

SYLLABUS

concerning the cycle of education 2021-2027

(date range)

1.1. BASIC INFORMATION CONCERNING THIS SUBJECT / MODULE

Subject / Module	Microbiology with parasitology
Course code / module *	Mb/C
Faculty of (name of the leading direction)	Medical College of Rzeszów University
Department Name	Department of Microbiology
Field of study	medical direction
Level of education	uniform master's studies
Profile	practical
Form of study	stationary / extramural
Year and semester	year II, semester III
Type of course	Pre-clinical sciences
Coordinator	dr hab. n. med. Edyta Podsiadły
First and Last Name of the Teacher	dr hab. Edyta Podsiadły, dr Mariusz Worek, mgr Beata Malec

* - According to the resolutions of the Faculty of Medicine

1.2. Forms of classes, number of hours and ECTS

Lecture	Exercise	Conversation	Laboratory	Seminar	ZP	Practical	Self-learning	Number of points ECTS
12	21			14				5

1.3. The form of class activities

classes are in the traditional form

classes are implemented using methods and techniques of distance learning

1.4. Examination Forms / module (exam, **credit with grade** or credit without grade)

Lectures, classes, seminars - credit with grade including: student's skills, attendance, grades from partial tests

2. REQUIREMENTS

Knowledge of biology and chemistry at the extended level
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3. OBJECTIVES, OUTCOMES, AND PROGRAM CONTENT USED IN TEACHING METHODS

3.1. Objectives of this course/module

C1	Ability to classify bacteria, viruses, fungi and parasites taking into account their pathogenicity and microbiological diagnostics.
C2	Understanding the forms and mechanisms of interaction in the microbial-host system.
C3	The correct diagnosis of etiopathogenesis, epidemiology of infections.
C4	Familiarization with disinfection and sterilization processes with the concept of asepsis in the aspect of the problem of nosocomial infections.
C5	Acquainting with the possibilities of prophylaxis and treatment of infectious diseases. The correct selection of antibiotics depending on the microorganism. Teaching the principles of rational chemotherapy
C6	Knowledge of algorithms for diagnostic procedures in bacterial, viral and fungal infections and the ability to use this knowledge to commission appropriate microbiological tests
C7	Knowledge of algorithms for diagnostic procedures in parasitic infections and the ability to use this knowledge to commission appropriate parasitological tests

3.2 OUTCOMES FOR THE COURSE / MODULE (TO BE COMPLETED BY THE COORDINATOR)

EK (the effect of education)	The content of the learning effect defined for the subject (module)	Reference to directional effects (KEK)
EK_01	student classifies germs, including pathogens and is able to explain the role of bacteria present in physiological flora	C.W.12
EK_02	student knows the epidemiology of infections with viruses, bacteria, fungi and parasitic infections, taking into account the geographical range of their occurrence	C.W.13.
EK_03	knows the impact of abiotic and biotic (viruses, bacteria) environmental factors on the human body and population of people and the ways of their penetration into the human body; describes the consequences of exposure of the human body to various chemical and biological agents and principles of prophylaxis	C.W.14
EK_04	He knows the basics of disinfection, sterilization and aseptic treatment; knows the basics of epidemiology of nosocomial infections;	C.W.19
EK_05	Evaluates environmental hazards and uses basic methods to detect the presence of harmful (biological and chemical) factors in the biosphere	C.U6
EK_06	He can prepare a preparation directly from clinical and breeding material, can recognize basic microbes under a microscope	C.U.9

3.3 CONTENT CURRICULUM (filled by the coordinator)

A. Lectures

Course contents
Bacteria - the construction of bacteria. Grounds for classification. Bacterial morphology and physiology. Pathogenesis of infections. Genetics and variability of traits. Pathogenicity of microorganisms.
Antimicrobials, chemotherapeutics. Division. Group overview. Scope and mechanisms of action. Mechanisms of antimicrobial resistance to antibiotics. Rules for the use of antimicrobial agents
Hospital infections. Epidemiological investigation. Microbial typing methods. Prophylaxis of infections. Organization of infections and etiological factors. Disinfection and sterilization
Virology - virus construction. Grounds for classification. Pathogenesis of infections. Antiviral drugs. prions
Fungal infections - the construction of mushrooms. Grounds for classification. Pathogenesis of infections. Diagnostic methods. Antifungal drugs.

