University of Gdańsk

Subject card

Subject name and code	Marine Geology - lecture, PG_00205256		
Field of study	Oceanography		
Date of commencement of studies	October 2026	Academic year of realisation of subject	2026/2027
Education level	Bachelor's studies	Subject group	Obligatory subject group in the field of study 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	2	ECTS credits	3.0
Learning profile	academic	Assessment form	exam
Conducting unit	Laboratory of Marine Geology -> Department of Chemical Oceanography and Marine Geology -> Faculty of Oceanography and Geography -> Rector		
Name and surname of lecturer (lecturers)	Subject supervisor	dr Ewa Szymczak	
	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

Additional information:

lecture, disscussion

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	2.0	43.0	75

Subject objectives

The aim of the course is to introduce students to the geological processes shaping the oceans, as well as to the structure and evolution of the oceanic crust. The course covers the structure and morphology of the ocean floor in relation to tectonic processes, sources and mechanisms of sediment supply to seas and oceans, types of marine sediments, their sedimentation rates, and patterns of their spatial distribution. Students will also become familiar with the history of ocean floor research, contemporary research methods, and major scientific programmes, including ocean drilling programmes and their key achievements. Particular attention is given to the postglacial evolution of the Baltic Sea.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[OCEANL3-U06] is able to formulate and solve advanced problems related to the functioning of individual components of the marine environment, using knowledge from various fields and scientific disciplines	analyzes relationships between components of the marine environment, with particular emphasis on geological processes, integrating knowledge from various natural science disciplines	[SU4] 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	characterizes and interprets geological processes and the associated physical, chemical, and biological phenomena occurring within the oceanic crust and the marine environment	[SW3] text preparation/written work
[OCEANL3-U04] is able to independently search for information in Polish and foreign specialist literature, as well as on the Internet and in databases	independently searches for and selects information from Polish and English-language specialist literature, as well as from the Internet and databases, and uses it to describe seabed morphology, sediments, and geological processes	[SU4] test/exam - oral or written
[OCEANL3-W05] has an advanced knowledge of techniques, research methods, and tools (mathematical, statistical, and computational) used by oceanographers to describe and interpret processes and phenomena occurring in the marine environment	characterizes techniques, research methods, and tools used in geological studies of the seabed	[SW4] test/exam - oral or written
[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)	uses terminology from marine geology to describe geological processes occurring in seas and oceans	[SW4] test/exam - oral or written
[OCEANL3-U01] is able to use the current scientific terminology in the field of oceanography in various forms of expression	uses scientific terminology in marine geology to describe processes and structures of the ocean floor	[SU4] test/exam - oral or written

Subject contents

1. History of ocean floor research and contemporary research programmes.
2. Formation of modern oceans and their geological evolution, with particular emphasis on magmatic and tectonic processes leading to the formation of the oceanic crust.
3. Structure of the oceanic crust.
4. Major morphological features of the ocean floor (mid-ocean ridges, oceanic trenches, abyssal basins, continental shelves, continental slopes) and their relationship with tectonic processes.
5. Sources and mechanisms of sediment supply to seas and oceans.
6. Spatial distribution patterns of marine sediments in relation to depth, distance from land, biological productivity, and hydrodynamic conditions.
7. Types of marine sediments and the rate and controlling factors of sedimentation.
8. Geological history of the Baltic Sea, with particular emphasis on its postglacial evolution, sea-level changes, salinity variations, and sedimentary processes shaping the present-day Baltic environment.

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	Basic literature	Duxbury A. C., Duxbury A. B., Sverdrup K. A. 2002: Oceans of the World. Wyd. Naukowe PWN Erickson J. 1996: Marine Geology: Undersea Landforms and Life Forms. Facts on File Frisch W., Meschede M., Blakey R. 2011. Plate tectonics. Continental drift and mountain building. Springer Larter R.D., Leat P.T. 2003 Intra-Oceanic subduction systems. The Geological Society London Leontiew O. K. 1989. Geology of the sea. Wyd. Naukowe PWN Lallemand S., Funiciello F.,2009. Subduction zone dynamics, Springer-Verlag Berlin Yuen, D.A., Maruyama, S., Karato, S.-i., Windley, B.F. (Eds.), 2007, Superplumes:Beyond Plate Tectonics, Springer Witak M., 2013. Outline of the postglacial evolution of the Southern Baltic. [in:] J. Cyberski (Ed.), Coastal protection in state maritime policy.
	Supplementary literature	Leontjew O.K. 1972 Bottom of the Ocean. Wyd. Geologiczne Stanley S. M., 2002, History of the Earth. Wydawnictwo Naukowe PWN
	eResources addresses	
Example issues/ example questions/ tasks being completed	Describe the types of oceanic basalts and the criteria for distinguishing them. Name the main morphological units of the oceans. Compare the active and passive marginal edges of the ocean. Characterise the distribution of biogenic sediments, identify factors influencing their distribution.	
Work placement	Not applicable	

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