

# **Ecosystem Biology**

## **(Nataša Smolar-Žvanut, Ph.D., Assist. Prof.)**

**Subject code:** EB

**Academic year:** 1.

**Lectures:** 30

**Tutorials:** 30

**ECTS:** 6

### **Aims of the course:**

The students will acquire the basics of biology, research methods in biology and ecological characteristics of ecosystems. The subject deals with basic structural, functional and energy features of terrestrial and aquatic eco-systems, it explains their expansion and the meaning for the human. The students will acquire the role and significance of preserving ecological balance in the nature. Within the subject, the emphasis will be on acquiring and understanding living conditions and processes in ecosystems, knowledge about energy flow and circulation of the substance, response of organisms to abiotic and biotic factors, environmental limits. They will learn about the relations in group organisms and a trophic organisation of ecosystems.

The emphasis will be put on understanding ecological relations in ecosystems, self-cleaning and eco-remediation processes, knowing the consequences of anthropogenic effects on natural environment as well as on understanding of changed processes in ecosystems affected by pollution. Ecosystems are treated from the perspective of being threatened by global climate change and effects of exploitation of natural resources.

Knowledge of basic biological processes will enable the students a deeper insight into a wider range of protection and preservation of environment, identification and problem solving when sanitation of degraded ecosystems. An overview of those problems is completed with several cases of anthropogenic effects on ecosystems and knowledge of their problem-solving shown in individual cases. The students will get acquainted with the Slovene and European legislation in all the areas related to protection and preservation of environment.

### **Subject content:**

Biology and its importance, diversity of life, what is ecology, ecological factors, ecosystems - structure and function, ecosystems - circulation of matter and energy flow, diversity of ecosystems, ecology of terrestrial systems, ecology of aquatic ecosystems, primary production, secondary production, pollution of environment, protection and restoration of ecosystems, overview of the Slovene and European legislation in the field of protection and preservation of environment.

### **Teaching methods:**

lectures, field work and seminar work

### **Study obligations:**

written examination, seminar work and field work

### **Basic literature**

- Tarman K., 1992. Osnove ekologije in ekologija živali (*Basics of Ecology and Animal Ecology*), DZS.
- Wetzel R.G. 2001. Limnology, Lake and River Ecosystem.
- Smith R.L./T.M. Smith, 2001. Ecology and Field Biology, Addison Wesley Longman: Benjamin Cummings
- Okvirna Direktiva o vodah (*Frame Directive on Waters*), 2000.

#### **Additional literature**

- Susan L. Woodward, 2003. Biomes of Earth: Terrestrial, Aquatic, and Human-Dominated
- Begon M./ Harper J.L./ Townsend, C.R., 2006: Ecology: from Individuals to Ecosystems, Blackwell Publishing
- Calow, P. / Petts, G. E., 1995. The Rivers Handbook Hydrological and Ecological Principles, Blackwell Scientific Publications, Oxford.