

Program of Study : Dentistry
Course : Microbiology 1
Abbreviation : MIK/ZAB11
Schedule : 15 hours of lectures
 30 hours of exercises
Course Distribution : 2nd year, 4th semester
Number of Credits : 0
Course Form : Lectures, exercises

Lectures :

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

Study : Continuous

	Date	Subject	No. of Less.	Teacher
1	17.2.2023	Characterization of prokaryotic cells. Inner structures in bacteria.	1	prof. Kolář
2	17.2.2023	Surface structures in bacteria. Spores.	1	prof. Kolář
3	3.3.2023	Growth and reproduction of bacteria.	1	prof. Kolář
4	3.3.2023	Bacterial pathogenicity and virulence.	1	prof. Kolář
5	17.3.2023	Bacterial metabolism and enzymes.	1	doc. Hamal
6	17.3.2023	Exotoxins and endotoxins.	1	doc. Hamal
7	31.3.2023	Bacterial genetics. Mutation.	1	Mgr. Sauer
8	31.3.2023	Gene transfer. Lysogenic conversion. Plasmids. Transposons.	1	Mgr. Sauer
9	14.4.2023	Resistance of microbes to antibiotics (mechanisms and spreading).	1	prof. Kolář
10	14.4.2023	Antimicrobial agents – classification.	1	prof. Kolář
11	28.4.2023	Antigens. Active immunization.	1	doc. Hamal
12	28.4.2023	Antibodies. Passive immunization.	1	doc. Hamal
13	12.5.2023	Sterilization and disinfection.	1	doc. Hamal
14	12.5.2023	Endogenic infections. Nosocomial infections.	1	doc. Hamal
15	26.5.2023	Classification of viruses. Principles of virus structure. Replication of viruses.	1	prof. Kolář

Exercises :**Leading Teacher :** doc. MUDr. Petr Hamal, Ph.D.**Study :** Continuous

	Date	Subject	No. of Less.
1	17.2.2023	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	24.2.2023	Microscopic techniques for diagnosis of infection. Native preparation. Bright field microscopy. Dark field microscopy. Motility of microbes and its observation.	2
3	3.3.2023	Microscopy with an immersion objective. Monochromatic staining. Gram's staining. Form, size and arrangement of microbes.	2
4	10.3.2023	Staining of acid-fast microbes (according to Ziehl-Neelsen). Laboratory diagnosis of tuberculosis.	2
5	17.3.2023	Staining of microbial capsules (according to Burri). Staining of microbial spores (according to Wirtz-Conklin).	2
6	24.3.2023	Cultivation of bacteria: Identification of microorganisms growing in aerobic culture.	2
7	31.3.2023	Cultivation of bacteria: Identification of microorganisms growing in anaerobic culture.	2
8	7.4.2023	State Holiday.	
9	14.4.2023	Determination of bacterial resistance to antibiotics- first part: disk susceptibility test, E-test.	2
10	21.4.2023	Determination of bacterial resistance to antibiotics – second part: standard dilution micromethod – MIC, MBC. Drug monitoring, guidelines for antibiotic use. Video: The misuse of a miracle.	2
11	28.4.2023	Serology – 1 st part: Agglutination and its modifications.	2
12	5.5.2023	Serology – 2 nd part: ELISA (enzyme-linked immunoassay).	2
13	12.5.2023	Serology – 3 rd part: The complement fixation test.	2
14	19.5.2023	Molecular-biology methods in medical microbiology.	2
15	26.5.2023	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)