

Study Programme: Biotechnology, Food engineering, Pharmaceutical engineering, Chemical engineering		
Course Unit Title: Microbiology		
Course Unit Code: ZO209		
Name of Lecturer(s): Associate professor Dragoljub Cvetković, Assistant professor Aleksandra Ranitović		
Type and Level of Studies: Undergraduate academic studies		
Course Status (compulsory/elective): Compulsory		
Semester (winter/summer): Summer		
Language of instruction: English		
Mode of course unit delivery (face-to-face/distance learning): Face-to-face		
Number of ECTS Allocated: 7		
Prerequisites: No		
Course Aims: Acquisition of basic scientific and academic abilities and skills in the field of microbiology, understanding of the general microbiological dogma, importance of certain groups of microorganisms and effects of physiological and ecological factors on the cell of prokaryotes and eukaryotes.		
Learning Outcomes: Understanding of the general microbiological dogma, the role and importance of groups of microorganisms, effects of ecological factors on the viability and the vitality of prokaryotes and eukaryotes, as well as on the physiological processes in them.		
Syllabus: <i>Theory</i> Review of the history of microbiology and groups of microorganisms. Methods of testing of microorganisms. The scope and definition of microbiology - organisms and the environment, microbiological disciplines and concepts of classification of microorganisms. The basis of cytology: definition, morphology, chemical composition, physical and chemical properties, vital processes in the cell. Eukaryotic cell, membrane systems and cell wall. Algae, protozoa, fungi. Prokaryotic cells, membrane systems and cell wall. Gram positive and negative bacteria, cyanobacteria, archaeobacteria, mycoplasmas. General terms of physiology, ecology, genetics and taxonomy of microorganisms. Metabolism and cell energy. The growth of organisms and populations. Abiotic and biotic factors. Community of microorganisms. Basics of heredity and variability of microorganisms. Fundamentals of mutation. <i>Practice</i> Laboratory practice in the field of microscopy, the preparation of culture media, procedure with microbiological materials and isolation of the microorganisms and the manipulation of the cultures – obtaining pure culture; introduction all major groups of microorganisms - algae, protozoa, fungi and bacteria; basic physiological and environmental tests for bacteria and yeasts.		
Required Reading: 1. Tortora, G.J., Funke, B.R., Case C.L. (2004): Microbiology, an Introduction, 8th ed., Pearson Benjamin Cummings, San Francisco – Toronto 2. K.P.Talaro (2009): Foundations in Microbiology, seventh edition, McGraw-Hill, New York		
Weekly Contact Hours: 6	Lectures: 3	Practical work: 3

Teaching Methods:

Lectures and students group work

Knowledge Assessment (maximum of 100 points):

Pre-exam obligations	points	Final exam	points
Active class participation	5	written exam	-
Practical work	25	oral exam	30
Preliminary exam(s)	40	
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.