the student during the lesson (the lesson score is displayed), provided that during the lesson not only the student's answers were heard, but also his ability to apply knowledge in practice was checked.

2. *Sample essay topics (abstracts, reports, communications)*

Purpose

MR-FFU-844/2.2022

Search and study of the latest theoretical and applied sources on social management in the resources of the Internet

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Abstract topics:

1. Types and evaluation of biomedical data.
2. Collection and primary processing of biomedical data.
3. Evaluation of biomedical data in terms of species and quality.
4. Methods of assessing the objectivity of medical information.
5. Methods of assessing the reliability of medical information using modern

computer applications.

6. Application of modern information technologies in the health care system.
7. Comparative characteristics of the most frequently used hardware of modern health care.
8. Ways to apply the results of medical information in medical institutions.
9. Influence of the results of medical information on the speed of problem solving in modern conditions.
10. Use of modern hardware in the treatment of the most severe diseases

Requirements for the content and structure of abstracts

- ~~the abstract should be written in 10-15 pages (not the volume of the abstract)~~
- When developing an abstract, it is recommended to use 8-10 different sources
- the abstract should be written competently, in compliance with the culture of presentation;
- In the course of the text, there should be references to the literature used;
- properly format the bibliography.

The structure of the abstract should include a title page, a table of contents (a **sequential presentation of the sections of the abstract with an indication of the page from which it begins**), an introduction (formulation of the essence of the problem **under study, determination of the relevance, purpose and objectives** of the abstract), the main part (each section of this part of the abstract evidently reveals a separate problem or one of its sides, is a logical continuation of the previous one; in this part, they can tables, schemes, graphs, figures, etc.), **conclusion** (summarizing or giving a generalized conclusion on the topic of the abstract, offering recommendations), **list of references** should be given.

I. Intermediate attestation in the discipline "Bioinformatics"

Intermediate attestation of students. Intermediate certification of students in the discipline "Bioinformatics" is carried out in accordance with the local regulations of FEFU and is mandatory.

Assessment Tools for Intermediate Control (Exam/Test)

1. Bank of test tasks

1. The SMTP protocol is designed for...

- (a) Receiving e-mail;
- b) sending e-mails;
- c) Browsing the Web.

2. The FTP service on the Internet is designed to:

- a) to create, receive and transmit web pages;
- b) for remote control of technical systems;
- c) to receive and transmit files of any format;
- (d) To enable teleconferencing.

3. The bandwidth of the information transmission channel is measured in (several answer options):

- a) bits/s;
- b) Mbps;
- c) Mbps;
- (d) KB/s;
- (e) Bytes;
- (f) MB

4. Routing Protocol (IP) provides:

- a) management of data transmission equipment and communication channels;
- (b) Preservation of mechanical, functional parameters of physical communication in a computer network;
- (c) Interpreting the data and preparing them for the user level;
- d) delivery of information from the sending computer to the recipient's computer;
- (e) Splitting files into IP packets in transit and assembling files in the process of receiving.

5. The three main requirements for computer networks are...

- (a) Productivity;
- (b) Capacity;

- (c) Parallelism;
- (d) Reliability;
- (e) Capacity;
- (f) Integrability

6. A domain is ...

- (a) The unit of measurement of the information;
- b) the name of the program for communication between computers;
- c) the part of the address that identifies the address of the user's computer on the network;
- (d) The name of the device that communicates between computers.

7. Teleconferencing is ...

- (a) Exchange of letters in global networks;
- (b) Hyperlinked information system;
- (c) A system for the exchange of information between subscribers of a computer network;
- (d) A service for receiving and transferring files of any format.

Indicative List of Evaluation Tools (AP)

№	Code	Name of the appraisal means	Brief description of the evaluation tool	Presentation valuation in the fund
Oral Questioning				
1	UO-1	Interview	A means of control, organized as a special conversation between the teacher and the student on topics related to the discipline being studied, and Calculated on ascertainment Volume Knowledge a student on a certain section, topic, problem, etc.	Questions on topics/sections of the discipline
Written works				
1	PP-1	Test	A system of standardized tasks that allows you to automate the procedure for measuring the level of knowledge and skills Student	Test Task Fund
2	PP-4	Abstract	A product of the student's independent work, representing is a written summary of the results of the theoretical Analysis CertainScientific (educational and research) topic, where the author reveals the essence of the studied problems, gives different points of view, as well as his own views on it	Abstract Topics