**Kharkiv National Medical University**

**Department of Microbiology, virology and immunology named by D. P. Grynyov**

**Educational program for training specialists of the second (master's)**

 **level of higher education 22 "Health care"**

**in specialty 222 "Medecine"**

**SYLLABUS OF THE COURSE**

**microbiology, virology and immunology**

3rdyear

|  |  |  |
| --- | --- | --- |
| The syllabus of the discipline was approved at the meeting of the departmentMicrobiology, virology and immunology named by D. P. GrynyovProtocol from “\_\_28\_\_” August 2020 № \_\_\_Head of Department \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ prof. Mishyna M.M. (signature) (surname and initials)“\_\_28 \_\_” \_ August\_\_ 2020 |  | Approved by the methodical commission of KhNMU on the problems of natural science trainingProtocol from “\_28\_” August 2020 № \_\_\_Chairman of the methodical commission of KhNMU on the problems of natural science training \_\_\_\_\_\_\_\_\_\_\_\_ prof. Nakonechna OA (signature) (surname and initials)“\_\_28 \_\_” \_ August\_\_ 2020 |

**Kharkiv 2020**

**Course title: microbiology, virology and immunology**

**Compiler of the syllabus: DM, Professor Maryna M. Mishyna**

**Contact phone and E-mail of the department:**. tel.(057) 707-73-62, kaf.7med.mikrobiolohii@knmu.edu.ua

**Consultations:** schedule and venue according to the schedule of the department.

**Online consultations**: schedule and venue by prior arrangement with the teacher.

**Location:** classes are held at the Department of Microbiology, virology and immunology named by D. P. Grynyov KhNMU, remotely - in Google Meet, Moodle, ZOOM.

Information about teachers:

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Position | Email | Zoom |
| Maryna Mishina | Professor, Head of the department | mm.mishina@knmu.edu.ua  | ID 9780243344Code: 185847 |
| Yulia Mozgova | PhD, Associate Professor | ya.mozghova@knmu.edu.ua | ID 639 134 4847Code: 954617 |
| Olena Kotsar | PhD, Associate Professor | ov.kotsar@knmu.edu.ua | ID 8545389600Code: Microbiology1# |
| Olexandra Vovk | PhD, Associate Professor | oo.vovk@knmu.edu.ua | ID 7950276795Code: 0 |
| Natalia Kovalenko | PhD, Associate Professor | ni.kovalenko@knmu.edu.ua | ID 235 322 4966Code: SPmu6B |
| Olena Kochneva | PhD, senior teacher | ov.kochnieva@knmu.edu.ua | ID 828 796 9896Code: 1234 |
| Tetiana Kovalenko | PhD, senior teacher | ti.kovalenko@knmu.edu.ua | ID 2318163423Code: 547704 |
| Natalia Popova  | PhD, senior teacher | nh.popova@knmu.edu.ua | ID 3978779610Code: 152688 |
| Evhenia Shtanyuk | PhD, teacher | ya.shtaniuk@knmu.edu.ua | ID 9543175258 Code: 1 |
| Olena Dubovyk | PhD, teacher | os.dubovyk@knmu.edu.ua | ID 2888720263Code: 673492 |
| Olena Hopta | PhD student, teacher | ov.hopta@knmu.edu.ua | ID 7947020650Code: 12345 |
| Hanna Isaieva | PhD student, teacher | ho.isaieva@knmu.edu.ua | ID 2931814435Code: 123 |
| Iryna Marchenko | PhD student, teacher | ia.marchenko@knmu.edu.ua | ID 8652384901Code: 111 |

**Discipline information**

Semester/ Stydying year: V/3

90 hours and 3 ECTS credits are allocated for the study of the academic discipline during 3rd yaer (10 hours for lectures, 50 hours for practical classes nd 30 hours for student’s independent work).

**General characteristic of the course**

The discipline "Microbiology, Virology and Immunology" studies the origin, evolution and properties of pathogenic microorganisms, the role of normal microflora of the human body, relationship between microorganisms and macroorganisms, immune system and mechanisms of immune responce to bacterial, viral, fungal and protozoan infections, diagnostic methods, manedment principles and specific profilaxis of infectious diseases.

