Study Programme : Graduate Professor of Biology

Degree level: Bachelor degree

Course Title: **GENERAL MICROBIOLOGY**

Professor: Dragan Radnovicy, full prof., Jelica Simeunovicy, associate prof.

Required/Elective Course: Required Course

Number of ECTS: 5

Prerequisites: none

Course Objective: Understanding the functional structure and metabolism of microorganisms in order to understand their diversity, importance to man**.**

Course Outcome: After successfully completed the pre-examination and examination commitments student can:
- 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 organisms.
- Differentiate main groups of prokaryotic organisms and viruses
- Understand the basic principles of applied microbiology
- Correctly apply the basic principles important for work in the microbiological laboratory

Course Content:

Theoretical part

Theorethical part of the course include comprehensive overview of the biology of microorganisms, with emphasis on bacteria. In this course, students learn basic facts about microorganisms through the following lectures: Brief history of microbiology; Morphology, functional structure and reproduction of prokaryotic organisms; bacteria, cyanobacteria, actinomycetes, 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 deseases, 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.

Practical part

Laboratory exercises provide students skills and tools that enable them to explore a 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. Isolation and cultivation of bacteria and determination of their cultural characteristics using different bacteriological media.

Reading List:

1.Petrović, O., Knežević P., Simeunović, J. (2007): Microbiology. Script - WUS Austria, Novi Sad (In Serbian)
2. Simic, D. (1988) Microbiology 1, Naucna knjiga, Beograd. (In Serbian)
3. Gajin S., Matavulj, M., Gantar, M. (1987): Fundamentals of Microbiology, Lower plants and Fungi, Laboratory Manual, Faculty of Science, University of Novi Sad, Novi Sad. (In Serbian)
4. Markov, S. (2012): General Microbiology. Textbook for the students of Faculty of Technology. Faculty of Technology, Novi Sad University. (In Serbian).

Additional reading (in English):

Tortora, G., Funke, B., Case, C. (2007): Microbiology. 9th Edition. Pearson International Edition. ISBN 0321396022

Total hours:				
Lectures: 3	Practicals: 2	Other: -	Student research work:	-

Methods of instruction:

Assessment (maximum number of points 100)

Requirements	**points**	**Final exam**	**points**
Active participation in lectures	2	Practical exam	22
Active participation in practicals	-	Oral exam	40
Test(s) or	36		
Pre-exam testing	-		

Remark: