

Criteria for Measuring Student Knowledge and Skills at the Department of Microbiology, Virology, Immunology for the specialty 7-07-0912-01 «Pharmacy»

The basis for Measuring Student Knowledge and Skills is the level of assimilation by students of the educational material provided by the curriculum of the discipline.

The assessment of **theoretical knowledge** is carried out in the form of written work, testing, oral questioning according to the following criteria:

- completeness of knowledge of the topic of the practical lesson, received by the student during self-reading for the lesson (according to the questions for the lesson)
- knowledge of terminology
- demonstration of understanding of educational material in the discipline sections "General microbiology", "Theoretical and applied medical immunology", "Special medical bacteriology" and "Clinical microbiology", "General and special medical virology"
- logical and consistent presentation
- the presence of a relationship with the material that was previously studied and with other disciplines
- ability to solve case studies
- additional material (given by a lecturer during the lecture or that student learned from the textbooks, Internet or other sources)
- research work

Practical skills are evaluated according to the following criteria:

- knowledge of the procedure, goals and stages of the experiment
- ability to demonstrate manual performance of the experiment
- ability to evaluate the results of the experiment and register the result
- ability to interpret the results of diagnostic methods (pathogen identification by morphology, cultural, antigenic properties, serodiagnosis of infectious diseases)
- compliance with safety regulations when working with biological material, spirit lamps, microbial cultures

Criteria of the evaluation of the knowledge and mastering the practical skills

MARK 10 The student demonstrates a systematized, deep and complete knowledge of all sections of the curriculum, is able to logically correctly and consistently answer questions, knows the terminology in English and Latin. The student is able to make generalizations and conclusions, understands the importance and possibility of applying microbiological knowledge for theoretical and clinical medicine, solves case studies, actively participates in practical classes, shows a creative approach in studying the discipline, actively works in a student scientific society at the department, and showed interest in independent study additional literature, preparation of abstracts. The student freely demonstrates the technique of immersion microscopy, is able to determine the morphology of microorganisms using a microscope, makes smears and stains them using Gram technique, quickly and accurately performs inoculation and subculture of bacteria on various types of nutrient media. The student is able to visually evaluate the characteristics of bacterial growth on nutrient media and is able to determine their biochemical activity and antimicrobial susceptibility. The student demonstrates the ability to set up and register the result of serological reactions. When performing practical skills, the student strictly follows the rules for safe work with microorganisms, alcohol lamps, biological samples. Performs practical skills quickly, accurately and without mistakes.

MARK 9 The student demonstrates a systematized, deep and complete knowledge of all sections of the curriculum, is able to logically correctly and consistently answer questions, knows the terminology in Russian (English) and Latin. The student is able to make generalizations and conclusions, understands the importance and possibility of applying microbiological knowledge for theoretical and clinical medicine, solves case studies, actively participates in practical classes. The student freely demonstrates the technique of immersion microscopy, is able to determine the morphology of microorganisms using a microscope, makes smears and stains them using Gram technique, quickly and accurately performs inoculation and subculture of bacteria on various types of nutrient media. The student is able to visually evaluate the characteristics of bacterial growth on nutrient media and is able to determine their biochemical activity and antimicrobial susceptibility. The student demonstrates the ability to set up and register the result of serological reactions. When performing practical skills, the student strictly follows the rules for safe work with microorganisms, alcohol lamps, biological samples. Performs practical skills quickly, accurately and without mistakes.

MARK 8 The student demonstrates a systematized, deep and complete knowledge of all sections of the curriculum, is able to logically correctly and consistently answer questions, knows the terminology. But make minor mistakes in the presentation of the material in the answer (inaccurate expressions, minor inaccuracies in terminology) or is not able to answer additional questions from the lecture course. The student is able to make generalizations and conclusions, understands the importance and possibility of applying microbiological knowledge for theoretical and clinical medicine, solves case studies, actively participates in practical classes. The student freely demonstrates the technique of immersion microscopy, is able to determine the morphology of microorganisms using a microscope, makes smears and stains them using Gram technique, quickly and accurately performs inoculation and subculture of bacteria on various types of nutrient media. The student is able to visually evaluate the characteristics of bacterial growth on nutrient media and is able to determine their biochemical activity and antimicrobial susceptibility. The student demonstrates the ability to set up and register the result of serological reactions. When performing practical skills, the student strictly follows the rules for safe work with microorganisms, alcohol lamps, biological samples, but practical skill is done with some inaccuracy.

MARK 7 The student demonstrates a systematized, deep and complete knowledge of all sections of the curriculum, is able to logically correctly and consistently answer questions, but the student makes minor errors in terms, insignificant mistakes in the presentation of theoretical material in the answer, or is not able to answer questions from the lecture course. The student is able to make generalizations and conclusions, understands the importance and possibility of applying microbiological knowledge for theoretical and clinical medicine, solves case studies, actively participates in practical classes. The student freely demonstrates the technique of immersion microscopy, is able to determine the morphology of microorganisms using a microscope, makes smears and stains them using Gram technique, quickly and accurately performs inoculation and subculture of bacteria on various types of nutrient media. The student is able to visually evaluate the characteristics of bacterial growth on nutrient media and is able to determine their biochemical activity and antimicrobial susceptibility. The student demonstrates the ability to set up and register the result of serological reactions. When performing practical skills, the student strictly follows the rules for safe work with microorganisms, alcohol lamps, biological samples, but practical skill was performed by irrational methods or a slight violation of the procedure / experiment.

MARK 6 The student demonstrates sufficiently complete and systematized knowledge, is able to correctly state the answers to questions, is fluent in terminology in Russian (English) and Latin, is able to make generalizations and conclusions, diligently works in practical classes, solves case studies, but makes insignificant mistakes in the answer (insufficiently thought out response plan, inaccurate definitions of concepts). When performing practical skills, the student strictly follows the rules for safe work with microorganisms, alcohol lamps, biological samples. The student demonstrates microscopy techniques and standard bacteriological techniques, but practical skill was performed by irrational methods or a slight violation of the procedure / experiment.

MARK 5 The student demonstrates sufficient knowledge of microbiology, virology, immunology, necessary for further study and work in the specialty, is able to answer questions and highlight the main points, shows satisfactory knowledge of terminology and mastering practical skills, diligently works in practical classes, but allows inconsistency in the logical presentation in the answer material, inaccurate definitions of concepts, gaps in the presentation of individual topics of the discipline.

MARK 4 The student has mastered the basic body of knowledge within the framework of the educational standard, which allows him (her) to continue his (her) studies, knows the terminology satisfactorily, reveals the ability to highlight the main thing in the answer, but allows inconsistency and fragmentation in the answers to questions, cannot define and explain some concepts, who has shown difficulty in demonstrating practical skills.

MARK 3 The student has an incomplete amount of knowledge within the framework of the educational standard, insufficient to continue his studies, shows insufficient content and logical sequence when answering questions, does not know how to highlight the main thing in the answer, demonstrates insufficient knowledge of terminology and practical work skills, and is not active in practical classes.

MARK 2 The student demonstrates fragmented knowledge, gaps in knowledge or lack of knowledge on a significant part of the curriculum material, who made gross errors in the answers, does not know the terminology, does not know how to demonstrate practical skills, violates or does not know biosafety techniques, which together does not allow continuing education.

MARK 1 The student shows a lack of knowledge within the framework of the educational standard, answers the wrong questions or refuses to answer. The criteria for assessing students' knowledge were discussed and approved at a meeting of the department on August 29, 2025, protocol No.1.

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