**INFORMATION ABOUT THE DISCIPLINE**

**"MICROBIOLOGY, VIROLOGY AND IMMUNOLOGY"**

|  |  |  |
| --- | --- | --- |
| Nameindicators | Field of knowledge, direction of training, educational and qualification level | Characteristics of the academic discipline |
| full-time education |
| Number of credits - 4.5 | Educational program for training specialists of the second(master's) level of higher education training 22 "Health" | Mandatory component  |
| The total number of hours is 90 | Specialty:222 "Medecine" | **Year of preparation:** |
| 3rd |
| **Semester** |
| 5th |  |
| **Lectures** |
| Hours for day (or evening) form of study:classroom - 60independent student work - 30 | Educational and qualificationlevel:master | 10 h |  |
| **Practical classes** |
| 50 h |  |
| **Laboratory** |
| *-* | *-* |
| **Independent work** |
|  30 h |  |
| **Individual tasks:** |
| Type of control:**Exam** |

The course program determines the prerequisites for access to education, orientation and main focus of the program, the amount of ECTS credits required for a master's degree, a list of general and special (professional) competencies, normative and variable content of training, formulated in terms of learning outcomes and control requirements quality of higher education.

The department accepts qualified students of any race, national or ethnic origin, gender, age, people with special needs, any religion, sexual orientation, gender, veteran status or marital status for all rights, privileges, programs and activities, provided to university students.

Discipline page in the Moodle system

<http://31.128.79.157:8083/course/index.php?categoryid=53> .

 **Aim and tasks of studying the course**

The purpose of studying microbiology, virology and immunology is determined by the ultimate goals set on the basis of programe training for doctor in the specialty in accordance with the block of its sections (scientific training), and is the basis for building the content of the discipline. The description of goals is formulated through skills in the form of target tasks (actions). On the basis of the ultimate goals for each section, specific goals are formulated in the form of certain skills (actions), target tasks that ensure the achievement of the ultimate goal of studying the discipline.

 **Discipline status**: normative Discipline format: mixed (provides traditional forms of classroom learning in combination with elements of e-learning with support in the Moodle and Zoom system.

 **Teaching methods:**

• visual ans practical (illustration, demonstation, experiment);

• informative (presentation, video, methodical instructions, lectures);

• scientific (participation in scientific research of department)

• control (testing, situational tasks, evaluation of practical skills).

 **Recommended books:**

1. Jawetz, Melnick, & Adelberg’s Medical Microbiology, 26th Edition, 2012, English. – 880 р. – ISBN-13: 978-0071790314
2. Murray PR. Human microbiota. In: Borriello SP, Murray PR, Funke G, eds. Topley and Wilson`s Microbiology and Microbial Infections: Bacteriology. 10th edition. London: HodderArnold, 2014.
3. Murray PR. Medical microbiology / Patrick R.Murray, Ken S. Rosenthal, Michael A. Pfaller; consultant, JMI Laboratories. - 8th edition. Philadelphia: Elsevier Inc, 2016.

 **Prerequisites and co-requisites**.

The discipline "Microbiology, Virology and Immunology" are is related to such disciplines as Medical Biology, Human Anatomy, Histology, Cytology and Embryology, Latin, Pathophysiology, Pathomorphology, General Hygiene, Epidemiology, Immunology and Allergology.

 **Teaching outcomes**

Outcomes of studying the discipline "Microbiology, Virology and Immunology" the student must be able to:

- Assess the state of the microbiocenosis of the human body;

˗ Interpret the results and perform serological tests in infectious diseases of general profile;

˗ Interpret the results and conduct microbiological studies of biological fluids and secretions;

˗ Anticipate the negative effects of dangerous factors on the human body;

- Master modern methods of microbiological research in infectious diseases of general profile;

- Analyze the principles of obtaining vaccines and immune sera, methods of their standardization and control, practical use;

- Demonstrate mastery of moral and ethical principles of attitude to a living person, his body as an object of anatomical and clinical research.

**The content of the discipline**

**List of lecture topics**

|  |  |  |
| --- | --- | --- |
| № | Topic | Quantity of hours |
| **Part 4. Special, clinical and environmental microbiology** |
| 1 | Suppurative cocci (Staphylococci, Streptococci, meningococci, Gonococci). | 2 |
| 2 | Microbiological diagnosis of intestinal infections. Pathogenic enterobacteria (Escherichia, Salmonella, Shigella). Microbiological diagnosis of cholera. | 2 |
| 3 | Microbiological diagnosis of airborne infections (diphtheria and tuberculosis). | 2 |
| 4 | Microbiological diagnosis of anaerobic infections. | 2 |
| 5 | Microbiological diagnosis of treponematoses, chlamydioses, mycoplasmoses. | 2 |
| **Total (hours)** | **10** |

