

Study Programme : BSc in Ecology			
Degree level: Bachelor degree			
Course Title: Ecotoxicology			
Professor: Ivana Teodorovic			
Elective Course			
Number of ECTS: 6			
Prerequisites: -			
Course Objective: Providing an overview of the wide range of different toxic pollutants, their environmental fate, behaviour and mode-of-action on individual, population and ecosystem level.			
Course Outcome: Successful students will gain basic information on the most important ecotoxicological postulates and principles, fate, behaviour, toxicokinetics and toxicodynamics of the range of the most common toxic pollutants and will be skilled to independently conduct toxicity test on selected battery of standardized laboratory species, to process and analyse results using software packages and interpret data.			
Course Content:			
<i>Theoretical part</i> Scope, aims, basic terms, principles and postulates in ecotoxicology. Methods used in ecotoxicology: In vivo, in vitro tests, acute and chronic toxicity tests, laboratory tests, micro and mesocosms systems. Sublethal effects. Biomarkers. Statistical analysis, data processing and analysis using selected software packages. Regulatory aspect of aquatic toxicology. Basic toxicokinetics. Basic steps in toxicodynamics, mode – of – action and environmental fate of heavy metals, PAHs, PCBs, PCDD/Fs, pesticides. Ecological factors affecting bioavailability, toxicity and environmental fate of toxic pollutants in aquatic ecosystems. Introduction to regulatory ecotoxicology.			
<i>Practical part</i> Laboratory culturing of standard test organisms. Acute toxicity tests using microorganisms (<i>Vibrio fischeri</i> , <i>Pseudomonas putida</i>), invertebrates (<i>Daphnia magna</i> , <i>Folsomia sp</i> , <i>Synella sp.</i>) and fish (<i>Danio rerio</i>). Chronic toxicity testing: algae and higher plants assay (<i>Lemna minor</i> , <i>Myriophyllum aquaticum</i>). Selected in vitro assays commonly applied in ecotoxicological research. Statistical analysis, data processing (specific softwares) and data interpretation.			
Reading List:			
1. Teodorovic, I. Kaišarević, S. (2015) Ekotoksikologija. Univerzitet u Novom Sadu, Prirodno-matematički fakultet.			
2. Teodorovic, I., Mauric N. (2003): TesTox, ver. 1.0, software			
3. Hoffman, D.J., Rattner, B.A., Burton, G.A. Jr., Cairns, J. Jr. (eds.) (2002): Handbook of Ecotoxicology. CRC Press, Lewis Publishers, Boca Raton, Florida, USA. (selected chapters, e-book available)			
Total hours:			
Lectures: 2	Practicals: 2	Other:	Student research work:5
Methods of instruction:			
Lectures, practical exercises, laboratory demonstrations, computing exercises, database and software practice, homework – essays and presentations			
Assessment (maximum number of points 100)			
Requirements	points	Final exam	points
Active participation in lectures	5	Written exam	50
Active participation in practicals	5	Oral exam	
Essay	10		
Pre-exam testing	30		
Remark: Oral exam possible instead of written exam on request			