BISHKEK INTERNATIONAL MEDICAL INSTITUTE | GENERAL MEDICINE

APPROVED
EMD decision
"13" 09 2021
Protocol No. 4
Chairman of the EMC, Vice-Rector, candidate of pedagogical sciences, associate professor Apezova D.U.

SYLLABUS
by discipline

B.3.1.5. MICROBIOLOGY, VIROLOGY AND IMMUNOLOGY

For students of the educational program, of higher professional education in the specialty 560001 "General Medicine" (5-year education) in the specialty "Doctor"

Type of study work	Total hours
Course	2
Semester	2,3,4
Number of weeks	54
Credits	8
The total complexity of the discipline	240
Classroom/practical studies (PS)	144/96
Student Independent Work (SIW)	96
Forms of control	
current control	Testing, oral questioning, written test
Frontier control	Testing
Midterm	Testing
Final control	exam
Semester rating by discipline:	Point-rating system

Information about the teacher of the academic discipline

Full Name	Nurgazieva Asel Rysbekovna
Post	Teacher
Academic degree	Doctor of Biological Sciences
Academic title	docent
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Location of the department (address)	KR, Bishkek, st. Shabdan Baatyr 128, floor 2
Telephone	0555560xxx
Consultation hours	11.00-13.30

Characteristics of the academic discipline

The purpose of studying the discipline is to gain knowledge about pathogenic and conditionally pathogenic microorganisms for humans; about their structure, physiology, genetics, ecology; about the role of microorganisms in the etiology and pathogenesis of infectious diseases; about immunity as a state of a microorganism in which an infectious process develops and its changes under various influences of environmental factors; about methods of microbiological diagnostics, specific prophylaxis and therapy of infectious diseases.

Discipline Prerequisites:

- Biology with elements of ecology
- Chemistry

Postrequisites of the discipline:

• Pathological physiology
• Basic pharmacology
• Propedtherapy
• Propepediatrics
• Propedic surgery
• Outpatient therapy
• Outpatient pediatrics
• Family medicine
•Childhood diseases
• Childhood infectious diseases
• Infectious diseases

Learning outcomes of the discipline according to the RO GPP

The study of microbiology, virology and immunology will contribute to the achievement of the EHP:
RE-2: to recognize the influence of physicochemical, biological and immune properties of environmental factors (including therapeutic ones) on the development and course of the disease and on the body as a whole.
RE-3: analyze various causes (genetic, intrauterine, metabolic, toxic, microbiological, autoimmune, neoplastic, degenerative and traumatic) of disease and borderline conditions in the body.
Within the framework of this discipline, the achievement of the following learning outcomes of the discipline is expected, which are implemented as part of the achievement of PC-10.
PC-l0: able and ready to carry out preventive measures to prevent infectious, parasitic and non-communicable diseases.

Content of the discipline

№№	Name of topics
1.	Subject and tasks of microbiology. History of microbiology. Methodological foundations (Lec)
2.	Bacteriological laboratory and workplace equipment (Pr)
3.	Morphology of microbes (bacteria, protozoa, viruses, fungi, spirochetes) (Lec)
4.	Physiology of microbes. (Lec)
5.	Isolation of pure cultures of bacteria and their identification.
6.	Genetics of microorganisms.
7.	Antagonism of microbes. (Lec)
8.	Antibiotics (Pr)
9.	Bacteriophage
10.	Normal microflora of the human body and the ecology of microorganisms.
11.	Infection (SWS)
12.	Normal microflora of the human body and the ecology of microorganisms.
13.	Immunity. (Wed)
14.	Protection from non-specific factors.
15.	Immune reactions immunobiological preparations
16.	Material and research methods.
17.	Microbiological diagnosis of bacterial intestinal infections.
18.	Purulent-septic infection.
19.	Microbiological diagnostics and prevention.
20.	Airborne infections.
21.	Microbiological diagnostics of zoonotic infections (brucellosis, plague, tularemia, anthrax).
22.	Laboratory methods for diagnosing viral infections. (Pr)
23.	Acute respiratory infections. Flu.
24.	Especially dangerous viral infections
25.	Pathogenic fungi.

26.	Modern methods and achievements of biotechnology and genetic engineering.
27.	SRVI viruses - influenza, parainfluenza, atypical pneumonia, rhino-, corono-, RS-, adenoviruses. Viruses of measles, mumps.
28.	Morphology, antigens, cultivation, pathogenesis and clinical features. Principles of laboratory diagnostics
29.	Microbiological diagnosis of infections caused by influenza, parainfluenza, adenovirus, rhinovirus, coronavirus, RS virus, mumps, measles
30.	Preparations for etiotropic and specific therapy, general and specific prevention of this pathology.
31.	Enteroviruses - poliomyelitis viruses, Coxsackie, ECHO. Hepatitis viruses A,E,B,C,D.
32.	Morphology, antigens, cultivation, features pathogenesis and clinic. Principles of laboratory diagnostics, treatment and prevention.
33.	Microbiological diagnosis of infections caused by poliomyelitis viruses, Coxsackie, ECHO.
34.	Diagnosis of viral hepatitis A and E. Preparations for etiotropic and specific therapy, general and specific prevention of this pathology.
35.	HIV - human immunodeficiency virus. Morphology, antigens, cultivation, pathogenesis and clinical features. Principles of laboratory diagnostics, treatment and prevention.
36.	Microbiological diagnosis of infections caused by hepatitis B, C and D delta viruses. Microbiological diagnosis of HIV infection. Preparations for etiotropic and specific therapy, general and specific prevention of this pathology.

List of main and additional literature:

Main literature:

Karapats M. Fundamentals of microbiology, virology, immunology. Moscow: KnoRus, 2020

Additional literature:

Levinson U. Medical microbiology and immunology Author: Publisher: Laboratoriya znaniya Year: 2020.
Kochubinsky, V.V., Kanashkova, T.A., Chernoshey, D.A., Gavrilova, I.A. Microbiology, virology, immunology. BSMU, 2020.
Sboychakov V. B. Fundamentals of Microbiology, Virology, Immunology. M. 2017

Internet resources:

http//www.edu.ru
http//www.medicina.ru
http//www. infectology.ru
http //www.journals. uchicago.edu/JAD/home.html

Monitoring and evaluation of learning outcomes

The content of the rating system for assessing student performance

The rating assessment of students' knowledge in each academic discipline, regardless of its total labor intensity, is determined on a 100 (one hundred) - point scale and includes current, boundary, intermediate and final control.

The distribution of rating scores between types of control is established in the following ratio (according to the table of the score-rating system of assessments):

Form of control				
current (CC)*	boundary control (BC)**	mid-term exams (MC)***	Final /exam (FE)	Discipline Rating (RD)
0-100 points	0-100 points	0-100 points	0-100 points	0-100 points, with the translation of points into a letter designation

Note:

* ТК$(middle) = \frac{\sum_1^n \times point}{\sum_1^n}$, where n is the number of types of classroom and extracurricular work of students in the discipline;

**РК $(middle) = \frac{\sum_1^n credit \times point}{\sum_1^n credits}$, where n is the number of modules (credits) in the discipline;

***ПК $(middle) = \frac{\sum_1^n \times point}{\sum_1^n}$, where n is the number of intermediate controls (2 controls per semester: in the middle and at the end of the semester) by discipline;

****ИК – examination conducted at the end of the study of the discipline

;

*****РД = $\frac{\text{ТКср+РКср+ПКср+ИК}}{4}$, the final rating of the results of all types of control at the end of the discipline;

GPA= $\frac{\sum_1^n \times \text{балл}}{\sum_1^n}$ where, n is the number of disciplines in the semester (for the past period of study).

A student who has not passed the current, boundary and intermediate controls to the final control (exam) is not allowed.

The current control is carried out during the period of classroom and independent work of the student on time according to the schedule, at the end of the study of the discipline, the average score of the current control (CC) is calculated**.** *Forms of current control can be*:

- testing (written or computerized);
- performance of individual homework assignments, abstracts and essays;
- student's work in practical (seminar) classes;
- various types of colloquia (oral, written, combined, express, etc.);
- control of performance and verification of reporting on laboratory work;
- visiting lectures and practical (seminar, laboratory) classes;
- Incentive rating (up to 10 points).

Other forms of current monitoring of results are also possible, which are determined by the teachers of the department and recorded in the work program of the discipline.

The frontier control is carried out in order to determine the results of the student's development of one credit (module) as a whole. *Frontier control* should be carried out only in writing, at the end of the study of the discipline, the average score of boundary control (BC) is calculated. As forms *of frontier control* of the training module, you can use:

- testing (including computer testing);
- interview with written fixation of students' answers;
- test.

Other forms of intermediate control of results are also possible.

Intermediate control (mid-term exams) is carried out in order to check the completeness of knowledge and skills in the material in the middle and end of the semester (2 times per semester) of studying the discipline, by the end of the study of the discipline, the average score of intermediate control (PCsr) is calculated, *forms of intermediate control (mid-term exams) can be:*

- testing (including computer testing);
- interview with written fixation of students' answers;
- test.

Other forms of intermediate control of results are also possible.

The final control is carried out during the session, by conducting an exam, it can be carried out in the following forms:

- testing (including computer testing);
- written exam (ticketing system).