**List of practical classes topics**

|  |  |  |
| --- | --- | --- |
| № | Topic | Quantity of hours |
| **Part 4. Special, clinical and environmental microbiology** |
| 1 | Microbiological diagnosis of diseases caused by Gram-positive cocci. | 2 |
| 2 | Microbiological diagnosis of diseases caused by Gram negative cocci. | 2 |
| 3 | Microbiological diagnosis of diseases caused by E. coli. | 2 |
| 4 | Microbiological diagnosis of diseases caused by salmonella. | 2 |
| 5 | Microbiological diagnosis of shigellosis. | 2 |
| 6 | Microbiological diagnosis of cholera. | 2 |
| 7 | Microbiological diagnosis of Klebsiella,Proteus and Pseudomonas  infections. | 2 |
| 8 | Microbiological diagnosis of diphtheria. | 2 |
| 9 | Microbiological diagnosis of tuberculosis. | 2 |
| 10 | Microbiological diagnosis of wooping cough and Haemophilus infections. | 2 |
| 11 | **Conclusion** 3. Special microbiology (Part I). | 2 |
| 12 | Microbiological diagnosis of anaerobic infections | 2 |
| 13 | Microbiological diagnosis of plague and tularaemia. | 2 |
| 14 | Microbiological diagnosis of brucellosis. | 2 |
| 15 | Microbiological diagnosis of anthrax. | 2 |
| 16 | Microbiological diagnosis of syphilis. | 2 |
| 17 | Microbiological diagnosis of leptospirosis and relapsing fever. | 2 |
| 18 | Microbiological diagnosis of diseases, caused by Rickketsiae. | 2 |
| 19 | Microbiological diagnosis of chlamidyosis and mycoplasmosis. | 2 |
| 20 | Laboratory diagnosis of superficial and subcutaneous mycoses. | 2 |
| 21 | Laboratory diagnosis of visceral mycoses. | 2 |
| 22 | Laboratory diagnosis of opportunistic mycoses. Treatment Principles for the Management of Mycoses. | 2 |
| 23 | Sanitary microbiology. | 2 |
| 24 | Clinical microbiology. Hospital infections. | 2 |
| 25 | **Conclusion** **5. Special, clinical and environmental microbiology (Part II).** | 2 |
| **Total (hours)** | **50** |

**Individual student’s work**

|  |  |  |  |
| --- | --- | --- | --- |
| **№** | **Topic** | Quantity of hours | **Control** |
| 1 | Preparing for practical classes - theoretical training and development of practical skills | 25 | **Current on practical classes** |
| 2 | Independent elaboration of topics that are not included in the lesson plan: |  |  |
|  | Obligate anaerobic spore-forming and non-spore-forming bacteria. | 1 |  |
|  | Develop schemes for laboratory diagnosis of infectious diseases. | 1 |  |
| 4 | Preparing for conclusions | 3 |  |
|  | **Total (hours)** | **30** |  |

**POLICY AND VALUES OF THE DISCIPLINE**

In order to successfully complete the relevant course, it is necessary to regularly attend practical classes; to have theoretical preparation for practical classes according to the subject; not to be late and not to miss classes; perform all necessary tasks and work in each lesson; be able to work with a partner or in a group; contact the curators of the course on various issues on the subject of classes and receive it when you need it.

Students have the right to discuss various tasks, but their performance is strictly individual. It is not allowed to write off, use various software tools, tips, use electronic gadgets during classes for purposes other than the educational process. Students are not allowed to be late for practical classes.

Students are encouraged to participate in research and conferences on this topic.

Students with special questions can meet with the teacher or warn him before the start of classes, at the request of the student it can be done by the group leader. If you have any questions, please contact the teacher.

KhNMU provides training and work that is free from discrimination, sexual harassment, intimidation or exploitation. All students of KhNMU are protected by *the "Regulations on the Prevention, Prevention and Settlement of Cases Related to Sexual Harassment and Discrimination at Kharkiv National Medical University*", which is designed to define an effective mechanism for resolving conflict situations related to discrimination and sexual abuse.

