

(Table 5.2) Course unit description

Study program : BIOLOGY			
Type and level of studies: Master studies of Biology			
Course unit: Applied algology			
Teacher in charge : Snežana B. Simić, Ph.D.			
Language of instruction: English			
ECTS: 6			
Prerequisites: /			
Semester: Winter semester			
Course unit objective The aim of the course is to point out the multiple significance of algae and possibilities of exploiting them by people in different areas of life (environmental, industry, food and aquaculture).			
Learning outcomes of Course unit The outcome of the course is to gain basic knowledge about the application of algae in various fields, as well as mastery of basic skills, methods and techniques of applied algology			
Course unit contents <i>Theoretical classes</i> Applied algology (Phycology): definition and significance. History of development of algae and cyanobacteria biotechnology. Collections of algal cultures. The mass cultivation of algae. Cultivation of damaged soil. Bioremediation of contaminated soils (phycoremediation and cyanoremediation). Wastewater treatment with microalgae and cyanobacteria. Microalgae and cyanobacteria - alternative energy sources. Production of various commercial compounds from algae biomass. The importance of algae in the diet of humans and animals. The importance of algae in agroecosystems. Algae in the manufacture of biologically active compounds. Pharmaceutical and medical significance of algae. The use of algae in cosmetics. Ecological models of systems - biotechnological applications of microalgae and cyanobacteria. Use of algae and cyanobacteria environmental assessment. Invasive species. Cyanobacterial toxins. Algae in aquariums and fishponds- influence of physical and chemical factor to development algae. Control of nuisance algae. <i>Practical classes</i> Algae determination. Microscopy, optical microscopes, preparations for microscopy and making durable preparations. Measuring. Photomicrography. Use of algae in medical and cosmetic purposes (preparations from market). Sampling and assessing algal assemblages for environmental assessment. Algae in aquariums - influence of physical and chemical factor to development algae. Investigation and detection of cyanobacterial toxins. Methods prevention uncontrolled development of algae in aquariums.			
Literature E.W. Becker (1994): Microalgae biotechnology and microbiology, Cambridge University Press, Cambridge. pp 293. Wehr J. and Sheath R. (2003): Freshwater Algae of North America. Ecology and Classification. Academic Press. 913. Chorus I., Bartram, J. (1999): Toxic Cyanobacteria in Water: A guide to their public health consequences, monitoring and management. WHO. Bela Csanyi, Jarmila Makovinska, Momir Paunovic, Jovanka Ignjatovic, Peter Balazi, Jaroslav Slobodnik (2010): Manual for biological monitoring of rivers and lakes/reservoirs in B&H. "Agency for watershed of Adriatic Sea " Mostar.80pp.			
Number of active teaching hours			Other classes
Lectures: 3	Practice: 2	Other forms of classes: Consultation (mentoring system) Independent work: 0	
Teaching methods Consultation, power-point presentations, Internet use, seminars, field and laboratory practice			
Examination methods (maximum 100 points)			
Exam prerequisites	No. of points:	Final exam	No. of points:
		oral examination	20

practical classes		written examination/tests	50
Seminars/homework	30	
Project			
Other	-		
Grading system			
Grade	No. of points	Description	
10	91-100	Excellent	
9	81-90	Exceptionally good	
8	71-80	Very good	
7	61-70	Good	
6	51-60	Passing	
5	0-51	Failing	