B. Exercises

Course contents of the exercises
Ex. 1 (3 h) - Ziarenkowce Gram positive, oxygen blasts. Systematics. Reservoir, sources and routes of infection. Pathogenicity. Mechanisms and pathogens. Diagnostics. Treatment. Prevention.
Ex. 2 (3 h) - Gram-negative sticks. Systematics. Reservoir, sources and routes of infection. Pathogenicity. Mechanisms and pathogens. Diagnostics. Treatment. Prevention.
Ex. 3 (3 h) - Anaerobes. Systematics. Reservoir, sources and routes of infection. Pathogenicity. Mechanisms and pathogens. Diagnostics. Treatment. Prevention.
Ex. 4 (3 h) - Diagnostics of infections caused by mycobacteria and actinomycetes. Diagnosis of infections caused by dermatophytes
Ex. 5 (3 h) - Mechanisms of bacterial resistance to antibiotics
Ex. 6 (3 h) - Virology - Methods of breeding. Serological tests. The principles of laboratory diagnosis of viral infections. Selected pathogens for humans and diseases caused by them
Ex. 7 (3 h) - Fungal infections - etiological factors. Diagnostic methods

C. Seminars

Course contents of the seminar
Sem. 1 (2 h) - Review of pathogenic and conditionally pathogenic bacteria for humans.

Rules for downloading and sending material for microbiological tests. Physiological microflora, carriage, colonization, infection.
Sem. 2 (2 h) - Division of antimicrobial drugs. Basics of infectious immunology. Basic definitions. Anti-infective defense mechanisms
Sem. 3 (2 h) - Effect of chemical compounds and physical factors on the biological properties of microorganisms. Disinfection and sterilization, the influence of factors on their course. Review of disinfectants and antiseptics: mechanism of action. Microbial resistance to disinfectants.
Sem.4 (2 h) - The problem of mycobacterial infections. Tuberculosis - epidemiology, drug resistance Actinomyces, Nocardia
Sem.5 (2 h) - Human pathogenic viruses: DNA viruses
Sem. 6 (2 h) - Human pathogenic viruses: RNA viruses

3.4 TEACHING METHODS

Lecture: Lecture with multimedia presentation

Laboratory exercises: Analysis of laboratory tasks concerning selected medical cases with discussion. Practical tasks related to the implementation of microbiological diagnostics. Work in groups. Performing practical tasks. Interpretation of exemplary test reports.

Seminars: Student presentations. Short problem lectures with discussion.

4 METHODS AND EVALUATION CRITERIA

4.1 Methods of verification of learning outcomes

Symbol of effect	Methods of assessment of learning outcomes (Eg.: tests, oral exams, written exams, project reports, observations during classes)	Form of classes
EK_01 -05	Oral colloquium I Written colloquium II Written colloquium III	Lectures, Exercise, Seminars
EK_06	Practical pass	Exercise

4.2 Conditions for completing the course (evaluation criteria)

<p>Exercises, seminars:</p> <p>a) full participation and activity in exercises</p> <p>b) partial written exams and passing the pre-test</p> <p>Range of ratings: 2.0 - 5.0</p> <p>Lectures: Credit based on attendance. Exam after one-year course - test pass (100 questions) with closed, open and multiple-choice questions:</p> <p>A: Questions in the field of messages to remember;</p>

B: Questions in the field of speech to understand;

C: Solving a typical written task;

D: Solving a non-standard written task.

Duration of the test 100 minutes.

Seminar: Credit based on an average of 3 tests and activity and preparation for classes (three plus = 5, two plus = 4, one plus = 3, no plus = 2). The final semester is the average of the grades obtained (semester III - 3 marks, semester IV - 2 marks). In the case of an unsatisfactory grade from the colloquium, the student has the right to one correction term. It is assessed at the end of the semester by means of a comprehensive and final colloquium. In the case of failing a partial colloquium, the student is assessed at the end of the semester by means of a final and final colloquium. The student has the right to two comprehensive retake tests. In the case of receiving a negative grade, the student has the right to apply to the Dean for the commission colloquium. In order to verify the student's preparation for the seminar, the lecturer may do a preliminary test from previous and current classes, counted as "+" or "-". The resulting +/- are included in the final assessment as exercise activity.