The regulation is developed on the basis of the following normative legal acts of Ukraine: the Constitution of Ukraine; Law of Ukraine "On Education"; Law of Ukraine "On Higher Education"; Law of Ukraine "On Principles of Prevention and Counteraction of Discrimination in Ukraine"; Law of Ukraine "On Ensuring Equal Rights and Opportunities for Women and Men"; Convention for the Protection of Human Rights and Fundamental Freedoms; Convention for the Suppression of Discrimination in Education; Convention on the Elimination of All Forms of Discrimination against Women; General recommendation № 25 to paragraph 1 of Article 4 of the Convention on the Elimination of All Forms of Discrimination against Women; General Comment № 16 (2005) “Equal rights for men and women to enjoy economic, social and cultural rights” (Article 3 of the International Covenant on Economic, Social and Cultural Rights; UN Economic, Social and Cultural Rights Committee); Recommendations on education in the spirit of international understanding, cooperation and peace and education in the spirit of respect for human rights and fundamental freedoms (UNESCO); The concept of the State Social Program to ensure equal rights and opportunities for women and men for the period up to 2021.

The University recognizes the importance of confidentiality. All persons responsible for the implementation of this policy (employees of deans' offices, faculties, institutes and the Center for Gender Education, members of the student government and ethics committee, vice-rector for scientific and pedagogical work) are confidential about persons who reported or accused of discrimination or sexual harassment (except when the law requires disclosure and / or when disclosure by the University is necessary to protect the safety of others).

KhNMU creates a space of equal opportunities, free from discrimination of any national, racial or ethnic origin, sex, age, disability, religion, sexual orientation, gender, or marital status. All rights, privileges, programs and activities granted to students or staff of the University apply to all without exception, provided they are properly qualified. The anti-discrimination policy and the policy of counteracting sexual harassment of KhNMU are confirmed by the Code of Corporate Ethics and the Charter of KhNMU.

It is important for students to follow the rules of good behavior at the university. These rules are common to all, they also apply to all faculty and staff, and do not differ in principle from generally accepted norms.

**Behavior in classes**

It is important for students to follow the rules of good behavior at the university. These rules are common to all, they also apply to all faculty and staff, and are not fundamentally different from the generally accepted norms.

During classes it is allowed:

leave the audience for a short time if necessary and with the permission of the teacher;

drink soft drinks;

take photos of presentation slides;

take an active part in the class.

Forbidden:

eat;

smoking, drinking alcohol and even low-alcohol beverages or drugs;

to use obscene language or use words that offend the honor and dignity of colleagues and faculty;

gaff;

to damage the material and technical base of the university (damage inventory, equipment; furniture, walls, floors, litter the premises and territories);

shouting, shouting or listening to loud music in classrooms and even in corridors during classes.

*Plagiarism and academic integrity.* D.P. Grynyov Department of Microbiology, Virology and Immunology maintains zero tolerance for plagiarism. Students are expected to constantly raise their awareness of academic writing. On first lessons it will be provided information on what to consider plagiarism and how to properly conduct research and scientific research.

*Occupational Health.* The first lesson of the course will explain the basic principles of labor protection by conducting appropriate training. It is expected that every higher education seeker should know where the evacuation exit closest to the audience is, where the fire extinguisher is, how to use it, and so on.

The procedure for informing about changes in the syllabus: the necessary changes in the syllabus are approved by the methodical commission of KhNMU on problems of general and pre-professional training and published on the site of KhNMU, the site of the D.P. Grynyov Department of Microbiology, Virology and Immunology.

**Using of electronic gadgets**

Usingof electronic gadgets during studying is allowed without restriction except those cases when it may interfere with the ways of objective assessment of students' knowledge.

**Politics of academic integrity**

The plagiarism is unaccepted in the Kharkiv National Medical University. In turn the students are expected to master the recommended literature and original sources during preparation of assignments doing the references. The students are explained how to correctly cite the sources in the text, make references and describe them, how to search information.

**Policy for people with the special educational needs**

The studying is carried out taking into account the requirements of modern Ukrainian legislation in relation to persons with special educational needs and is regulated by the university.

**Recommendations for successful mastering the discipline**

In the process of preparation for practical classes students should study the recommended literature. Active participation during the discussion in the classroom is welcome, students should be ready to understand the material in detail, ask questions, express their point of view, discuss.

**Incentives and penalties**

According to the "Instructions for the evaluation of educational activities in the European credit-transfer system of the educational process in the KhNMU" students can increase the grade for the module by performing individual tasks (making the reports, participation in scientific conferences, competitions, preparation of reviews, etc.) in case of success gives 10 points as an incentive.

