

**Subject card**

<b>Subject name and code</b>	Biological Oceanography - lecture, PG_00205304						
<b>Field of study</b>	Oceanography						
<b>Date of commencement of studies</b>	October 2026	<b>Academic year of realisation of subject</b>			2027/2028		
<b>Education level</b>	Bachelor's studies	<b>Subject group</b>			Obligatory subject group in the field of study Subject group related to scientific research in the field of study		
<b>Mode of study</b>	full-time studies	<b>Mode of delivery</b>			at the university		
<b>Year of study</b>	2	<b>Language of instruction</b>			Polish		
<b>Semester of study</b>	3	<b>ECTS credits</b>			3.0		
<b>Learning profile</b>	academic	<b>Assessment form</b>			exam		
<b>Conducting unit</b>	Laboratory of Plankton Biology -> Department of Marine Biology and Biotechnology -> Faculty of Oceanography and Geography -> Rector						
<b>Name and surname of lecturer (lecturers)</b>	Subject supervisor		dr hab. Agata Weydmann-Zwolicka				
	Teachers						
<b>Lesson types</b>	<b>Lesson type</b>	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	<b>Number of study hours</b>	30.0	0.0	0.0	0.0	0.0	30
	E-learning hours included: 0.0						
	Additional information:  Lecture with multimedia presentation						
<b>Learning activity and number of study hours</b>	<b>Learning activity</b>	Participation in didactic classes included in study plan	Participation in consultation hours	Self-study			SUM
	<b>Number of study hours</b>	30	2.0	43.0			75
<b>Subject objectives</b>	Lecture: Learning about life in seas and oceans, the interdependence of the biotic and abiotic spheres, assessment of the conditions determining the degree of differentiation of ecological formations.						
<b>Learning outcomes</b>	<b>Course outcome</b>		<b>Subject outcome</b>		<b>Method of verification</b>		
	[OCEANL3-W01] has an advanced knowledge and understanding of the terminology used in oceanography and related exact and natural sciences (in Polish and a selected foreign language)		Has an advanced knowledge and understanding of the terminology used in oceanography and related exact and natural sciences, concerning marine biology (in both Polish and English).		[SW4] test/exam - oral or written		
	[OCEANL3-W02] has a broad knowledge and understanding of physical, biological, chemical, and geological processes and phenomena occurring in aquatic environments, with particular emphasis on the marine environment		Understands and has a broad comprehension of biological processes and phenomena occurring in the marine environment.		[SW4] test/exam - oral or written		
	[OCEANL3-W03] has an advanced understanding of the relationships between living and non-living components of aquatic environments, and is aware of the complex nature, intricacy, and natural variability of these environments		Has an advanced understanding of the relationships between biotic and abiotic components of the marine environment, and is aware of the complex nature of seas and oceans, including their intricacy and natural variability.		[SW4] test/exam - oral or written		

Subject contents	<p>1. The importance and role of biological oceanography as a science about life in the sea - the history of the development of this science, with particular emphasis on great expeditions.</p> <p>2. General characteristics of the ocean as a living environment - the role and importance of selected physical, chemical and dynamic factors, interactions between the environment and flora and fauna communities.</p> <p>3. Biological zones in the sea: vertical and horizontal stratification.</p> <p>4. Biocenotic characteristics of ecological formations in the sea (plankton, benthos, nekton).</p> <p>5. The specificity of life in extreme conditions - megafauna, hydrothermal vents, cold seeps.</p> <p>6. Productivity at sea; methods of measuring primary and secondary production, factors shaping the level of production in world ocean.</p> <p>7. Energy flow through the ecosystem: food chains, regionalization of ecosystem productivity and efficiency.</p> <p>8. Use of sea and ocean resources: fishing, obtaining other living resources (marine vegetation, invertebrates, reptiles, mammals).</p> <p>9. Elements of protection of marine ecosystems.</p> <p>10. The impact of climate change on the marine environment.</p>		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Exam	51.0%	100.0%
Recommended reading	<p>Basic literature</p> <p>Demel K. (1979) <i>Życie morza</i>, Wyd. Morskie, Gdańsk</p> <p>Duxbury A.C., Duxbury A.B., Sverdrup K.A. (2002) <i>Oceany świata</i>, PWN, Warszawa</p> <p>Nybakken J.W., Bartness M. D. (ed) (2005) <i>Marine Biology, an ecological approach</i>, Person Benjamin Cummings</p> <p>Pliński M. (1994) <i>Biologia organizmów morskich</i>. Wydawnictwo UG, Gdańsk</p> <p>Thurman H.V. (1982) <i>Zarys oceanologii</i>, Wyd. Morskie, Gdańsk</p> <p>Umiński T. (1976) <i>Zwierzęta i oceany: popularna zoogeografia wód morskich</i>. Wydawnictwo Szkolne i Pedagogiczne, Warszawa</p> <p>Żmudziński L. (1990) <i>Świat zwierzęcy Bałtyku: atlas makrofauny</i>. Wydawnictwo Szkolne i Pedagogiczne, Warszawa</p>		

	Supplementary literature	Gage J.G., Tyler P.A. (1991) Deep Sea Biology, Cambridge University Press Korzeniewski K. (1998) Ochrona środowiska morskiego, Wyd. UG, Gdańsk Lwowicz M.I. (1979) Zasoby wodne świata, PWN Warszawa Depowski S. (1998) Surowce mineralne mórz i oceanów, Wyd. Scholar, Warszawa Różańska Z. (1987) Zasoby, zanieczyszczenia i ochrona wód morskich ze szczególnym uwzględnieniem Bałtyku, PWN Warszawa
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Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	

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