University of Gdańsk

Subject card

Subject name and code	Bioindication and biomonitoring of water - lecture, PG_00091513		
Field of study	Water Management and Protection of Water Resources		
Date of commencement of studies	October 2024	Academic year of realisation of subject	2025/2026
Education level	undergraduate studies	Subject group	Obligatory subject group in the field of study Subject group related to scientific research 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	
Conducting unit	Pracownia Bioróżnorodności i Funkcjonowania Bentosu -> Katedra Ekologii Morza -> Faculty of Oceanography and Geography		
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. Urszula Janas	
	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

Additional information:
Learning methods: lecture with multimedia presentation, conversation lecture, Team Based Learning method

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	13.0	30

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-W04] research techniques, methods and tools currently used in water management and protection of water resources both in the field of natural sciences and social sciences, including basic statistical and information technology tools that make it possible to describe, model and interpret data on phenomena and processes occurring in the aquatic environment, as well as tools for describing relationships in social-ecological systems	He or she knows and understands research techniques and methods used in biomonitoring of water	[SW4] test/exam - oral or written
[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
[GWOZWL3-K06] an informed and reliable assessment of the impact of 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-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-W03] organization and legal basis of environment protection, nature protection and water management, as well as the principles of organization and operation of hydrological and meteorological services and the basics 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

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	Adresy na platformie eNauczanie:
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	

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