Correspondence of the point-rating system of assessments used by the institute and the assessments of the European system for the transfer of credit units, labor intensity (ECTS)

Grade						Criterion
System of letters	digital system	Traditional system	Points (%)	Scored points (max - 100)	Evaluation by discipline without an exam	
A	4	5	95-100	95-100	Credited/ passed	"Excellent" - deserves a student who has shown a deep, systematic and comprehensive knowledge of the educational material, who freely performs practical tasks, who has mastered the recommended basic and additional literature on the discipline
A-	3,67		90-94	90-94		"Excellent" - deserves a student who has shown a deep, systematic and comprehensive knowledge of the educational material, who freely performs practical tasks, who has mastered the recommended basic literature on the discipline, but is not familiar with additional literature
B+	3,33	4	85-89	70-89		"Good" - exhibited to a student who has shown a systematic and comprehensive knowledge of the educational material, able to independently replenish and update this knowledge in the course of training, performing practical tasks, familiar with the main literature on the discipline
B	3,0		80-84			"Good" is given to a student who has shown a systematic and comprehensive knowledge of the educational material, who is able to independently replenish this knowledge in the course of training, performing practical tasks, but not fully familiar with the main literature on the discipline
B-	2,67		75-79			"Good" - is given to a student who has shown the systematic nature of knowledge in the discipline, who is able to independently replenish this knowledge in the course of training, performing practical tasks, but not fully familiar with the main literature on the discipline
C+	2,33	3	70-74			"Satisfactory" - is given to a student who does not have a systematic nature of knowledge in the discipline, who is not capable of independently replenishing and updating knowledge in the course of further education, performing practical tasks with errors
C	2,0		65-69	50-69		"Satisfactory" - is given to a student who made mistakes in completing assignments, but who has the necessary knowledge to eliminate them under the guidance of a teacher
C-	1,67		60-64			"Satisfactory" - is set to a student who made errors in the performance of tasks, but who has the possible knowledge to eliminate them under the guidance of a teacher
D+	1,33		55-59			"Satisfactory" - is set to a student who made errors in the performance of tasks, who does not have the necessary knowledge to eliminate them
D-	1,0		50-54			Satisfactory" - is given to a student who has made significant errors in the performance of tasks, who does not have the necessary knowledge to eliminate them
FX	0,5	2	25-49	Less of 50	not credited/not passed	"Unsatisfactory" - is set to a student who has not completed the task, does not have the necessary knowledge to eliminate them
F	0		0-24			"Unsatisfactory" - is set to a student who has not completed the task, does not have the necessary knowledge to eliminate them, even under the guidance of a teacher

Academic achievement requirements:

Attendance by students of all classroom classes without delay is mandatory.
In case of absence, classes are worked out in the order established by the dean's office.
If there are three passes, the teacher has the right not to allow the student to attend classes until the issue is administratively resolved.
If the absence of classes is more than 20.0% of the total number of classes, the student automatically enters the summer semester.

Note to the student:

- ✓ regularly review lecture material;
- ✓ Do not be late and do not miss classes;
- ✓ work off missed classes if you have permission from the dean's office;
- ✓ Actively participate in the classroom (individually and in groups;)
- ✓ timely and fully complete homework assignments;
- ✓ submit all assignments within the time specified by the teacher;

- ✓ independently study the material in the library and at home;
- ✓ timely and accurately fulfill the tasks of the teacher, individual tasks for the IWS to achieve learning outcomes;
- ✓ to master the basic and additional literature necessary for the study of the discipline;
- ✓ performing tasks, the student should not copy or reproduce the work of other students, scientists, practitioners, plagiarism;
- ✓ develop their intellectual and oratory skills;

In case of non-compliance with the requirements of the Memo, the student will be penalized in the form of deducting points (one point for each violated item).

If the requirements of the Memo are fully met, the student is encouraged in the form of an additional 10 points to the final control in the discipline.

Academic Integrity, Conduct and Ethics Policy:

- turn off your cell phone during class;
- Be polite;
- respect other people's opinions;
- formulate objections in the correct form;
- do not shout or raise your voice in the audience;
- independently complete all semester assignments;
- Eliminate plagiarism from your practice;

Methodical instructions.

It is recommended to organize the time required to study the discipline as follows:

When preparing for a practical lesson, you must first read the abstract with the teacher's explanations.

When performing exercises, you must first understand what you want to do in the exercise, then proceed to its implementation.

Literature work. The theoretical material of the course becomes more understandable when books are studied in addition to the abstract. After studying the main topic, it is recommended to perform several exercises.

Preparation for boundary and intermediate controls. In preparation for the boundary and intermediate control, it is necessary to study the theory: the definitions of all concepts before understanding the material and independently do several exercises.

Independent work of students is organized on all studied topics of each section. Independent work is carried out in the form of:

- work in Internet sites;
- work with basic and additional literature;
- fulfillment of written assignments;
- preparation of reports, abstracts, tables and posters on