Module syllabus: **ECOLOGICAL CONSEQUENCES OF INVASIONS**

1. Overall information

Module coordinator	Aneta Spyra PhD (Department of Hydrobiology)
Contact	aneta.spyra@us.edu.pl; +48 32 359 1411
ECTS	**6**
Method of learning outcomes verification	The final grade for the module is weighted on average of the following student's activities: - Active participation in field project and laboratory analyses (continuous evaluation of practical skills) (0,5) - project report (0,5) To be awarded, the student must have passed each activity of the module. Grades: below 51% - fail (F); 52-60% - with minimum academic criteria (E); 61-65% - satisfactory (D); 66-75% - good (C); 76-85% - very good (B), $\geq$ 85% - excellent (A)

2. Description of student activity and work

Laboratory and field classes	
Responsible teachers	Iga Lewin PhD DSc, Aneta Spyra PhD (Department of Hydrobiology)
Laboratory and field projects	Ecological consequences of invasions- PROJECT 1. Field project: Effect of invasive species occurrence on native benthos fauna in the anthropogenic water bodies Project of sampling alien and invasive species in a anthropogenic water bodies, methods of sampling and preservation. Characteristics of the alien and invasive species of molluscs and Crustaceans, invasive features: fertility and ecological tolerance. Invasion processes of indicated species, types of their spreading, the impact of the invasive species on ecosystems and native fauna. Observations of alien and invasive species. Selecting of invertebrates and alien species from the samples in laboratory. Preservation of samples. 2. Laboratory: Occurrence of alien and invasive species with relation to native benthos fauna, co-occurrence of invaders, density of the invasive species and native fauna, laboratory analysis, fertility of collected *P. antipodarum* specimens.
Methodology of project and laboratory	Observations, sampling, analysis and calculations performed individually and in small groups under the teachers supervision which include: • Species identification procedure and observations

University of Silesia in Katowice. Faculty of Biology and Environmental Protection

Jagiellonska Str. 28, PL-40032 Katowice, Poland, phone/fax +48 32 200 93 61, e-mail: biologia@us.edu.pl

www.**wbios**.us.edu.pl

	• Sampling procedures Calculations and elaboration and analysis of collected material • Elaboration of Project report
Number of didactic hours (contact hours)	60
Literature	Regulation (eu) no 1143/2014 of the European parliament and of the council of 22 October 2014 on the prevention and management of the introduction and spread of invasive alien species [pdf] http://www.iop.krakow.pl/ias/en/news/2016 Full literature on alien and invasive Mollusc and Crustaceans species [pdf] is available on website of NOBANIS –Invasive Alien Species Fact Sheet: https://www.nobanis.org

3. Forms of verification

Continuous evaluation of knowledge, activity and practical skills	
Grades	Grades are awarded on a scale: A -F, where A is the best and F is a fail. An excellent performance (A) – the student actively participates in field and in laboratory work, demonstrates an excellent understanding of the identification and analysis procedures (its aims, sequence and outcomes) is engaged and creative in solving current problems, A good performance (C) – the student demonstrates a good judgment and knowledge, correctly provides an analysis and observations, correctly exhibits a sense of calculations and elaboration, A satisfactory performance (E) – the student demonstrates a satisfactory judgment and knowledge, is poorly engaged and needs additional help to finish the analyses, observations and calculations A performance that does not meet the minimum academic criteria (F) – the students is not engaged in experiment, did not exhibit sense of calculations and observation procedures, poorly interprets and presented material.

Reports from realised laboratory and field projects	
Evaluation	Evaluation is comprised of judgement and knowledge related to field sampling, laboratory analysis and calculations, engagement in realisation and observations, usage of reference materials. Grades for reports are awarded on a scale: A -F, where A is the best and F is a fail. An excellent report (A) – without any essential errors Fail (F) – no report

University of Silesia in Katowice. Faculty of Biology and Environmental Protection

Jagiellonska Str. 28, PL-40032 Katowice, Poland, phone/fax +48 32 200 93 61, e-mail: biologia@us.edu.pl

www.**wbios**.us.edu.pl