

Program of Study : General Medicine
Course : Microbiology 1
Abbreviation : MIK/VAB11
Schedule : 30 hours of lectures
 30 hours of exercises
Course Distribution : 2nd year, 4th semester
Number of Credits : 3
Course Form : Lectures, exercises

Lectures :

Teachers : prof. MUDr. Milan Kolář, Ph.D.
 doc. MUDr. Petr Hamal, Ph.D.
 Mgr. Pavel Sauer, Ph.D.
 doc. Vladislav Raclavský, Ph.D.

Study : Continuous

	Date	Subject	No. of Less.	Teacher
1	14.2.2022	Characterization of prokaryotic cells. Inner structures in bacteria.	2	prof. Kolář
2	21.2.2022	Surface structures in bacteria. Spores.	2	prof. Kolář
3	28.2.2022	Growth and reproduction of bacteria.	2	prof. Kolář
4	7.3.2022	Bacterial metabolism and enzymes.	2	doc. Raclavský
5	14.3.2022	Bacterial pathogenicity and virulence.	2	prof. Kolář
6	21.3.2022	Exotoxins and endotoxins.	2	prof. Kolář
7	28.3.2022	Antimicrobial agents – classification.	2	prof. Kolář
8	4.4.2022	Resistance of microbes to antibiotics (mechanisms and spreading).	2	prof. Kolář
9	11.4.2022	Appropriate antibiotic therapy.	2	prof. Kolář
10	18.4.2022	State holiday.		
11	25.4.2022	Bacterial genetics. Mutation. Gene transfer. Lysogenic conversion. Plasmids. Transposons.	2	Mgr. Sauer
12	2.5.2022	Microbial ecology. Microorganisms in healthy human body.	2	prof. Kolář
13	9.5.2022	Antigens. Active immunization. Antibodies. Passive immunization.	2	doc. Hamal
14	16.5.2022	Classification of viruses. Principles of virus structure. Replication of viruses.	2	prof. Kolář
15	23.5.2022	Sterilization and disinfection.	2	doc. Hamal

Exercises :**Leading Teacher :** prof. MUDr. Milan Kolář, Ph.D.**Study :** Continuous

	Date	Subject	No. of Less.
1	17.-18.2.2022	Principles of health protection and safety rules in the microbiology laboratory. The aims of the clinical microbiology laboratory. Principal microbiological procedures. Collection, handling and transport of clinical specimen.	2
2	24.-25.2.2022	Microscopic techniques for diagnosis of infection. Native preparation. Bright field microscopy. Dark field microscopy. Motility of microbes and its observation.	2
3	3.-4.3.2022	Microscopy with an immersion objective. Monochromatic staining. Gram's staining. Form, size and arrangement of microbes.	2
4	10.-11.3.2022	Staining of acid-fast microbes (according to Ziehl-Neelsen). Laboratory diagnosis of tuberculosis. Staining of microbial capsules (according to Burri). Staining of microbial spores (according to Wirtz-Conklin).	2
5	17.-18.3.2022	Staining according to Giemsa. Microbial vaginal pictures. Laboratory diagnosis of genital tract infections.	2
6	24.-25.3.2022	Cultivation of bacteria: Identification of microorganisms growing in aerobic culture 1 st part.	2
7	31.3.-1.4.2022	Cultivation of bacteria: Identification of microorganisms growing in aerobic culture 2 nd part.	2
8	7.-8.4.2022	Cultivation of bacteria: Identification of microorganisms growing in anaerobic culture.	2
9	14.-15.4.2022	State holiday.	
10	21.-22.4.2022	Determination of bacterial resistance to antibiotics - first part. Disk susceptibility test, E-test. Determination of antibiotic activity in combinations, assay for beta-lactamases.	2
11	28.-29.4.2022	Determination of bacterial resistance to antibiotics -second part. Standard dilution micromethod – MIC method, MBC. Drug monitoring, guidelines for antibiotic use. Video: The misuse of a miracle.	2
12	5.-6.5.2022	Serology – 1 st part: Agglutination and its modifications, Widal reaction.	2
13	12.-13.5.2022	Serology – 2 nd part: ELISA (enzyme-linked immunoassay), immunofluorescence.	2
14	19.-20.5.2022	Serology 3 rd part: the complement fixation test.	2
15	26.-27.5.2022	Differential microbiological diagnosis of most important bacterial species.	2

Completed by : Credit.

Requirements : Presence in practical trainings, one absence tolerated at the most, it's possible substitute up to one third of practical trainings.
Individual preparation for each practical training is obligatory.

Basic literature :

1. Medical Microbiology: with student consult access (Medical Microbiology) (Paperback 2005) by Patrick R. Murray et al. (available at www.Amazon.com)
2. Koukalová D. et al.: Microbiology I, UP v Olomouci, 2002

Alternative literature :

3. Medical Microbiology (Paperback 2004) by Cedric A. Mims (Editor), (available at www.Amazon.com)