Study Programme: Ph.D. of Ecology

Degree level: Doctoral degree

Course Title: Physiological Plant Ecology

Professor: Slobodanka Pajević, Nataša Nikolić

Required/Elective Course: Elective

Number of ECTS: 15

Prerequisites:

Course Objective: The primary objective of the course is developing and understanding relationship between individual plants and the abiotic and biotic components of their environment. The course will focus on how plants function in their natural environment, how plants tolerate stress, what options are available to avoid stress, how plants acquire and allocate resources, and to what extent physiological characteristics enhance ecological success.

Course Outcome: Lectures will familiarize students with physiological capacities of plants in different ecological conditions and prepare students to apply concepts and tools of plant physiology to today's complex environmental research questions.

Course Content:

Theoretical part

Abiotic and biotic factors in physiological mechanisms of plant growth and development. Physiological response of plants to water environment. Plant responses to hypoxia and anoxic stress - symptoms and metabolic adaptation. Plants and extreme temperatures in environment - adaptation on cell level. Drought low temperatures. CO_2 fixation in different ecological conditions: C_3, C_4 and CAM plants. Photosynthetical and nonphotosynthetical plant responses to light. Photoperiod, photomorphogenesis. Nutrient cycling in ecosystems. Eutrophication and pollution of freshwater ecosystems. Plant nutrition and plant responses to different ions. Osmotic regulation in plants. Ecophysiology of N2-fixing systems: symbiotic associations plants and bacteria, plants and blue green algae. Allelopaty. Pollution and plants.

Practical part

Seminar work

Reading List:

Larcher, W. (2003) Physiological Plant Ecology. Springer, ISBN 3540435166, p. 513
Pugnaire, F.I., Valladares, F. (1999) Handbook of Functional Plant Ecology. CRC Press, p. 920
Lambers, H., Pons, T.L., Chapin, F.S. (1998) Plant Physiological Ecology, Springer
Scientific papers

Total hours:				
Lectures: 2	Practicals: 0+2	Other:	Student research work:	

Methods of instruction: Theoretical lectures, tutorial work, consultations, seminar writing

Assessment (maximum number of points 100)

Requirements: Activities on lectures 10
Test 50
Seminar work 40

Remark: