

**Methodological guidelines for the discipline (module)**

**ФТД.01 Introduction to Artificial Intelligence**

Educational programme: 31.05.01 General Medicine

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Specialization: General Medicine

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Methodological guidelines for the discipline (module) ФТД.01 Introduction to Artificial Intelligence were reviewed and approved at the Informational Technologies Department meeting dated February 1st, 2024, record no. 6.

## General provisions

The purpose of the present guidelines is to provide students with a well-organised learning process, including various self- study activities.

Mastering the discipline requires both in-class learning and self-study work. In-class learning includes lectures and seminars. In- class learning is specified in the programme curriculum.

First, it is recommended to review the discipline (module) syllabus, its structure, contents and assessment methods prior to starting the course.

While reviewing the syllabus, pay attention to the following:

- Some topics and units are not covered during lectures instead students are required to do self- study according to the recommended list of main and supplementary literature and educational and methodological manuals;
- Covered theory, methodology and formulas included in the self- study topics and units should be self- assessed according to self-check questions;
- The content of self-studied topics is integrated in the formative and interim assessment.

Each discipline (module) syllabus is accompanied by methodological materials.

Some educational and methodological manuals for the discipline, such as study aids or lecture notes, guidelines to laboratory work and case study, etc., can be found on MAU Electronic Information and Educational Environment (LMS Moodle).

Students are also suggested to get educational literature needed for all types of in-class learning, as well as self-study work, from MAU library.

Types of academic work, scheduled deadlines, as well as assessment system are compiled in the discipline checklist.

**Table 1. Formative and interim assessment checklist for ФТД.01 Introduction to Artificial Intelligence discipline (interim assessment – “credit”)**

№	Milestones	Credit points		Assessment period (weeks)
		min	max	
<b>Formative assessment</b>				
1.	Laboratory class	20	30	as per the timetable
2.	Essay	5	10	last class
3.	Compendium of lecture notes	5	8	first laboratory class
4.	Class attendance	10	12	as per the timetable
5.	Final test	20	40	as per the timetable
	Points for semester IN TOTAL	min – 60	max – 100	
<b>Interim assessment - credit and graded credit</b>				
	<b>FINAL CREDIT SCORE ON THE DISCIPLINE</b>	<b>min – 60</b>	<b>max - 100</b>	

Mastering the discipline (module) requires a systematic approach. It is necessary to regularly attend lectures, actively participate in class discussions, do written assignments, study lecture notes, and devote time and effort to self-study on the discipline (module) to successfully learn theoretical material on the discipline.

To successfully complete the course (module), students should independently manage the study load according to the study schedule.

## 1. Guidelines to lectures

Lectures and similar sessions are presentations of study material given by a lecturer.

A lecture is a presentation of educational material, usually of a theoretical nature, by the teacher. The purpose of lectures is to provide students with knowledge essential to the discipline (module).

Sometimes lectures represent the main source of information, e.g. with the absence of textbooks and educational manuals; when new scientific data on a topic is not covered in textbooks; some chapters and topics are very difficult for self- study.

During lectures it is advisable to take notes.

The following aspects should be noted most accurately and in detail during the lecture: title; outline; reference sources on the topic; concepts, definitions; key formulas; diagrams; principles; methods; theories; hypotheses; estimates; conclusions and practical recommendations.

Lecture notes are not a copy of a lecture but the representation of its main idea. The notes are written for later reading, meaning that they should be made in such a way that they can be easily and quickly read after some time. Notes help to understand and retain information.

It is recommended to ask the lecturer follow-up questions to deepen the understanding of the theoretical concepts and clarify controversial issues. When preparing for seminars, students can finish the lecture notes by adding relevant ideas from the studied literature indicated in the work program of the discipline.

Lecture topics are listed in the discipline (module) syllabus.

## 2. Guidelines to laboratory classes

**Laboratory classes** are designed for students to learn specific methods of mastering the discipline, experimental methods of analysis, to work with modern equipment. To prepare for laboratory classes, you are required to: study or review relevant lecture notes; study relevant educational and methodological aids laying emphasis on calculation formulas; while doing homework calculation exercises, you should study and review typical exercises done in class.

Attend office hours, if considered necessary.

## 3. Group and one-to-one office hours

Office hours are times when students can meet the teacher outside of class to discuss the material or related issues.

Office hours are offered:

- to address in detail some practical issues that were insufficiently covered or omitted in lectures;
- to advise on self-study (writing term papers, essays, tests, calculation and graphic papers, course papers (projects), preparing for interim assessment, participating in a conference, etc.);
- to assist students in addressing controversial or difficult issues within the discipline (module).

Before attending office hours, think carefully about the issues that require clarification. If you have difficulty understanding theoretical material, you need to specify which of the points you failed to understand.

If you have difficulty solving a problem or preparing a laboratory work report, indicate the stage of the problem you cannot solve or the requirement you cannot fulfil.

### 3. Guidelines to organising self-study

Successful competencies development formed by the discipline implies efficient use of time for self-study work.

Self-study is a way of learning that involves studying alone under the teacher's assignment, guidance and observation. Students possessing self-study skills get a better and deeper knowledge of the study material, are better prepared for creative work, self-education and continuing education.

Self-study work can be both in-class and out-of-class. The types of self-study work often overlap.

In-class self-study is performed under the teacher's assignment during learning sessions, including:

- individual tasks, tests;
- practical assignments;
- problem solving, drawing up images (such as schemes, diagrams, tables, etc.);
- reviewing reference, methodological, and special literature;
- writing a report on performed work;
- preparation for discussions, completing tasks in a role-play simulation, etc.

Out-of-class self-study (in MAU library, laboratory, at home, in self-study rooms, etc.) is obligatory (according to the syllabus) and it does not involve immediate and constant guidance from the teacher.

Out-of-class self-study may include:

- preparation for in-class learning sessions (lectures, seminars, etc.) and homework;
- self-studying single chapters of the course (module) according to the syllabus;
- reviewing the recommended list of main and supplementary literature in connection to lecture notes;
- writing reports, essays, preparing presentations, compiling glossaries, etc.;
- preparing for different types of practical training and completing the tasks according to the syllabus;
- preparing for different types of formative, interim and final assessment;
- participating in research, project and creative activities within a discipline (module);
- preparing for competitions, Olympiads, conferences, work in student scientific associations and clubs;
- other types of self-study.

The syllabus of the discipline, practical training, final assessment programme determine the contents of self-study work. The assignments for self-study have scheduled deadlines.

Any type of self-study includes the following steps:

1. Setting the goal.
2. Specifying a learning (problem or practical) objective.
3. Self-assessing your preparedness to work independently on an assigned or selected objective.
4. Selecting a course of action to address the objective.
5. Planning (independently or with the instructor) self-study to address the solution.

6. Following the self-study plan.
7. Checking the progress of self-study, assessing the results.  
Reflecting on your study performance.

### **Reviewing the scientific and educational literature**

Reviewing educational and scientific literature is the keynote of self-study; it is necessary to read for seminars, quizzes, tests, and “credit” assessments.

While reviewing educational and scientific literature, students can:

- make a short or detailed outline (make a list of the main issues);
- summarise (cite the most important information from an article or monograph, make a short summary of the key ideas expressed by the author);
- make abstracts (a short summary of the main issues);
- make notes (detailed information).

Upon selecting the appropriate resource, students should find the relevant chapter in the contents or index, as well as related lecture notes or chapter from a textbook. In case understanding the educational material is difficult, students may refer to other sources that may cover the issue more clearly. It should be noted that the skill of reviewing literature helps to gain better knowledge within a discipline and becomes a part of being a professional practitioner.

### **Writing essays**

An essay is a type of written assignment that is most effective in mastering basic disciplines and achieving universal graduate competencies. An essay is a short piece of writing on a particular topic, assigned by the instructor.

The purpose of an essay is to develop the skills of independent creative thinking and stating your ideas in writing.

A standard essay should:

1. state the topic and the issue. An essay always has a specific topic that addresses one of the issues related to the field of educational or research interests within the discipline, general problematic field.
2. express author’s points and ideas. An essay is a subjective genre which is interesting and valuable because it helps to reveal the author’s personality, the originality of his position, style of thinking, speech, attitude to the world.
3. be a short piece of writing. There are no rigid requirements, but you should limit your essay to two or three pages (sometimes a one- page essay with several succinct, thought-provoking ideas is enough).
4. not have a rigid structure. The structure of an essay follows its own internal logic.
5. have natural narrative, a good essay can be written by someone who is well familiar with the topic and can present to the reader a multidimensional view of the phenomenon that has become the starting point of the author’s reflections.
6. have an internal unity of meaning, i.e. consistency of key points and statements, proof-points and associations, consistency of arguments which the express author’s opinion.
7. have a specific language. An essay is characterized by numerous means of artistic expression: metaphors, allegories, parables, symbols and similes. In addition it has a dynamic alternation of polemical statements, questions; colloquial language and lexics.

*The structure of an essay:*

Introduction – defining the main idea.

Body – discussing the idea. One paragraph contains: thesis statement, proof, illustrations and a pre- conclusion which supports your ideas.

Conclusion – summarising pre-conclusions and making the final proof of your arguments.

An essay can be presented at a practical class, at a student paper competition, and at scientific conferences.

### **Preparing for tests**

The purpose of a test is to assess students' knowledge of the theoretical material on the course (the content and scope of general and special concepts, terms, factors and mechanisms) and the development of educational skills.

Tests also let students to control their level of knowledge, identify knowledge gaps and address them. Tests include key questions on theoretical and practical foundations of a discipline (module).

To prepare for testing students should:

- review the material on the discipline;
- learn the details of testing in advance: how many tests you will need to take, how much time is allotted, the result assessment system, etc.

To successfully take a test, students should:

- carefully and fully read the questions and the given answers, choose the correct one(s) (there may be several correct answers);
- use different approaches to complete the tasks (this allows you to find the solution flexibly and effectively);
- skip “difficult” questions on the first pass, go back to them later;
- leave time to double check the answers to avoid any errors.

Typical test tasks can be found in the assessment materials on the discipline (module).

## **4. Guidelines to preparing for interim assessment**

**ФТД.01 Introduction to Artificial Intelligence** discipline (module) ends in “credit” assessment according to the syllabus.

The interim assessment aims at checking the final outcomes of completing the discipline (module).

The “credit” assessment supposes competence development based on the results of formative assessments within the discipline (module) in accordance with the checklist.

Students receiving sufficient number of credit points within the course get a “pass”.

“Credit” courses mean preparing for in-class learning and out-of-class formative assessment.