

Study Programme: PhD in Ecology
Course Unit Title: Water quality monitoring using freshwater macroinvertebrates
Course Unit Code: DNE015
Name of Lecturer(s): Dr. Tamara Jurca
Type and Level of Studies: PhD studies
Course Status (compulsory/elective): elective
Semester (winter/summer): winter or summer
Language of instruction: english
Mode of course unit delivery (face-to-face/distance learning): face-to-face
Number of ECTS Allocated: 15
Prerequisites: students is obliged to have passed the course Hydrobiology
<p>Course Aims:</p> <p>The course is focusing on the potential of littoral and profundal communities of aquatic macroinvertebrates as bioindicators in monitoring of freshwater ecosystems.</p>
<p>Learning Outcomes:</p> <p>After the course students should be capable of identifying the most common species of aquatic macroinvertebrates, able to successfully analyse the results of the ecological status assessments (according to the Water Framework Directive) and use indicator systems (saprobic, diversity and multimetric indices) in water quality assessments.</p>
<p>Syllabus:</p> <p><i>Theory</i></p> <p>History of the role of macroinvertebrates in biomonitoring. Freshwater invertebrates as bioindicators. Mechanisms of effects of ecological factors on macroinvertebrates communities. Identification of freshwater macroinvertebrates for purposes of ecological explorations. Data analysis and results discussion. Rapid assessment of the ecological status and biological aspect of water quality. Macroinvertebrates as model organisms in toxicity tests. Paleoreconstruction using the macroinvertebrates.</p> <p><i>Practice</i></p> <p>Laboratory practice would aim for students to differentiate the major taxonomic groups of aquatic macroinvertebrates.</p>
<p>Required Reading:</p> <p>Rosenberg, D.M. & Resh, V.H. (1993) Freshwater Biomonitoring and Benthic Macroinvertebrates, Chapman and Hall, London.</p> <p>Wright, J., Sutcliffe, D. & Furse, M. (1997) Assessing the biological quality of freshwaters. RIVPACS and other techniques. FBA, Ambleside, Cumbria, UK.</p> <p>Karr, J. & Chu, E. (1999) Restoring Life in Running Waters: Better Biological Monitoring. Island Press, Washington, D.C.</p> <p>Elliot, J. (1971) Some methods for the statistical analysis of samples of benthic invertebrates. Sci. Publ. 25. Freshwater Biological Association, Ambleside, Westmorland, U.K</p> <p>Loeb, S. & Spacie, A. (1993) Biological Monitoring of Aquatic Systems. Lewis Publishers</p>

Weekly Contact Hours:	Lectures:2	Practical work: 2	
Teaching Methods: Lectures - oral presentation using pptand video bim, practical part – identification of samples collected in the field using standard methods.			
Knowledge Assessment (maximum of 100 points):			
Pre-exam obligations	points	Final exam	points
Active class participation		written exam	50
Practical work		oral exam	
Preliminary exam(s)	50	
student research project			
The methods of knowledge assessment may differ; the table presents only some of the options: written exam, oral exam, project presentation, seminars, etc.			