
Course title: INVASIVE SPECIES IN THE AQUATIC ENVIRONMENT

ECTS credit allocation (and other scores): 1.5

Semester: autumn

Level of study: ISCED-7 - second-cycle programmes (EQF-7)

Branch of science: Agricultural sciences

Language: English

Number of hours per semester: 25

Course coordinator/ Department and e-mail: dr hab. inż. Arkadiusz Stępień, Department of Agroecosystems, arkadiusz.stepien@uwm.edu.pl

Type of classes: classes and lectures

Substantive content

CLASSES: Characteristics of alien invasive species origin, methods of propagation, the spread and the rate of migration (settlement). Features of habitats susceptible to colonization by invasive species. The processes of plant invasions (start and dynamics) - Models of invasion. Comparison of biology and ecology of native species from invasive species. Develop and analyse the collected data. Characteristics, biology, threat of some invasive species - presentations. Proposals for the use of alternative crops for invasive species in fishing cultures: ponds, lakes and rivers. Prevention activities and methods and programs for the eradication of invasive species. Developing recommendations to reduce the impact of invasive plant and animal species deliberately introduced to water and currently available for purchase.

LECTURES: Biodiversity and processes of plant invasions. Definitions: invasive species, alien, quarantine, introduced, re-introduced genetically modified GMO - opportunities and threats. Invasive organisms, nomenclature and classification. History of research on biological invasions and directions for further research into biological invasions. Objectives, introduction and reintroduction of species. Threats from alien species to wildlife. The harmfulness of alien invasive organisms for forestry, agriculture, fishing and hunting. Preventing an invasion of an alien species (border controls, quarantine, inspection, monitoring and alerting). The latest regulations on limiting the introduction of alien species in Poland, Europe and the world. Dealing with the threat of invasive alien species in the environment.

Learning purpose: Understanding the threats to native species and biodiversity caused by invasive organisms. Understanding the fundamental distinguishing features of organisms considered potentially invasive and the characteristics of aquatic habitats potentially exposed to colonization by invasive species and the ability to estimate and limit threats.

On completion of the study programme the graduate will gain:

Knowledge: The student is able to assess the risks to biodiversity and identify the effects of the appearance of alien species introduced deliberately or accidentally into the aquatic environment. The student can analyse data collected in the field on the occurrence of invasive species occurring in aquatic ecosystems and in their vicinity. The student has knowledge of the need to reduce the occurrence of alien species intentionally introduced into ponds, lakes, rivers, forests, gardens, parks and replace them with native species.

Skills: The student is able to identify invasive alien species and observe their harmfulness. The student is able to propose alternative species for alien invasive cultures used in fishing.

Social Competencies: The student is focused on the development of recommendations to reduce the impact of invasive plant and animal species deliberately or accidentally introduced into ecosystems. The student is involved in collecting data on the incidence of invasive species in the field and consciously cares about the environment.

Basic literature: Andrzejewski R., Weigle A. 2003. Różnorodność biologiczna Polski. Narodowa Fundacja Ochrony Środowiska, Warszawa; Pullin A.S. 2005. Biologiczne podstawy ochrony przyrody. PWN Warszawa; Tokarska-Guzik B., Dajdok Z., Zając M., Zając A., Urbisz A., Danielewicz W. 2012. Rośliny obcego pochodzenia w Polsce ze szczególnym uwzględnieniem gatunków inwazyjnych. Generalna Dyrekcja Ochrony Środowiska.

Supplementary literature: Elton C. S. 1967. Ekologia inwazji zwierząt i roślin. PWRiL, Warszawa.

The allocated number of ECTS points consists of:

Contact hours with an academic teacher: 0.96 ECTS points

Student's independent work: 0.54 ECTS points