Course Unit Descriptor

Study Programme: Crop science

Course Unit Title: Agroecology

Course Unit Code: 3ORT3O09

Name of Lecturer(s): Prof. dr Srđan Šeremešić

Type and Level of Studies: Undergraduate studies

Course Status (compulsory/elective): Mandatory

Semester (winter/summer): Winter

Language of instruction: English

Mode of course unit delivery (face-to-face/distance learning): Face-to-face

Number of ECTS Allocated: 6

Prerequisites: None

Course Aims:

The aim of this subject is to introduce students with the components of the agroecosystem and their interactions. Knowledge gained in this course will allow students to understand the natural processes which underlie the practices of crop production and determine the formation and pathways of ecological components in the agroecosytems.

Learning Outcomes:

Students should learn to identify the specific elements of the agroecosystems, understand their role, which will enable them to analyze and understand the problems that can arise in the process of food production. By attending this subject student will gain knowledge how to efficiently manage cropping system to achieve sustainability in the semi-arid environment.

Syllabus:

Theory

Crop production as a part of the agricultural production. The aim of Agroecology, agriculture in light of Agroecology. Production of organic matter and the factors that influence its formation. Biosphere, agrosphere, agricultural biotopes, agrobiocenosis, biological balance, development of agro-biocenosis. The vegetative factors, function, ecological valence, amplitude of crop adjustment. Climate as a factor of crop growth, leaf area, day length, photoperiodism. The effect of temperature on the growth and development of plants, the cardinal temperature points, net primary productivity, agricultural assessment of climate. Water as an ecological and productive factor, the air humidity, the occurrence of drought. Land vegetation as a factor, anthropogenic soil, the balance of humus in soil, porosity, buffering capacity of the soil, chemical and biological properties of the soil, soil structure. Crop as a factor of production, man as a factor of production, physiographic factors. Agricultural zoning of Serbia and Vojvodina. Laws of yield formation.

Practice

The sunlight as a vegetation factor. Heat as vegetation factor, calculation of the mean daily temperature, effective temperature, temperature sum, vernalization. Water as a factor of vegetation, water balance in crop production, calculation of the air-dry crop yield. Agricultural evaluation of the climate, climatograms. Soil vegetation as a factor. Anthropogenic soil. Soil quality. Agricultural zoning.

Required Reading:

1. Miguel Altieri. Agroecology: The Science of Sustainable Agriculture. Westview Press. 1995
2. Stefan R. Gliessman: Agroecology: Ecological processes in sustainable agriculture. CRC Press. 1997
3. Frencis C. et al. Agroecology: The Ecology of Food Systems. Jurnal of Sustainable Agriculture. 2003
4. Adel El Titi. Soil Tillage in Agroecosystems. CRC Press. 2002

Weekly Contact Hours:	**Lectures:** 3	**Practical work:** 2

Teaching Methods:

Lectures, Practical classes, Consultations and Seminars.

Knowledge Assessment (maximum of 100 points):

Pre-exam obligations	points	**Final exam**	points
Active class participation	5	Practical classes oral exam	30
Test	20	oral exam	45
Preliminary exam(s)		…….	
Seminar(s)			

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