

Study Programme: BSc in Ecology/MSc Biology Teacher
Course Unit Title: General Microbiology
Course Unit Code: OE013/OPB009
Name of Lecturer(s): Full Professor Dragan Radnović, Associate Professor Jelica Simeunović
Type and Level of Studies: Bachelor degree
Course Status (compulsory/elective): Compulsory
Semester (winter/summer): Winter/summer
Language of instruction: English
Mode of course unit delivery (face-to-face/distance learning): Face-to-face
Number of ECTS Allocated: 5
Prerequisites: None
Course Aims: Understanding the functional structure, genetics and metabolism of microorganisms in order to understand their diversity, importance to man and their role in natural ecosystems.
Learning Outcomes: After successfully completed the pre-examination and examination commitments student can: <ul style="list-style-type: none"> - understand the morphology, the basic principles about the microbial growth, the main metabolic pathways and the major strategies of obtaining energy of different groups of microorganisms - understand taxonomy and differentiate main groups of prokaryotic organisms and viruses - getting acquainted with medically important microorganisms including mechanisms of their pathogenicity - understand the basic principles of applied microbiology - correctly apply the basic principles important for work in the microbiological laboratory.
Syllabus: <i>Theory</i> In this course, students learn basic facts about microorganisms through the following lectures: Brief history of microbiology and its relationship with other scientific disciplines; Comparative review of morphology, functional structure and reproduction of prokaryotic organisms; bacteria, archaea, actinomycetes, cyanobacteria, viruses; Microbial nutrition, Reproduction, genetics and metabolism; Criteria for classification of microorganisms, review of main a group of prokaryotes; General characteristics of viruses, viroids and prions; Microbial mechanisms of pathogenicity; Nonspecific and specific defenses of the host; Bacteria as causative agents of human diseases, a survey of commonly used antibacterial antibiotics; Brief introduction to the ecology of microorganisms; Basic principles of biotechnology and short review of application of microorganisms in industry and environmental protection. <i>Practice</i> Laboratory exercises provide students skills and tools that enable them to explore a vast microbial world. They learn how to handle cultures in such a way that they are not contaminated. This involves learning aseptic techniques and practicing preventive safety measures. Working with the microscopes. Practicing preparation and sterilization of microbiological media and cultivation of microorganisms. Understanding the morphology of microorganisms using simple and Gram staining. Determination of number of cultivable bacteria from the water on different microbiological media. Isolation and cultivation of bacteria and determination of their cultural characteristics using different bacteriological media.
Required Reading: <ol style="list-style-type: none"> 1. Tortora, G., Funke, B., Case, C. (2007): Microbiology. 9th Edition. Pearson International Edition. ISBN 0321396022 2. Joanne M. Willey, Linda M. Sherwood, Christopher J. Woolverton (2009): Prescott's Principles of Microbiology

Weekly Contact Hours: 15	Lectures: 45	Practical work: 30
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Teaching Methods:

Lectures and students group work

Knowledge Assessment (maximum of 100 points): 100

Pre-exam obligations	points	Final exam	points
Active class participation	2	practical exam	22
Tests: I - IV	36	oral exam	40
Preliminary exam(s)	-	
Seminar(s)	-		

The methods of knowledge assessment may differ; the table presents only some of the options: written exam, oral exam, project presentation, seminars, etc.