

Course Summary

Course Title: Biology

Credits: 7.5 ECTS credits (252 hours)

Course objective

Formation of students' basic understanding of biology, its current problems, general regularities for all living things at different levels of organization and mechanisms of impacts of environmental factors on living organisms.

Course tasks

- studying the structure and functions of different organisms;
- determining the specific features of living organisms at the subcellular, cellular and organism levels;
- studying the characteristic features of the microbio-, phyto- and zootcenoses in different environmental conditions;
- studying the mechanisms of adaptation of living organisms to the unfavorable environmental factors and opportunities to manage these processes.

Course outline

The cell as a structural and functional unit of living organisms. Fundamentals of heredity and variability of organisms. Regularities of reproduction and ontogenesis of organisms. Making use of energy by living systems in different conditions. Fundamentals of evolutionary theory. Botany and ecology basics. Zoology and ecology basics.

Learning outcomes

After completing the course the students should be able to:

- work with a microscope, with permanent and temporary preparations;
- prepare the temporary and permanent cytological preparations;
- work with micropreparations, as well as with collection materials and living objects;
- analyze and evaluate the impact of environmental factors on living organisms;
- work with the biological material;
- be able to set up an experiment;
- analyze the causes and processes of evolutionary change both in ecosystems and in the biosphere;
- predict the possibility and probability of different changes in biological systems;
- work with plants and animals identification guides;
- carry out research on species diversity of different groups of plants and animals in biocenosis using biological methods.

Training activities: lectures and laboratory studies.

End-of-the-term assessment: examination.

**Head of the Ecology Department,
Professor A.I. Gorova**