University of Gdańsk

Subject card

Subject name and code	Zoological methods of water quality assessment, PG_00143464		
Field of study	Natural Resources Conservation		
Date of commencement of studies	October 2026	Academic year of realisation of subject	2027/2028
Education level	Bachelor's studies	Subject group	Obligatory subject group in the field of study Optional subject group Subject group related to scientific research in the field of study
Mode of study	full-time studies	Mode of delivery	at the university
Year of study	2	Language of instruction	Polish
Semester of study	4	ECTS credits	1.0
Learning profile	academic	Assessment form	credit
Conducting unit	Laboratory of Biosystematics and Ecology of Aquatic Invertebrates -> Department of Evolutionary Genetics and Biosystematics -> Faculty of Biology -> Rector		
Name and surname of lecturer (lecturers)	Subject supervisor	dr Agata Szwarc	
	Teachers		

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	0.0	0.0	15.0	0.0	0.0	15

E-learning hours included: 0.0

Learning activity and number of study hours

Learning activity	Participation in didactic classes included in study plan	Participation in consultation hours	Self-study	SUM
Number of study hours	15	2.0	8.0	25

Subject objectives

Introducing students to methods of assessing the ecological status of inland waters based on research on aquatic animal assemblages.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[OZPL3_U06] The graduate is able to make observations and perform basic physical, biological and chemical measurements in the field or laboratory	The student conducts biological research in the field and in the laboratory used in the assessment of water quality based on benthic macroinvertebrates	[SU2] presentation/project/paper/ report [SU8] observation of student's independent or team work
[OZPL3_W13] The graduate has an advanced understanding of the fundamental rules, methods, and techniques of environmental research and their potential applications in nature conservation	The student knows the methods used in the assessment and ecological monitoring of surface waters based on animal assemblages	[SW2] presentation/project/paper/ report
[OZPL3_K02] The graduate is ready to work effectively in a team, taking on different roles within it	The student is able to work effectively in a team, assuming various roles	[SK8] observation of student's independent or team work

Subject contents

Benthic animals as biological indicators of water quality. Ecological and taxonomic measures and indicators used in assessing the ecological status of waters. Biotic indexes used in Europe and other countries.Polish system for assessing the condition of rivers BMW-PL based on macrozoobenthos. Polish Multimetric Indicators of the Ecological State of Rivers and Lakes based on benthic macroinvertebrates.

Methodology of field and laboratory work, as well as principles for data analysis obtained from macrozoobenthos studies for the purposes of quality assessment and ecological monitoring of rivers and lakes in Poland, in accordance with the Water Framework Directive.

Prerequisites and co-requisites	Formal requirements: none Entry requirements: to complete the content, it is necessary to have knowledge of identifying basic groups of invertebrates

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
evaluation of the final project (report)	51.0%	50.0%
attendance	80.0%	0.0%
evaluation of student's work during classes	51.0%	25.0%
evaluation of solutions to short written problem tasks	51.0%	25.0%

Recommended reading

Basic literature	Kolada A. ed., 2020. Manual for monitoring biological elements and classifying the ecological status of surface waters. Environmental Monitoring Library, Warsaw. Kołodziejczyk A., Koperski P. 2000. Freshwater invertebrates of Poland. WUW, Warsaw Tończyk G., Siciński J. (eds.) 2013. Key to the determination of benthic macroinvertebrates for the purposes of assessing the ecological status of surface waters. Environmental Monitoring Library, Warsaw. Kolada A. ed., 2020. Manual for monitoring biological elements and classifying the ecological status of surface waters. Environmental Monitoring Library, Warsaw. Panek P. 2011. Biotic indicators used in water monitoring since the implementation of the Water Framework Directive in Poland. Przegląd Przyrodniczy 22 (3): 111-123.
Supplementary literature	Dumnicka, E., Biesiadka, E., Namotywko, T. 2016. Zoobentos. In: Krzyściak-Kosińska, R., Wilk-Woźniak, E. (eds.) Aquatic ecosystems of the Białowieża National Park: 213-231, Białowieża National Park, Białowieża. Kajak Z. 1998. Hydrobiologia-Limnologia. Inland water ecosystems. PWN, Warsaw. Kownacki A., Soszka H. 2004. Guidelines for assessing the state of rivers based on macroinvertebrates and for sampling macroinvertebrates in lakes. Department of Nature Conservation, Polish Academy of Sciences, Kraków, Institute of Environmental Protection, Warsaw Lampert W., Sommer U. 1996. Ecology of inland waters. PWN, Warsaw.
eResources addresses	

Example issues/ example questions/ tasks being completed	Determining the water quality class based on the collected material (case study)
Work placement	Not applicable

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