University of Gdańsk

Subject card

Subject name and code	Bioindication and Biomonitoring of Water - lecture, PG_00201439						
Field of study	Water Management and Protection of Water Resources						
Date of commencement of studies	October 2027		Academic year of realisation of subject		2028/2029		
Education level	Bachelor's studies		Subject group		Obligatory subject group in the field of study Subject group related to practical vocational preparation		
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	practical		Assessment form		credit		
Conducting unit	Laboratory of Biodiversity and Benthic Functioning -> Department of Marine Ecology -> Faculty of Oceanography and Geography -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. Urszula Janas, prof. UG				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	0.0	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		1.0		9.0	25
Subject objectives	To develop knowledge on the assessment of threats to aquatic ecosystems associated with human activities. To learn about and be able to select methods to biologically assess the quality and sustainability of the aquatic environment.						

Learning outcomes

Course outcome	Subject outcome	Method of verification
[GWOZWL3-W03] the organisation and legal framework of environmental protection, nature conservation and water management, as well as the principles governing the organisation and operation of hydrological and meteorological services and the fundamentals of Integrated Environmental Monitoring.	He or she knows and understands the organization, legislation and operating principles of the State Environmental Monitoring	[SW4] test/exam - oral or written
[GWOZWL3-W04] research techniques, methods and tools currently used in water management and the protection of water resources, in both the natural and social sciences, including basic statistical and IT tools enabling the description, modelling and interpretation of data concerning phenomena and processes occurring in the aquatic environment, as well as tools for describing relationships within socio-ecological systems.	He or she knows and understands research techniques and methods used in biomonitoring of water	[SW4] test/exam - oral or written
[GWOZWL3-W09] potential threats and sources of pollution of surface and groundwater resulting from the development of civilization, in particular strong anthropopression.	He or she knows and understands the potential threats to surface water resulting from civilization development, especially strong anthropopression	[SW4] test/exam - oral or written
[GWOZWL3-K06] an informed and reliable assessment of the impact of humans on the aquatic environment.	He or she is ready to consciously and reliably evaluate the impact of human activities on the aquatic environment using knowledge of bioindication and biomonitoring of waters	[SK8] observation of student's independent or team work
[GWOZWL3-U03] observe and describe the changes taking place in water management and predict further directions of its development as well as conduct a critical analysis of case studies of problems of water management and protection of water resources in terms of impact on ecological, social and economic systems; natural valorization and assessment of quality of the environment.	He or she is able to conduct a critical analysis of threats to water resources using biological assessment of the quality of the aquatic environment	[SU8] observation of student's independent or team work

Subject contents

Discussion of bioindication and biomonitoring issues of waterBioindicators and biomarkers as tools for assessing the quality/sustainability of aquatic biotopesTypes of biomonitoring and criteria for selecting species and assemblages for biomonitoringTests and systems determining quality of water and sedimentsBiomonitoring of the aquatic environment in Poland and around the worldAssessment of the quality of European waters in accordance with the Water Framework Directive and the Marine Strategy Framework Directive, types of monitoring, classification of the ecological state of waters

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Written credit with open and test questions	51.0%	100.0%

Recommended reading	Basic literature	HELCOM, 2010, Hazardous substances in the Baltic Sea An integrated thematic assessment of hazardous substances in the Baltic Sea. Balt. Sea Environ. Proc. No. 120B. Aktualizacja Programu Monitoringu Wód Morskich, Raport do Komisji Europejskiej, 2021, Główny Inspektor Ochrony Środowiska, Warszawa Walker C.H., Hopkin S.P., Sibly R.M., Peakall D.B., 2012. Principles of ecotoxicology, pp. 386
	Supplementary literature	www.gios.gov.pl www.helcom.fi
	eResources addresses	
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	

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