

Study Programme : MSc in Biology			
Degree level: Master degree			
Course Title: Pathogenic microorganisms			
Professor: Petar Knezevic, Maja Karaman			
Required/Elective Course: elective			
Number of ECTS: 7			
Prerequisites:			
Course Objective: The aim of this course is to familiarize students with biology, methods of isolation, cultivation, characterization and identification of microorganisms that cause diseases of humans, animals, plants and other organisms.			
Course Outcome: Students will be able to identify appropriate groups of microorganisms that cause various diseases, to isolate, detect, identify and type them. They will also be able to properly handle pathogenic microorganisms that are used as model organisms in the different surveys.			
Course Content: <i>Theoretical part</i> The relationship of microorganisms and other organisms. The concept of pathogenicity and Koch's postulates. Microbial virulence factors (adherence, invasiveness and toxicity). The interaction of microorganisms with host and antigenic characteristics of pathogenic microorganisms. Bacteria pathogenic to humans and animals homeotherms: Gram-positive cocci, Gram positive rods and acid-fast resistant bacteria; Gram-negative cocci and rods, helical and obligatory anaerobic bacteria, bacteria without cell walls and obligate intracellular parasites. Fungi pathogenic to humans and animals. Animal and human viruses. Phytopathogenic microorganisms. Microorganisms pathogenic to poikilothermic vertebrates, invertebrates and other organisms. Reservoirs of pathogenic microorganisms, transmission and vectors. Classical and contemporary methods for detection, identification and typing of pathogens. Methods for control of pathogenic microorganisms and the phenomenon of resistance to antimicrobial agents. <i>Practical part</i> Specificity of microbiological laboratories designed for work with pathogens and levels of protection. Introduction to the isolation and cultivation of pathogenic microorganisms. Morphological, physiological and cultural characterization of pathogenic microorganisms. Classical and contemporary methods for detection and identification of pathogenic microorganisms. Molecular methods of characterization of pathogenic bacteria. Detection of β -lactamase production by pathogenic bacteria.			
Reading List:			
<ol style="list-style-type: none"> 1. Pitt, T. L., Simpson, A. J. H. (2006): Principles and Practice of Clinical Bacteriology. Ed. Gillespie, S. H., Hawkey, P. M. Drugo izdanje, John Wiley & Sons, Ltd. 2. Arsenijević, M. (1997) Bakterioze biljaka. III izmenjeno i dopunjeno izdanje., Sprint, Novi Sad 3. Vera Jerant Patic (2007) <i>Virusologija</i>, Ortomedics, Novi Sad. 4. Džavec, E., Melnik, J., Adelberg, E. (1998): Medicinska mikrobiologija. Savremena Administracija Beograd. 			
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	30	Oral exam	20
Test(s) or	15		
Pre-exam testing	10		
Remark:			