

Study program: Faculty of Environmental protection			
Type and level of study: Doctoral academic studies			
Course Title: ENVIRONMENTAL MODELING			
Teacher(s) Igor Kuzmanovski			
Status: OBLIGATORY, II semester			
ECTS: 15			
Prerequisite: None			
The goal of the course: Theoretical and practical knowledge in the field of modeling processes in the environment. Special emphasis will be on learning the latest software packages and modelovanje simulation.			
The outcome of the subject: Students will be able to apply their knowledge in the field of process modeling environment environment on independent projects, which will allow them to be practical and able to Analysis and interpretation of data from numerous faced analysts Environment.			
Syllabus: <i>Theoretical study –</i> Methods of collecting data and data analyses. Learning how to describe the data and their theoretical distributions. Methods of hypotheses testing on large and small samples. Nonparametric and parametric methods. Analysis of intragroup and intergroup relations. Multi-criteria analysis. Classification and ordination methods. Indirect gradient analysis (linear value-based methods: Principal component analysis (PCA), unimodal value-based methods: Correspondence Analysis (CA), Detrended correspondence analysis (DCA). Direct gradient analysis (linear value-based: Redundancy analysis (RDA) and unimodal value-based; Canonical correspondence Analysis (CCA), Detrended Canonical Correspondence Analysis (DCCA). Modeling of global climate change. Modeling of surface processes. Modeling of surface and groundwater. <i>Practical classes – Case studies</i>			
Literature: Kovacic, J., Z., 1994. Multivarijantna analiza, Ekonomski Fakultet, Beograd. Digby, P. G. N, and R. A. Kempton, 1987. Multivariate Analysis of Ecological Communities. Chapman and Hall, 206 p. Gauch, H. G. Jr., 1982. Multivariate Analysis in Community Ecology. Cambridge University Press, 298. Jongman, R. H. G., C. J. F. ter Braak, and O. F. R. van Tongeren, 1987. Data Analysis in Community and Landscape Ecology. Pudov, 299 p.			
Number of lectures:			Other Classes
Lectures: 2	Practices:	Other forms of teaching:	
Student research work: 8			
Teaching methods: Lectures, consultations, individual work.			
Pre-commitments	Poens	The final exam	Poens
Activity during lectures	10	Written exam	40
Practical classes		Oral examination	
Colloquia			
Seminars	50		
<i>Total</i>	60		40