University of Gdańsk

Subject card

Subject name and code	Sea Floor Geology - lecture, PG_00201092		
Field of study	Marine Hydrography		
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
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	2.0
Learning profile	practical	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						

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	18.0	50

Subject objectives	The aim of the course is to develop an understanding of the geological processes responsible for the evolution of the oceans, the geological structure of the oceanic crust, the morphological structure of the global ocean floor, as well as the types of marine sediments and their distribution patterns. Students will also become familiar with methods of ocean floor research, scientific programmes under which oceanic crust is studied, and the major achievements of ocean drilling programmes. The postglacial evolution of the Baltic Sea will also be presented.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[HML3-W03] knows and understands, at an advanced level, directions of development and the latest discoveries in the field of scientific disciplines forming the theoretical basis appropriate to the field of study	characterizes methods of geological research in the marine environment and explains their significance for major scientific discoveries	[SW4] test/exam - oral or written [SW1] oral statement/ conversation/discussion
[HML3-W02] knows and understands, at an advanced level, 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	explains the causes, course, and consequences of geological processes occurring in the marine environment	[SW4] test/exam - oral or written [SW1] oral statement/ conversation/discussion
[HML3-U14] is able to use the applicable terminology in presenting and discussing problems related to the field of study	uses appropriate terminology when describing, presenting, and discussing issues related to the geological structure and morphology of the ocean and marine floor	[SU1] oral statement/conversation/ discussion [SU4] test/exam - oral or written
[HML3-U08] is able to independently use the professional literature available in traditional and electronic form, make an assessment, critical analysis and synthesis as well as the correct interpretation of the information obtained	analyzes and interprets, based on source materials, the morphological and structural elements of the seabed, the distribution of sediments, and their relationship with geological processes	[SU1] oral statement/conversation/ discussion [SU4] test/exam - oral or written
[HML3-W01] knows and understands, at an advanced level, selected facts, phenomena and processes, as well as methods and theories concerning them, explaining the complex relationships between them, constituting basic general knowledge in the field of scientific disciplines forming the theoretical foundations specific to the field of study	explains and characterizes the relationships between physical and geological processes occurring in the marine environment	[SW4] test/exam - oral or written [SW1] oral statement/ conversation/discussion
[HML3-W04] knows and understands, at an advanced level, the issue of measurements related to the exploration of sea basins and inland waters and tools allowing to describe, interpret and present the results of measurements	characterizes hydrographic and geological methods of marine research and explains their significance for seabed exploration and scientific discoveries	[SW4] test/exam - oral or written [SW1] oral statement/ conversation/discussion

Subject contents

1. The history of ocean floor research and contemporary research programmes.
2. Evolution of ocean basins, history of geological development of modern oceans.
3. Oceanic crust and its structure in the light of recent research results.
4. Ocean basin floor topography forms and their relationship to geological processes.
5. Sources of sedimentary material input to the seas and oceans.
6. The regularities of the spatial distribution of sediments in the ocean.
7. Marine sediments and their rate of sedimentation.
8. Postglacial evolution of the Baltic Sea.

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	Duxbury A. C., Duxbury A. B., Sverdrup K. A. 2002: Oceans of the World. Wyd. Naukowe PWN Frisch W., Meschede M., Blakey R. 2011. Plate tectonics. Continental drift and mountain building. Springer 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	BURKE K.: Plate Tectonics, the Wilson Cycle and Mantle Plumes: Geodynamics from the Top. Annual Review of Earth and Planetary Sciences, Vol. 39. ERICKSON J.: Marine Geology: Undersea Landforms and Life Forms. Facts on File. New York 1996. FLOYD P. A. (ed.): Oceanic Basalts. Springer Science, 1991 KEAREY P., KLEPEIS K. A., VINE F. J.: Global tectonics. Wiley-Blackwell, 2009. KENT C. C.: Plate Tectonics and Crustal Evolution. Butterworth-Heinemann, 2003 LARTER R. D., LEAT P. T.: Intra-Oceanic subduction systems, The Geological Society, Londyn 2003 SARLE R.: Mid-Ocean Ridges. University Printing House, Cambridge 2013 SETON M. et al.: Global continental and ocean basin reconstructions since 200 Ma. Earth-Science Reviews, No 113(34), 2012
	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	