UNIVERSITY OF WARMIA AND MAZURY IN OLSZTYN

Faculty of Biology and Biotechnology

Course title: CONSERVATION GENETICS

ECTS credit allocation (and other scores): 2

Semester: autumn

Level of study: ISCED-6 - first-cycle programmes (EQF-6)

Branch of science: Natural sciences

Language: English

Number of hours per semester: 30

Course coordinator/ Department and e-mail: Alicja Boroń/Department of Zoology; alibo@uwm.edu.pl

Type of classes: classes and lectures

Substantive content

CLASSES: The use of population, quantitative and evolutionary genetics methods for the analysis of endangered populations. Application of selected modern techniques of molecular biology, population genetics, molecular ecology, including molecular markers as microsatellites and others, using the tissues of laboratory species in order to know the genetic diversity of protect endangered or perishing populations and species of animals and plants as they are typically slow breeders, expensive to keep, and present in low numbers. Practical use of genetic methods to the conservation and restoration of biodiversity.

LECTURES: Conservation genetics as an interdisciplinary subfield of population genetics that aims to understand the dynamics of genes in populations principally to avoid extinction. Genetic variation of populations and mechanisms of processes that shape it as genetic drift, natural selection, gene flow. The importance of population genetic diversity and its maintenance. Conservation genetics as the application of genetics to reduce the risk of population and species extinctions; examples. The impact of the different disciplines like population genetics, molecular ecology, molecular biology, evolutionary biology, systematics, and others on protection of selected animal and plant species.

Learning purpose: Theoretical and practical use of genetic methods to the conservation and restoration of biodiversity

On completion of the study programme the graduate will gain:

Knowledge: The theoretical basis and methods of genetics applied to protect and reduce the risk of extinction of the species

Skills: Practical skills of using basic genetic methods in order to assess and reduce the risk of extinction of species

Social Competencies: Continuous improvement of qualifications about genetic variability in order to protect species biodiversity

Basic literature: Allendorf F.W., Luikart G.H., Aitken S.N. 2012. Conservation and the Genetics of Populations. Wiley-Blackwell, pp. 624. 2nd Edition. Scientific articles selected by the teacher, e.g. Hunter et al. 2018. Next-generation conservation genetics and biodiversity monitoring. Evolutionary applications 11(7): 1029–1034.

Supplementary literature: Frankham R., Ballou J.D., Briscoe D. A. 2010. Introduction to Conservation Genetics. Cambridge, pp. 644, ISBN 0521702712; and scientific articles selected by the teacher.

The allocated number of ECTS points consists of:

Contact hours with an academic teacher: 31

Student's independent work: 19