**Safety precautions**

The first lesson includes an explanation of the basic principles of labour protection. Every student should know the location of nearest evacuation exit, the fire extinguisher, how to use it, etc.

**Procedure for informing about changes in the syllabus**

The possible changes in the syllabus will be announced on the department page of the of the official website of KhNMU, in the department’s directory in Moodle, and at the dean-office

 **Evaluation system and requirements**

**Types of control.** Assessment of students is carried out in accordance with the "Instructions for assessing the educational activities of students in the European credit transfer system for the organization of the educational process in the KhNMU."

The current educational activity of students is controlled by the teacher of the academic group. After the mastering each topic the teacher marks student using a 4-point (national) system. As a result of the semester the teacher automatically receives the average grade for the current educational activity with the help of the electronic register.

**Methods of control.** The current control includes following methods: individual and frontal questioning, blitz-questioning, solving situational tasks, tests, work in groups, written assignments, presentations of individual reports.

**Forms of control.** The final control is carried out at the last lesson, might include all forms of current control and provided by the study program of the discipline. According to the results of study activities, a credit of a two-point scale ("credit" - "non credit") is given.

The average grade for the current activity is converted to the multipoint scale for the courses which studying is finished with a credit.

**Assessment of current learning activities**

When assessing the each topic of the discipline and the conclusion, the student is graded according to the traditional 4-point system: "excellent", "good", "satisfactory" or "unsatisfactory".

The final score for the current learning activity and the conclusion is defined as the arithmetic mean of the traditional grades for each class and conclusion, rounded to 2 decimal places and listed in a multi-point scale according to the standard table.

**Assessment of the conclusion lesson**

Conclusion is conducted in accordance with the curriculum of the discipline schedule, during classes.

To prepare the following materials are presented on department:

- test tasks;

- list of theoretical questions (including questions on independent work);

- list of practical skills;

- criteria for assessing the knowledge and skills of students;

- schedule of students work offs during the semester.

**Conversion of the average score for current activity into a multipoint scale**

The evaluation of the study activity is carried out according to general and professional competencies and converted into the multipoint scale.

Table 1

**Conversion of the mean arithmetic mark for the current learning activity to a multi-score scale**

**(for subjects completed by dif. credit or final exam)**

| 4-point scale | 120-points scale |  | 4-point scale | 120-points scale |
| --- | --- | --- | --- | --- |
| 5 | 120 | 3.91-3,94 | 94 |
| 4.95-4,99 | 119 | 3.87-3,9 | 93 |
| 4.91-4,94 | 118 | 3.83- 3,86 | 92 |
| 4.87-4,9 | 117 | 3.79- 3,82 | 91 |
| 4.83-4,86 | 116 | 3.74-3,78 | 90 |
| 4.79-4,82 | 115 | 3.7- 3,73 | 89 |
| 4.75-4,78 | 114 | 3.66- 3,69 | 88 |
| 4.7-4,74 | 113 | 3.62- 3,65 | 87 |
| 4.66-4,69 | 112 | 3.58-3,61 | 86 |
| 4.62-4,65 | 111 | 3.54- 3,57 | 85 |
| 4.58-4,61 | 110 | 3.49- 3,53 | 84 |
| 4.54-4,57 | 109 | 3.45-3,48 | 83 |
| 4.5-4,53 | 108 | 3.41-3,44 | 82 |
| 4.45-4,49 | 107 | 3.37-3,4 | 81 |
| 4.41-4,44 | 106 | 3.33- 3,36 | 80 |
| 4.37-4,4 | 105 | 3.29-3,32 | 79 |
| 4.33-4,36 | 104 | 3.25-3,28 | 78 |
| 4.29-4,32 | 103 | 3.21-3,24 | 77 |
| 4.25- 4,28 | 102 | 3.18-3,2 | 76 |
| 4.2- 4,24 | 101 | 3.15- 3,17 | 75 |
| 4.16- 4,19 | 100 | 3.13- 3,14 | 74 |
| 4.12- 4,15 | 99 | 3.1- 3,12 | 73 |
| 4.08- 4,11 | 98 | 3.07- 3,09 | 72 |
| 4.04- 4,07 | 97 | 3.04-3,06 | 71 |
| 3.99-4,03 | 96 | 3.0-3,03 | 70 |
| 3.95- 3,98 | 95 | Less than 3 | Not enough |

**Individual task.** Scores for individual tasks (no more than 10) are awarded to the student only by the commission of teachers (commission - head of the department, senior teacher responsible for educational process and teacher of the academic group) only if they are successfully completed and defended. After that the scores are added to the current academic achievement assessment. The total amount of points for the current academic achievement may not exceed 120 points.

