

Study Programme : MSc in Biology			
Degree level: Master degree			
Course Title: Antimicrobial agents			
Professor: Maja Karaman, Jelica Simeunovic			
Required/Elective Course: elective			
Number of ECTS: 7			
Prerequisites:			
Course Objective: The aim of this course is to introduce students with types of antimicrobial agents, the mechanisms of their actions, and the importance of their use in reduction of the number of microorganisms and in prevention of the microbial growth in different environment.			
Course Outcome: After successfully realization of exam prerequisites and examination obligations student can: <ul style="list-style-type: none"> - gain knowledge about the importance of the use of different antimicrobial agents (disinfectants, antiseptics and hemoterapeutics); - to distinguish and correctly apply basic laboratory skills for the establishment of antiseptic conditions in the laboratory and to prevent contamination of axenic cultures of microorganisms; - to use proper techniques for manipulation with antimicrobial agents. 			
Course Content: <i>Theoretical part</i> (1) introduction to the types of antimicrobial agents (2) physical methods to control microbial growth in different environments (water, air, soil) (3) different chemical agents and their use (disinfectants and antiseptics) (4) the most important groups of conventional antibiotics (5) agents of natural origin (microorganisms, plants, animals) with antimicrobial action (6) methods of testing sensitivity of microorganisms to antimicrobial agents. <i>Practical part</i> Laboratory exercises include techniques of application of certain physical (temperature, UV, etc) and chemical methods in controlling the growth of microorganisms (impact of heavy metals, disinfectants, antiseptics etc.) and susceptibility testing of microorganisms to antimicrobial agents.			
Reading List: <ol style="list-style-type: none"> 1. Barry A.L., Craig W.A., Nadler H., Reller L.B., Sanders Ch.C., Swenson J.M. (1999): Methods for determining bactericidal activity of antimicrobial agents; approved guideline.NCCLS, Wayne, USA. 2. Madigan M.T., Martinko J.M., Parker J.: Brock Biology of Microorganisms, 11th Edition, 2006, Prentice Hall. (odabrana poglavlja) 3. Brown A.E.: Benson's microbiological application, 2005, McGrow-Hill Companies, New York (odabrana poglavlja) 4. Norrel S.A. and Messley K.E. (1997): Microbiology, Laboratory manual, principles and applications Prentice-Hall, Inc. Simon and Schuster, Viacom company, New Jersey. 			
Total hours:			
Lectures: 2	Practicals: 2	Other:	Student research work:5
Methods of instruction: Lecture using Power Point presentation on the video beam, practical laboratory work			
Assessment (maximum number of points 100)			
Requirements	points	Final exam	points
Active participation in lectures	5	Practical exam	20
Active participation in practicals	25	Oral exam	40
Test(s) or			
Pre-exam testing	10		
Remark:			