CONSERVATION BIOLOGY, UNDERGRADUATE STUDY PROGRAMME

COURSE DESCRIPTIONS

Course name: **INTRODUCTION TO MICROBIOLOGY**

Number of ECTS credits: **3**

Content:

Students become acquainted with microbiology as a scientific discipline and a profession. At the same time students learn the basic principles of scientific thinking, and identification and evaluation of the new knowledge.

The course is divided into the following sections:

- Introduction to microbiology and its historical development.
- Microbial groups and their basic characteristics (structure and cell function).
- Microbial metabolism and growth.
- Molecular biology and gene expression in microorganisms (archaea, bacteria, eukaryotes).
- Introduction to virology, microbial genetics and genomics.
- Introduction to microbial ecology.

Course name: **PLANT PHYSIOLOGY**

Number of ECTS credits: **6**

Content:

The course is based on acquiring knowledge on plant physiology with an emphasis on biochemical, physical and genetic principles of most important life processes of plants. Within the course the effects of biotic and abiotic environmental factors on plant physiology and stress are discussed. The course is also set to lead students to understand the structure and function, and regulation of processes relevant to morphogenesis, growth and development. The students acquire knowledge on the transport of water and minerals through the plant, the carbon metabolism in plants and other physiological processes in plants. The subject contents include the latest research findings and concepts in plant physiology.

Course name: **ANIMAL PHYSIOLOGY**

Number of ECTS credits: **6**

Content:

Astounding diversity of animal species on the planet includes a wide variety of their adaptations which they use to cope with the challenges of their environment. Despite their diversity, all animals, from simplest Protista on one side, to vertebrates on the other, they are all relying on similar principles and mechanisms of actions. All animals must maintain a stable internal environment, obtain the necessary nutrients from the outside, eliminate waste products, find a way to exchange gases and detect happenings in their surroundings and respond appropriately to them. Competencies that students will acquire in this course relate to the question of how physiological processes occur in animals, what have all these processes in common and what are the differences among animal species. Students will also be acquainted with the physiological basis of complex processes such as thinking, behaviour and relationships between the animals and their surroundings. Such knowledge is essential both in terms of general science education, and from the standpoint of understanding of the biodiversity. Students will learn some of the methods used in researches of the animal physiology and compare their usefulness in different animal species. Because the animal physiology is largely interdisciplinary study, students will develop the ability to connect it with other natural science (chemistry, physics), and they will able to observe processes in nature.

Course name: **WATER ECOSYSTEMS**

Number of ECTS credits: **6**

Content:

The aim of the course is to provide the basics of limnology and representation of biodiversity in marine and freshwater ecosystems. The imporatnce of water ecosystems for a human being is also explained, including his interactions with these habitats. The course provides the principles and rules of limnology, with stress upon ecology and its biodiversity.
Furthermore, the concepts will be shown with examples from scientific literature. The course provides also the interpretation of complex interactions betwwen the human impact and water ecosystem functions, and the ecosystem functions that are very important for us as well as for the conservation of water ecosystems biodiversity.