Exercises: The condition for receiving the credit for laboratory exercises is to describe the results together with the conclusions in the positively evaluated report. Passing the report is a necessary condition allowing for the next exercises. The final mark of the exercises is the average of the partial marks, i.e. from: 6 tests and the average grade from 15 reports from the exercises. The student has the right to one repetition period for each of the 6 tests. In the case of failing a partial colloquium, the student is assessed at the end of the semester by means of a final and final colloquium. The student has the right to two comprehensive tests. In the case of not receiving a positive grade, the student has the right to apply to the Dean with a request for a commission colloquium.

Examination: The condition for admission to the exam is a positive grade from the seminar, laboratory exercises (both semesters) and laboratory exercises (both semesters) and credit from lectures (based on attendance)

Students have two exam dates: the first and the second term.

The final grade is the grade from the exam.

Knowledge assessment:

Written test

5.0 - has knowledge of each of the education content at the level of 93% -100%

4.5 - has knowledge of each of the content of education at the level of 85% -92%

4.0 - has knowledge of each of the education content at the level of 77% -84%

3.5 - has knowledge of each of the content of education at the level of 69% -76%

3.0 - has knowledge of each of the content of education at the level of 60% -68%

2.0 - has knowledge of each of the contents of education below 60%
Skill assessment
5.0 - the student actively participates in classes, recognizes and is able to properly name biological phenomena in the human body, and to assess the microbiological regularities of the functioning of the human body. Skillfully uses basic laboratory techniques,
4.5 - the student actively participates in the classes, with little help from the teacher recognizes and is able to properly name biological phenomena in the human body, and to assess the microbiological regularities of the functioning of the human body. He uses basic techniques well
4.0 - the student actively participates in classes, with minor corrections of the teacher, committing minor mistakes in the recognition of microbial phenomena in the human body. He uses laboratory techniques well
3.5 - the student participates in classes, with numerous corrections and teacher's instructions recognizes and is able to correctly name microbiological phenomena in the human body, often making mistakes while using laboratory techniques
2.0 - the student passively participates in classes, commits blatant errors in the diagnosis and proper naming of microbiological phenomena, unskilfully uses laboratory techniques, committing many errors many times

5. Total student workload required to achieve the desired result in hours and ECTS credits

Activity	Hours / student work
Hours of classes according to plan with the teacher	47
Preparation for classes	50
Participation in the consultations	-
The time to write a paper / essay	8
Preparation for tests	40
Participation in colloquia	-
Other (e-learning)	-
SUM OF HOURS	145
TOTAL NUMBER OF ECTS	5

6. TRAINING PRACTICES IN THE SUBJECT / MODUL

Number of hours	-
Rules and forms of apprenticeship	-

6. LITERATURE

READING:

1. Heczko PB, Wróblewska M, Pietrzyk A. Mikrobiologia Lekarska. PZWL,2014
2. Dzierżanowska D. Antybiotykoterapia praktyczna. Alfa Medica Press, Bielsko-Biała 2009.
3. Kadłubowski R., Kurnatowska A. (red.):Zarys parazytologii lekarskiej. Wydawnictwo Lekarskie PZWL, 1999, Warszawa

Additional literature:

1. Murray PR, Rosenthal KS, Pfaller MA: Mikrobiologia. Elsevier Urban and Partner, Wrocław, 2011
2. Szewczyk EM: Diagnostyka bakteriologiczna. PWN, Warszawa, 2013
3. Buczek A. Choroby pasożytnicze Epidemiologia, diagnostyka, objawy. Koliber, Lublin 2010
4. Stępień-Rukasz H., Rzymowska J., Kołodziej P., Lorencowicz R.: Diagnostyka wybranych inwazji pasożytniczych przewodu pokarmowego człowieka,- Krajowa Izba Diagnostów Laboratoryjnych, MedPharm Polska, 2016, Wrocław

Acceptance Unit Manager or authorized person