University of Gdańsk

Subject card

Subject name and code	Life at the bottom of the sea, PG_00131552		
Field of study	Marine Hydrography		
Date of commencement of studies	October 2024	Academic year of realisation of subject	2027/2028
Education level	Bachelor's studies	Subject group	Optional subject group
Mode of study	full-time studies	Mode of delivery	at the university
Year of study	4	Language of instruction	Polish Polish
Semester of study	7	ECTS credits	1.0
Learning profile	practical	Assessment form	credit
Conducting unit	Laboratory of Ecophysiology and Bioenergetics -> Department of Marine Ecology -> Faculty of Oceanography and Geography -> Rector		
Name and surname of lecturer (lecturers)	Subject supervisor	prof. dr hab. Monika Normant-Saremba	
	Teachers		

Lesson types

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

E-learning hours included: 0.0

Additional information:

Recitation class

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

Developing knowledge about the interactions between organisms and the geological substrate, adaptations of animals to life on the seabed and threats caused by human activities.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[HML3-W13] global environmental problems resulting from the development of civilisation, in particular strong anthropopressure in the coastal regions of seas and oceans	Knows the most important threats to organisms living at the bottom of the seas and oceans resulting from anthropogenic transformation of the environment and assesses its effects.	[SW4] test/exam - oral or written [SW2] presentation/project/paper/ report
[HML3-W02] selected phenomena and processes occurring in the hydrosphere, atmosphere, lithosphere and biosphere, their interconnections and relations, as well as practical applications of this knowledge in professional activities related to the field of study	Knows the basic principles of functioning of benthic organisms in seas and oceans and the possibilities of using this knowledge in professional activities related to the field of study.	[SW4] test/exam - oral or written [SW1] oral statement/ conversation/discussion
[HML3-U03] recognise natural (including geological) and anthropogenic objects and link them to the processes leading to their formation	Is able to recognize organisms living at the bottom of the sea and connect them with the biotopes inhabited.	[SU1] oral statement/conversation/ discussion [SU4] test/exam - oral or written

Subject contents	1. Organisms living on various types of substrate, with particular emphasis on the Baltic Sea and unique biotopes. 2. Adaptations of organisms to life at the bottom in the continental shelf and abyssal zone. 3. Methods of research on benthos in the marine environment. 4. The importance of the benthos for the ecosystem functioning and the human economy. 5. The impact of human activities on marine biodiversity, with particular emphasis on benthic communities.
Prerequisites and co-requisites	

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Discussion	51.0%	10.0%
Presentation	51.0%	30.0%
Test	51.0%	60.0%

Recommended reading

Basic literature	Eleftheriou A., Mclntyre A., 2005. Methods for the study of marine benthos, Blackwell Publishing. Gray J. S., Elliott M., 2009. Ecology of Marine Sediments-from science to Management, Oxford University Press. Szymczak Ewa (red.), 2020. Zaawansowane metody interdyscyplinarnych badań Morza Bałtyckiego: skrypt do zajęć dla studentów studiów magisterskich na kierunku Oceanografia. Praca zbiorowa, Gdańsk, Wydawnictwo Uniwersytetu Gdańskiego.
Supplementary literature	Bennun, L., van Bochove, J., Ng, C., Fletcher, C., Wilson, D., Phair, N., Carbone, G., 2021. Mitigating biodiversity impacts associated with solar and wind energy development. Guidelines for project developers. Gland, Switzerland: IUCN and Cambridge, UK: The Biodiversity Consultancy. Gaston K.J., Spicer J. I., 2008. Biodiversity: An Introduction. 6th Edition, Blackwell Publishing.
eResources addresses	Basic https://doi.org/10.1016/j.heliyon.2020.e04709 - This paper concerns plastic pollution in the marine environment https://doi.org/10.1093/icesjms/fsz018 - This paper concerns benthic effects of offshore renewables in the context of identification of knowledge gaps and urgently needed research https://doi.org/10.1007/s13201-023-01910-9 - This paper concerns the impacts of dumping sites on the marine environment https://doi.org/10.1111/1365-2664.13736 - This paper concerns upgrades of coastal protective infrastructure affect benthic communities http://dx.doi.org/10.1016/j.marpolbul.2012.05.008 - This paper concerns environmental impacts of dredging and other sediment disturbances on corals

Example issues/ example questions/ tasks being completed	Phytobenthos, zoobenthos, epibenthos, inbenthos, sessile and mobile benthos, reef-forming organisms, biofouling, bioturbation and bioirrigation, invasive and non-invasive studies of the qualitative and quantitative structure of the benthos, threats to seabed organisms: construction of underwater infrastructure, underwater noise, extraction of geological materials, carbon dioxide sequestration, underwater noise, eutrophication, acidification, introduction of invasive species.
Work placement	Not applicable

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