UNIVERSITY OF WARMIA AND MAZURY IN OLSZTYN

Faculty of Biology and Biotechnology

Course title: LANDSCAPE ECOLOGY

ECTS credit allocation (and other scores): 2

Semester: spring

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: Stanisław Czachorowski/ Department of Zoology, e-mail: stanislaw.czachorowski@uwm.edu.pl

Type of classes: classes and lectures

Substantive content

CLASSES: Model of the ecological islands on the example of water reservoirs and lawns in the city - field and laboratory activities. Succession in a heterogeneous landscape - a computer simulation model. Alternative life strategies and model of the ecosystem. Ecological landscape structure - field studies of urban ecosystems. Ecological basics of shaping the urban and rural landscape. Identification of common animal and plant species in the urban landscape. Field research techniques. Structure and functioning of the landscape on the example of the city and agrocenosis - practical application of natural science.

LECTURES: Definition and history of landscape ecology. A holistic concept for nature. Application of systems theory in landscape studies. Information theory, field theory and energy approach in landscape ecology. Model of the ecological island. Ecosystem as the basic unit of ecological organization and types of interactions between species. Ecological succession and cenofilogenesis, an example of synurbization. Biosphere and hypothesis of Gaia and Medea. Dispersion and colonization as an immanent feature of life. General mechanism of dispersion and colonization, ecological basis of these processes. Diverse life strategies as adapted to dispersion and colonization.

LEARNING PURPOSE: The use of landscape ecology in practice: urban ecosystems and agricultural landscape.

On completion of the study programme the graduate will gain:

Knowledge: The student characterizes the structure and functioning of the ecological landscape on the example of the city or agrocenosis.

Skills: The student is able to conduct field research related to landscape ecology.

Social Competencies: The student understands the holistic approach in natural sciences, is able to work in a team.

Basic literature: 1. T. F.H. Allen and T.W. Hoekstra, “Toward a Unified Ecology”, Columbia University Press, 1992, 2015, 2. Stephen C. Bunting, Paulo Godinho-Ferreira, Francisco Castro Rego, Eva Kristina Strand, “Applied Landscape Ecology”, 2018, 3. Robert H. Gardner, Robert V. O'Neill, Monica G. Turner “Landscape Ecology in Theory and Practice: Pattern and Process”, 2001.

Supplementary literature: 1. Eugene P. Odum “Fundamentals of Ecology”, 2. Richling A., Solon J., Ekologia krajobrazu, wyd. PWN, 1996, 3. Zeev Naveh, „Landscape ecology”, 1984.

The allocated number of ECTS points consists of:

Contact hours with an academic teacher: 32

Student's independent work: 18