University of Gdańsk

Subject card

Subject name and code	Anthropogenic conversion of marine environment, PG_00103517						
Field of study	Environmental Protection						
Date of commencement of studies	October 2024		Academic year of realisation of subject	2026/2027			
Education level	undergraduate studies		Subject group	Obligatory subject group in the field of study			
Mode of study	full-time studies		Mode of delivery	at the university			
Year of study	3		Language of instruction	Polish			
Semester of study	5		ECTS credits	2.0			
Learning profile	academic		Assessment form				
Conducting unit	Pracownia Biologii Planktonu -> Katedra Biologii Morza i Biotechnologii -> Faculty of Oceanography and Geography						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. Agata Weydmann-Zwolicka				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	0.0	0.0	0.0	30
	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	30		5.0	15.0	50	
Subject objectives	Acquiring knowledge in the field of: the importance of anthropogenic activity in the functioning of various marine environments, including the pressure of human activity on individual abiotic and biotic elements of marine ecosystems; the pace of changes taking place and their possible further ecological consequences; methods of protecting marine environments and methods of increasing social pro-ecological awareness.						

Learning outcomes

Course outcome	Subject outcome	Method of verification
[OŚL3_U01] Performs tasks under supervision and independently in the field of analysis of the natural environment and the functioning of natural and man-made natural systems.	Student performs tasks under supervision and independently in the field of analysis of marine environment and the functioning of natural and human-modified marine ecosystems.	[SU4] test/exam - oral or written
[OŚL3_W07] Explains the causal relationship between the content of specific pollutants and the state of the environment (including human health) and the occurrence of adverse phenomena on a local, regional and global scale.	Student explains at an advanced level the cause and effect relationships between the content of specific pollutants and the state of the marine environment and the occurrence of phenomena of anthropogenic origin on a local, regional and global scale.	[SW4] test/exam - oral or written
[OŚL3_W06] Characterises levels of life organization, biodiversity and the interaction of organisms and the environment.	Student characterizes the levels of organization of life in seas and oceans, biodiversity and the interactions of organisms and marine environment.	[SW4] test/exam - oral or written
[OŚL3_W01] Discusses the basic concepts of mathematics, physics, chemistry and biology. Describes physical, chemical and biological phenomena occurring in nature as well as geological, geomorphological and climatic conditions of the functioning of nature.	Student discusses at an advanced level the concepts of physics, chemistry and marine biology, describes the physical, chemical and biological phenomena occurring in marine environment and atmosphere, as well as the impact of climatic conditions on the functioning of marine ecosystems.	[SW4] test/exam - oral or written
[OŚL3_U04] Uses specialist language in the discussion and properly uses the nomenclature in the field of environmental protection and individual disciplines related to it.	Student uses specialized language in the discussion and properly uses scientific nomenclature in the field of marine environment protection and other disciplines related to it.	[SU4] test/exam - oral or written
[OŚL3_K05] Identifies the level of her/his knowledge and skills, demonstrates the need to update knowledge about the environment and its protection, demonstrates the need for continuous professional training and personal development.	Student identifies the level of knowledge and skills regarding the impact of anthropogenic pressure on marine environment, as well as demonstrates the need to update knowledge about marine environment and its protection, and for continuous professional education and personal development.	[SK4] test/exam - oral or written

Subject contents

1. Changes in marine ecosystems on a micro- and macroscale as a result of human activity - historical outline.2. The impact of anthropogenic pressure on changes in the marine environment on a local scale (e.g. economic, scientific, military activities).2. The impact of climate change and related phenomena on the coastal zone and the functioning of marine ecosystems, with particular emphasis on the polar regions.3. The impact of increasing eutrophication: dynamics of short- and long-term changes on the example of the Baltic Sea.4. Changes in marine ecosystems under the influence of natural factors, changes in the range of species, cases of mass mortality in the sea, mass appearances of jellyfish.5. Human impact on marine ecosystems on a local scale: invasive species, introduction of new species, pathogens and strains.6. Use of marine living resources (fishing, whaling, breeding); the problem of overfishing.7. Pollutants: organic, inorganic, heavy metals; chemical weapon.8. Problems related to plastic and microplastics in the sea.9. Structures on the bottom, transformation of the shore, wind farms.10. The biggest maritime ecological disasters.11. Forecasts and scenarios of changes in particularly sensitive ecosystems on the example of the polar regions and the Baltic Sea.

Prerequisites and co-requisites

At least 80% attendance at classes.

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Attendance at classes	80.0%	20.0%
Exam	51.0%	80.0%

Recommended reading	Basic literature	ACIA (2005) Arctic Climate Impact Assessment - Scientific Report 1046 pp. Cambridge University Press 2005 Andrulewicz E. i in. Morze Bałtyckie o tym warto wiedzieć, Polskie Klub Ekologiczny, Gdynia 2008 Bolałek J. Ochrona środowiska morskiego od teorii do praktyki Wyd. UG 2016 Brodecki Z., Żmudziński L. "Morskie obszary chronione w Polsce" Centrum Biologii Morza PAN, Uniwersytet Gdański, Gdynia 1997 Czerwiński A. Współczesne źródła energii Wyd. UW, 2001 Duxbury A.C., Duxbury A.B., Sverdrup K.A. Oceany świata PWN Warszawa, 2002 HELCOM (2017) The integrated assessment of eutrophication - supplementary report to the first version of the State of the Baltic Sea report 2017 IPCC, 2023: Sections. In: Climate Change 2023: Synthesis Report. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, H. Lee and J. Romero (eds.)]. IPCC, Geneva, Switzerland, pp. 35-115, doi: 10.59327/IPCC/AR6-9789291691647 Korzeniewski K. Ochrona środowiska morskiego Wyd. UG, 1998 Łabuz T. Sposoby ochrony brzegów morskich i ich wpływ na środowisko przyrodnicze polskiego wybrzeża Bałtyku Raport WWF, 2013 Łysiak-Pastuszak E. i in. (red.) Ocena stanu środowiska polskich obszarów morskich Bałtyku na podstawie danych monitoringowych z roku 2015 na tle dziesięciolecia 2005-2014, Warszawa 2016 Różańska Z. Zasoby, zanieczyszczenia i ochrona wód morskich ze szczególnym uwzględnieniem Bałtyku PWN Warszawa, 1987 UNEP (2009) Marine Litter: A Global Challenge Nairobi: UNEP. 232 pp, 2009
	Supplementary literature	Demel K. Życie morza Wyd. Morskie Gdańsk, 1979 Pawlaczyk-Szpilowa M. Mikrobiologia wody i ścieków PWN Warszawa, 1980 Thurman H.V. Zarys oceanologii Wyd. Morskie Gdańsk, 1988
	eResources addresses	Podstawowe https://acia.amap.no/ - ARCTIC CLIMATE IMPACT ASSESSMENT (ACIA) https://helcom.fi/ - The Baltic Marine Environment Protection Commission – also known as the Helsinki Commission (HELCOM) – is an intergovernmental organisation (IGO) and a regional sea convention in the Baltic Sea area. https://www.ipcc.ch/ - The Intergovernmental Panel on Climate Change (IPCC) is the United Nations body for assessing the science related to climate change. Adresy na platformie eNauczanie:

Example issues/ example questions/ tasks being completed	
Work placement	Not applicable

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