

Study program: Chemistry			
Type and level of studies: Undergraduate academic studies (UAS)			
Course unit: B140 Fundamentals of Ecology			
Teacher in charge: Snezana B. Pesic, PhD			
Language of instruction: English			
ECTS: 5			
Prerequisites: /			
Semester: Summer			
Course unit objective Formation of a basic general knowledge base on the principles of functioning of natural ecological systems and understanding of the consequences of human actions on nature.			
Learning outcomes of Course unit The trained expert who through the lectures, colloquiums, tasks and practical instruction acquired the necessary general education ecological knowledge and skills.			
Course unit contents <i>Theoretical classes:</i> INTRODUCTION: Research area, definition, history and development of ecology. Relationships with chemistry and other natural and social sciences. Basic ecological terminology. Why Earth has a life? Evolution and diversity of living beings on Earth. Ecological niche and life form. Ecological factors. POPULATION ECOLOGY (DEMECOLOGY): Definition of the population. Formal and functional elements of the structure of the population. BIOCEANOLOGY: Biocenosis. Phytocenosis. Zoocenosis. ECOSYSTEMOLOGY: Ecosystem metabolism. Biomes, biocoenoses and biocycles (sea, fresh waters and land). BIOSPHEROLOGY: Biosphere. Biogeography – areal, flora, vegetation and fauna. PROTECTION AND IMPROVEMENT OF THE ENVIRONMENT: Anthropogenic impacts on the living beings (this chapter is partly handled through homework). Pollutants. Urbanization. Industrialization. Agrarization. Waste. Ionized radiation. Detection of soil, air and water quality and bioindicators. Red Books. Ecology and environmental protection is not the same. <i>Practical classes:</i> <i>Exercises in the laboratory.</i> 1-4. Life forms and the ecological niche of some plants and freshwater fishes (brown trout, bullhead, spined loach, barbel, pike, carp, catfish) - realization partially by work in the "Aquarium" of the Faculty. 5. Thermocline - theoretical processing and laboratory demonstration. 6-7. Environmental temperature and behavior of poikilothermic organisms (experiment with <i>Drosophila melanogaster</i> flies). 8-9. The growth of mixed protozoa population in limited conditions (setting and commenting on the experiment). <i>Field exercises with material processing in the laboratory.</i> 10. Creation of a phytocoenological table (field). 11-12. Soil as environment (field and laboratory). 13-15. Lake and stream as environments (terrain and laboratory).			
Literature - Botkin DB, Keller EA. (2010): Environmental Science – Earth as Living Planet. Seventh edition. International student version. Wiley. - Brodskii AK. (2001): Kratkii kurs obshchei ekologii. Uchebnoe posobie. Izdanie 5-oe. DEAN, St. Peterburg. (in Russian) - Chapman JL & Reiss MJ. (2003): Ecology – Principles and Applications. Second edition. Cambridge University Press. - Cotgreave P & Forseth I. (2002): Introductory Ecology. Blackwell Science. - Pešić S. (2011): The Fundamentals of Ecology. Faculty of Natural Sciences and Mathematics, Kragujevac. (in Serbian) - Stankovic S. (1961): Animal Ecology. Institute for publishing textbooks, Belgrade. (in Serbian) - Veljović, V. (1982): Ecology and geography of plants. "Svetlost", Kragujevac. (in Serbian) - Various other printed and electronic sources			
Number of active teaching hours			Other classes:
Lectures: 30	Practice: 30	Other forms of classes:	
Teaching methods Power-point presentations and dialogue, practical work in the laboratory and in the field, in the group and individual			
Examination methods (maximum 100 points)			
Exam prerequisites	No. of points	Final exam	No. of points
Activity during the lectures	5	Written examination	-
Practical classes	10	Oral examination	30
Tests/colloquiums	45 (3x15)	Other	
Homework	10		
Grading system			
Grade	No. of points	Description	
10	>= 91	Excellent	
9	81-90	Exceptionally good	
8	71-80	Very good	
7	61-70	Good	
6	51-60	Passing	
5	<=50	Failing	