Course Information Sheet

University: *University of Prešov in Prešov*	
Faculty: *Faculty of humanities and natural sciences*	
Code: *2EKO/MIKEK/22*	**Title of Course: Microbial Ecology**
Form of Study: *Lectures, practical lessons* **Number of contact hours:** *2 hours lectures/1 hour practical lessons per week* **per week:** *1/2* **per level/semester:** *20 lectures, 10 practical lessons, 90 hours of self-study*	
Number of credits: *4*	
Semester: *1st year/summer semester*	
Degree/Level: *1. (bachelor) degree*	
Prerequisities: -	
Grading Policy (Assessment/Evaluation): *ongoing evaluation, active participation in lectures and laboratory practices* *credit evaluated based on final test:* *a) A - 100,00 – 90,00 %* *b) B - 89,99 – 80,00 %* *c) C - 79,99 – 70,00 %* *d) D - 69,99 – 60,00 %* *e) E - 59,99 – 50,00 %* *f) FX - 49,99 and less %*	
Aims and Objectives: *The student has basic knowledge of general microbiology and microbial ecology. He/She can define the position of these sciences in the system of natural sciences, theoretical aspects and their practical application. The student is able to define basic concepts in the field of microbial ecology, knows the basic division of microorganisms at different levels, knows the basic knowledge about acellular, prokaryotic and eukaryotic organisms, their important groups and ecological relationships. He/She can define the role of microorganisms in the cycles of substances and energy flow in the ecosystem, their use in various industries and master basic microbiological techniques, which includes familiarity with molecular techniques used in microbial ecology.*	
Syllabus/Indicative Content: *1. Historical milestones in microbiology, basic properties of biological systems* *2. Microbiology as a science - its definition, division, the subject of its research* *3. Substance composition of microorganisms - inorganic, low molecular weight organic substances, high molecular weight biopolymers* *4. Basic division of microorganisms. Acellular organisms - viruses, viroids, prions* *5. Prokaryotic organisms - their division, prokaryotic cell structure, shape of bacteria, Actinomycetes, basic systematics of Bacteria, Archeons – ecology and their use* *6. Ecology of Bacteria - relation to various environmental factors, pathogenicity, virulence and its factors, extremophiles* *7. Eukaryotic organisms - their distribution, eukaryotic cell structure, basic systematics* *8. Micromycetes – definition and taxonomy* *9. Distribution of microorganisms according to the method of obtaining nutrients and energy* *10. Systematics of microorganisms - Gram positive and Gram negative bacteria, important and interesting species* *11. The role of microorganisms in the transformation of substances - the cycle of carbon, nitrogen, sulphur, etc.* *12. Relationships of organisms in the ecosystem - microbiocenoses of air, soil, water, bodies of organisms; mycorrhiza. Microbiome - definition, methods and significance of its study* *13. Microorganisms and their use in biotechnology, bioremediation, medicine, pharmacology (examples, methods, species, etc.)*	
Suggested readings:	

COLEMAN-CROSSLEY JR.: Fundamental of Soil Ecology, San Diego: Academic Press, 1996.
MARTIN ALEXANDER: Microbial Ecology, New York : John Wiley and Sons, 1971.
MARTIN ALEXANDER: Biodegradation and bioremediation. San Diego: Academic Press, 1994.
MICHAEL MADIGAN, JOHN MARTINKO, DAVID STAHL, DAVID CLARK: Brock Biology of Microorganisms. 2012

Language of Instruction:
Slovak

Other course information:

Grading history

A	B	C	D	E	FX

Uvádza sa percentuálny podiel hodnotených študentov, ktorí získali po zapísaní predmetu hodnotenie A, B, ... FX. Celkový súčet a, b, c, d, e, f je 100. Ak študent v jednom roku získal FX a po ďalšom zapísaní predmetu hodnotenie D, zohľadnia sa obe jeho hodnotenia.

Lecturer/Instructor:
Ing. Lenka Bobuľská, PhD.

Last update: 9. mája 2022

Approved by: