University of Gdańsk

Subject card

Subject name and code	Marine Ecology - lecture, PG_00204902						
Field of study	Oceanography						
Date of commencement of studies	October 2027		Academic year of realisation of subject		2027/2028		
Education level	Master'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	1		Language of instruction		Polish		
Semester of study	1		ECTS credits		2.0		
Learning profile	academic		Assessment form		exam		
Conducting unit	Department of Marine Ecosystems Functioning -> Faculty of Oceanography and Geography -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		prof. dr hab. Adam Sokołowski				
	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		34.0	50
Subject objectives	Introducing students to selected basic aspects of marine ecology, with a particular emphasis on the impacts of abiotic and biotic factors on the structure and functioning of marine organisms at different levels of their biological organization.						

Learning outcomes

Course outcome	Subject outcome	Method of verification
[OCEANMU2-W06] knows and identifies potential threats to the marine environment on a local and global scale resulting from strong anthropopressure, predicts their effects on various time and space scales	Student identifies and understands threats to marine biocenosis resulting from human activities, and recognises and predicts their effects on marine organisms.	[SW4] test/exam - oral or written
[OCEANMU2-U01] is able to formulate and solve complex and unusual problems regarding the functioning of individual components of the marine environment using knowledge from various fields and scientific disciplines and propose solutions	Student identifies problems and is able to formulate issues related to the structure and functioning of marine biocenosis, and proposes solutions through the application of interdisciplinary knowledge.	[SU4] test/exam - oral or written
[OCEANMU2-K02] is ready to take full responsibility in terms of actions taken and compliance with professional ethics and principles intellectual honesty, is aware of the importance professional approach in every situation	Student undertakes activities in the field of marine ecology in a professional and responsible manner, respecting the principles of professional ethics and integrity.	[SK4] test/exam - oral or written
[OCEANMU2-W02] knows and understands complex processes and phenomena occurring in the marine environment, with particular emphasis on the coastal zone, as well as complex relationships between living and non-living elements of the aquatic environment	Student understands ecological processes and phenomena in the marine environment, as well as the relationships and interactions between abiotic and biotic environmental factors.	[SW4] test/exam - oral or written
[OCEANMU2-U02] is able to fluently and accurately use scientific terminology when presenting and discussing oceanographic issues, and to propose and justify innovative solutions	Student knows and accurately applies taxonomic nomenclature and scientific terminology in the field of marine ecology.	[SU4] test/exam - oral or written

Subject contents

1. The place of marine ecology in natural sciences, basic ecological concepts and definitions.
2. Ecological phenomena, processes and relationships at the level of the organism, population and biocenosis.
3. Abiotic factors (i.e., salinity, temperature, substrate type, light, tides, hydrostatic pressure, sea currents and wave actions, gases dissolved in water) and biotic (i.e., interspecies interactions, food quality and availability) and their impact on the distribution and biodiversity of marine organisms. Morphological and physiological modifications and adaptations of marine organisms to habitat conditions.
4. Adaptations of organisms to changing environmental conditions (factors).

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Written exam	51.0%	100.0%

Recommended reading

Basic literature

Odum E.P., 1973. Podstawy ekologii. Wyd. PWRiL, Warszawa
Trojan P., 1975, Ekologia ogólna. Państwowe Wydawnictwo Naukowe, Warszawa
Karasov W.H., Martinez del Rio C., 2007, Physiological ecology. Princeton University Press, Princeton
Kaiser M., Attrill M., Jennings S., Thomas D.N., Barnes D., Brierley A., Polunin N., Raffaelli D., Williams P.L.B., 2005, Marine Ecology: Processes, Systems, and Impacts. Oxford University Press, Oxford
Snoeijs-Leijonmalm P., Schubert H., Radziejewska T., 2017, Biological Oceanography of the Baltic Sea. Springer Science and Business Media, Dordrecht
Schiewer U., 2008, Ecology of Baltic coastal waters. Springer, Berlin
Demel K.,1974, Życie morza. Wydawnictwo Morskie, Gdańsk
Majewski A., 1992, Oceany i morza. Wydawnictwo Naukowe PWN, Warszawa
Odum E.P., 1973. Podstawy ekologii. Wyd. PWRiL, Warszawa
Kaiser M., Attrill M., Jennings S., Thomas D.N., Barnes D., Brierley A., Polunin N., Raffaelli D., Williams P.L.B., 2005, Ma-rine Ecology: Processes, Systems, and Impacts. Oxford University Press, Oxford
Schiewer U., 2008, Ecology of Baltic coastal waters. Springer, Berlin

thematic scientific publications

	Supplementary literature	Wilkinson D.M., 2007, Fundamental processes in ecology. An earth systems approach. Oxford University Press, Oxford Umiński T., 1986, Zwierzęta i oceany. Wydawnictwa Szkolne i Pedagogiczne, Warszawa Thurman H., 1982, Zarys oceanologii. Wydawnictwo Morskie, Gdańsk Szymborski S., Szymborska K., 1981, Wszechocean. Wiedza Powszechna, Warszawa Umiński T., 1995, Ekologia środowisko przyroda. Wydawnictwa Szkolne i Pedagogiczne, Warszawa Winogradowa M.E., 1988, Oceanobiologia. Tom 1. Biologiczna struktura oceanu. Państwowe Wydawnictwo Naukowe, Warszawa Day Jr J.W., Kemp W.M., Yàñez-Arancibia A., Byron C., 2013, Estuarine Ecology. Wiley-Blackwell/John Wiley & Sons, Hoboken Solan M., , Whiteley N.M., 2016, Stressors in the marine environment: physiological and ecological responses, societal implications. Oxford University Press, Oxford
	eResources addresses	
Example issues/ example questions/ tasks being completed	Define the following terms: ecological niche, commensalism, osmoregulation. Describe hyperosmotic regulation in marine animals.	
Work placement	Not applicable	

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