

Study Programme: Phytomedicine
Course Unit Title: Aquatic Ecosystems
Course Unit Code: 19.FT2021
Name of Lecturer(s): Ljiljana Nikolić, Full Professor, Aleksandra Ignjatović Čupina, Full Professor
Type and Level of Studies: Undergraduate academic studies, first level
Course Status (compulsory/elective): Elective
Semester (winter/summer): Winter
Language of instruction: Serbian, optionally English
Mode of course unit delivery (face-to-face/distance learning): Face-to-face
Number of ECTS Allocated: 6
Prerequisites: Botany, Agricultural zoology with ecology
<p>Course Aims:</p> <p>Acquiring necessary knowledge related to the characteristics of aquatic ecosystems, the importance and role of plants and animals and their respond to environmental conditions and water quality. Acquiring skills for assessment of the impact of abiotic and biotic factors on water eutrophication and succession directions of aquatic ecosystems. Determination of aquatic organisms of importance for agriculture, veterinary medicine and medicine.</p>
<p>Learning Outcomes:</p> <p>Acquired knowledge enable students to independently consider the various positive and negative impacts of plant and animal populations on aquatic ecosystems, as well as on the functioning of the biosphere in general.</p>
<p>Syllabus:</p> <p><i>Theory</i></p> <p>Types of aquatic ecosystems. Characteristics of freshwater ecosystems, natural and artificial aquatic ecosystems. Physical and chemical properties of water, water movement, daily and seasonal temperature changes, water chemistry and gas regime. Zonation of aquatic ecosystems, vertical and horizontal distribution of life forms. Trophicity of aquatic ecosystems. Sources of pollution. Saprobity, determination of the degree of pollution based on the composition of biocenoses. General characteristics of hydrophytes (morphology and division). Dominant hydrophytes in aquatic ecosystems. Methods of studying aquatic flora and vegetation. Bioindication ecology (ecological indices). Positive and negative effects of aquatic vascular macrophytes. Possibilities of application of aquatic vascular macrophytes in the process of water purification. Fauna of aquatic ecosystems, stagnant and running waters. Aquatic entomofauna: Hydracarina, Crustaceae, Insecta. Adaptations of aquatic entomofauna: diets and mouthparts, ways of movement and positioning, respiration. Indicators of clean water and the degree of water pollution. Aquatic organisms vectors of human and animal diseases.</p> <p><i>Practice</i></p> <p>Morphological and anatomical characteristics of hydrophytes. Ecological indices and their application in phytoindication. Morphology, adaptations and identification of aquatic arthropods. Methods of collecting and conserving samples.</p>
<p>Required Reading:</p> <ul style="list-style-type: none"> • McCafferty, W. Patrick (1981): Aquatic Entomology. Jones and Bartlett Publishers, Inc. Portola Valley • Lancaster J., Briers R. A. (2008): Aquatic Insects: Challenges to Populations. Proceedings of the Royal Entomological Society's 24th Symposium. CAB International • Šovljanski, R., Konstantinović, B., Klokočar-Šmit, Z. (eds.) (2003): Akvatični korovi, suzbijanje i posledice (Aquatic weeds, control and consequences). Poljoprivredni fakultet u Novom Sadu, JVP "Vode Vojvodine" Novi Sad.(in Serbian) • Nikolić, Lj. (2005): Biljni svet i primarna produkcija – indikatori eutrofizacije u jezeru Provala. (Flora and primary production - indicators of eutrophication in Lake Provala) Zadužbina Andrejević, Biblioteka Dissertatio, Beograd (in Serbian) • Stojanović, S., Lazić, D., Knežević, A., Nikolić, Lj., Škorić, M., Kilibarda, P., Mišković, M., Bugarski, R. (2007): Flora i vegetacija OKM HS DTD u Bačkoj. (Flora and vegetation of the main canal network (OKM) of Danube-

Tisza-Danube Hydrosystem (HS DTD) on the territory of Bačka) Faculty of Agriculture, University of Novi Sad, Public Water Management Company „Vode Vojvodine“, Novi Sad (in Serbian)

- Grginčević, M., Pujin, V. (1998): Hidrobiologija, priručnik za studente i posleddiplomce (Hydrobiology, handbook for students and postgraduates). Ekološki pokret grada Novog Sada. Novi Sad (in Serbian)

Weekly Contact Hours: 3

Lectures: 1

Practical work: 2

Teaching Methods:

Theoretical teaching: oral, textual and demonstrative-illustrative methods; Lessons are given in form of presentations on the computer and other didactic tools. Practical classes: visual demonstrations in the laboratory; Individual work of students on collections implies species identification by the use identification keys and binocular microscopes.

Knowledge Assessment (maximum of 100 points):

Pre-exam obligations	points	Final exam	points
Active class participation	5	written exam	10
Practical work	5	oral exam	50
Preliminary exam(s)	20	
Seminar(s)	10		

The methods of knowledge assessment may differ; the table presents only some of the options: written exam, oral exam, project presentation, seminars, etc.