**Admission to the final exam** is provided if the student has an average score for current academic achievement from 70 to 120; doesn’t have missed classes and lectures; has completed all the tests.

The final exam is given by examiners, authorised by the order of the rector of the University at the terms determined by the examination session. Final exam will be evaluated in points - from 50 to 80.

**The final exam** includes:

1. Assessment of 3 theoretical questions.

2. Assessment of 2 practical skills.

The exam in the discipline is a process during which the following is checked:

- level of theoretical knowledge;

- development of creative thinking;

- skills of independent work;

- competencies - the ability to synthesize the acquired knowledge and apply them in solving practical problems.

To prepare for the exam the following materials are presented:

- test tasks;

- list of theoretical questions (including questions on independent work);

- list of practical skills;

- criteria for assessing the knowledge and skills of students;

- schedule of students' classes during the semester;

- schedule of consultations on the discipline during the semester.

For the session, a schedule with dates of exams is set, approved by the rector of KNMU.

If the exam is not passed, the dates of repassing during the holidays are set, until the beginning of the next semester.

**Assessment of individual student tasks**

At the meeting of the department should be approved a list of individual tasks (participation in reports at student conferences, profile competitions, preparation of analytical reviews with presentations) with the definition of the number of points for their implementation, which can be added as incentives (not more than 10).

Points for individual tasks are awarded to the student only once as a commission (commission - head of the department, vice-head, group teacher) only if they are successfully completed and defended. In no case may the total amount of points exceed 120 points.

**Assessment of individual students'work**

Assimilation of topics that are submitted only for independent work is checked during the final lesson and exam.

Table 5

**Assessment of theoretical knowledge and practical skills by the points**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Number of questions | «‘5’ | «‘4’ | «‘3’ | Oral answer after exam cards that include the theoretical part of the discipline | For each answer, the student receives from 10 to 16 points, which corresponds to:‘5’- 16 points;‘4’ - 13 points;‘3’ - 10 points. |
| 1 | 116 | 113 | 110 |
| 2 | 116 | 113 | 110 |
| 3 | 116 | 113 | 110 |
| 4 | 116 | 113 | 110 |
| 5 | 116 | 113 | 110 |
|  | 880 | 665 | 550 |

If the exam is not passed, the work off dates during the holidays are set before the start of the next semester.

**Assessment of discipline.** If the course is taught over 2 or more semesters, the discipline score is defined as the arithmetic mean of the current academic achievement scores for all semesters during which the discipline is turned into a 120-point ECTS scale (Table 1), with scores obtained directly on the differential credit or examination.

The maximum number of points that a student can earn for studying a discipline - 200 points, including the maximum number of points for current academic achievement - 120 points, and the maximum number of points for the results of the differential test or examination - 80 points. The minimum number of credits is 120, including the minimum of the current academic achievement - 70 and on the results of the exam or differentiated credit - 50 points.

Assessment of the results of the study of disciplines is carried out directly during the tests, differentiated tests and exams. The discipline score is defined as the total amount of the points for the current academic achievement and exam or differentiated test and is min - 120 to max - 200. The correspondence of the scores on the 200-point scale, 4 (national) scale and ECTS scale are shown in Table 6.

Table 6

Matching scores according to 200-point scale,

four-point (national) scale and EСТS scale

|  |  |  |
| --- | --- | --- |
| Mark on 200-point scale | Mark on ECTS scale | Mark on four-point (national) scale |
| 180–200 | А | Excellent |
| 160–179 | В | Good |
| 150–159 | С | Good |
| 130–149 | D | Satisfactory |
| 120–129 | E | Satisfactory |
| Less than 120 | F, Fx | Unsatisfactory |

Assessment of the discipline is given only to students who have been given a mark for all the practical classes, tests, and exam.

Students who have not completed the curriculum requirements are given a FX score if they have been admitted to the examination but have not passed the exam. Grade F is given to students who are not allowed to take an exam.

Grades ‘FX’ or ‘F’ (‘unsatisfactory’) are given to students who have not enrolled in the discipline, the form of control of which is credit.

Head of the DP Grynyov department of

microbiology, virology and immunology,

professor M.M Mishyna