



## COURSE DATASHEET

<b>Semester:</b>	2013/14/1
<b>Course:</b>	Biological Basis of Environmental Engineering
<b>Code:</b>	VEMKKVB143A
<b>Responsible department:</b>	Department of Limnology
<b>Department code:</b>	MKLI
<b>Responsible instructor:</b>	Dr. Judit Padisák

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### Course objectives:

The aim of the course is to provide the basic biological knowledge relevant for environmental sciences.

### Course content:

1. Introduction, the basic features of life. Biology of the animal and plant cells. 2. Genetic information, chromosomes, the cell cycle, cell differentiation. 3. Body plans in multicellular organisms. Ontogeny in multicellular organisms. Sexual and asexual reproduction. 4. The types and properties of animal and plant tissues. Organs of plants. 5. The characteristics of neurons and sensory cell, and their functioning. 6. Metabolism in plants and animals. Autotrophy, heterotrophy, photosynthesis. 7. Evolutionary theory. Species concepts. The basic elements of systematics and taxonomy. 8. Viruses, bacteria, fungi. 9. Mosses, ferns, gymnosperms and angiosperms. 10. The basics of comparative animal anatomy. Integument, skeletal system, feeding and digestion in different types of animals. 11. Metabolism and excretion in different types of animals. 12. Gas exchange and the circulatory system in aquatic and terrestrial animals. 13. Homeostasis and neuroendocrine regulation. Hormones. 14. The evolution and types of the nervous system. 15. The functions of the brain. Higher mental processes.

### Requirements, evaluation and grading:

During the exam students have 20-25 minutes to explain their exam topics. Evaluation: Mark 1 (unacceptable): the student is unable to provide a brief outline of the topic and unfamiliar with the definitions of basic ideas. Mark 2: the student is able to understand the basic ideas of the course. Mark 3: the student is able to understand the basic ideas of the course, and can discuss the basic logical structure of his/her exam topic with some help from the teacher. Mark 4: the student is able to discuss logically all important knowledge of his/her exam topic, but unfamiliar with the relevant literature. Mark 5 (excellent): the student is able to discuss logically and in detail all important knowledge of his/her exam topic, and familiar with the relevant literature.

### Required and recommended readings:

SH Atlasz Biológia. Budapest, 1992. Springer Vg. Berend M, Gömöry A., Szerényi G: Biológia I-IV. Akadémia Kiadó. Donáth T: Anatómia, élettan. Medicina Kiadó