

Adaptation processes in Novel ecosystems during the Anthropocene epoch - field laboratory workshops

The main aim of the module is to familiarize students with the necessity of an interdisciplinary approach to the research on ecosystem processes that are continuously observed on the sites transformed by the human post-industrial objects in the urban-industry areas in the Upper Silesia region. Students will have the opportunity to work on the environmental problem identification project preparation conduct the research material collection in the field and laboratory work. They will also learn to identify the impact of human activity on habitat conditions factors influencing biodiversity and the functioning of ecosystems and, consequently, ecosystem services provision. The module explains the natural processes' background basis for the functioning of new non-analogous species composition systems and processes in habitats, which have been transformed and created as a result of minerals resources excavations and other human activities—the analysis of the theoretical and conceptual foundations of Novel ecosystems.

Who are we looking for (discipline, competences, motivations)

PhD students in biology, environmental sciences; biotechnology; looking for the scientific basis for applications towards applying the natural methods and processes in response to the environmental transformation.

Number of participants:

5-10

Goal(s) of the workshop

To present and explain the dynamic character of the natural adaptation process of the dynamics of the ecosystem in different stages of transformation and other stage ecosystem establishment concerning the Anthropocene challenges such as Novel ecosystem non-analogous plant species composition.

Knowledge, skills and competencies to be achieved

- Obtaining the knowledge about the influence of anthropogenic activity (particular post-mineral excavation) on habitats transformation, de novo established habitats and vegetation,
- Analyzing colonization of living organisms in the transformed urban-industry habitats,
- Understanding the basis of the functioning of new non-analogous natural systems of species composition and processes in the urban-postindustrial habitats,
- An analysis of the theoretical foundations and concepts of Novel ecosystems,
- Acquiring the ability to identify biodiversity of urban-industrial areas,

- Ability to identify environmental problems in the field, present the methodological approach and preliminary hypothesis formulation,
- Acquiring the ability of proper sample collection and preparing for laboratory analysis,
- Gaining experience concerning environmental problems in respect to applying biochemical and molecular analytical methods
- Understanding of the hierarchical structure of the environmental ecosystem mosaic, including the functional approach of living organisms,
- Ability to work in an international research group,
- Awareness of the importance of environmental management based on an understanding of natural processes governing the functions of the environment.

Teachers

Dr hab. Gabriela Woźniak, prof. UŚ, dr Teresa Nowak, dr Agnieszka Błońska, prof. dr hab. Ewa U. Kurczyńska, dr Justyna Wróbel-Marek, dr Ewa Mazur