University of Gdańsk

Subject card

Subject name and code	Field exercises - geology of coastal zone, PG_00091119		
Field of study	Geology		
Date of commencement of studies	October 2024	Academic year of realisation of subject	2025/2026
Education level	Bachelor's studies	Subject group	Obligatory subject group in the field of study Optional subject group
Mode of study	full-time studies	Mode of delivery	at the university
Year of study	2	Language of instruction	Polish
Semester of study	4	ECTS credits	5.0
Learning profile	academic	Assessment form	credit
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	dr Ewa Szymczak dr Maria Rucińska	

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	0.0	45.0	0.0	0.0	0.0	45

E-learning hours included: 0.0

Additional information:

individual and group workcase studydiscussiongeological surveys and studies

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	45	15.0	50.0	110

Subject objectives

Introduction to the geological structure of selected fragments of the South Baltic coast. Understanding of the relationship between sculpting factors and processes and geomorphological forms. Learning about various forms of coastal protection.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[GEOLL3_K01] is willing to plan and implement, individually or as a team, the next stages of the entrusted task, take responsibility for its results, effectively cooperate in the team by performing various roles in it	is ready for beach profiling and sediment sampling	[SK3] text preparation/written work [SK8] observation of student's independent or team work
[GEOLL3_K02] is willing to take full responsibility in the field of actions taken and to comply with the principles of professional ethics and intellectual honesty, is aware of the importance of a professional approach in every situation	is prepared to take full responsibility for the research undertaken in the marine coastal zone and to observe the principles of professional ethics and intellectual honesty, and is aware of the importance of a professional approach in all situations	[SK6] demonstration of practical skills [SK8] observation of student's independent or team work
[GEOLL3_U03] is able to use source information in Polish and English, including archival and electronic databases, in the field of geological issues	is able to use source data and reconstruct the evolution of the western part of the East European platform from the Precambrian to the present day	[SU3] text preparation/written work
[GEOLL3_W03] knows and identifies paleontological, mineralogical, petrographic and structural objects using appropriate methods	knows and identifies palaeontological, petrographic and structural objects in the coastal zone using appropriate macroscopic methods	[SW3] text preparation/written work [SW5] implementation of a problem task
[GEOLL3_U01] is able to apply basic measurement and analytical techniques in the field and in the laboratory, plans to conduct research and measurements	is able to apply basic measuring and analytical techniques in the field, and to plan surveys and measurements in the coastal zone	[SU3] text preparation/written work [SU6] demonstration of practical skills [SU8] observation of student's independent or team work
[GEOLL3_U05] can reconstruct the history of geological development of selected regions in Poland and in the world on the basis of maps, cross-sections and exposures in the field	is able to reconstruct the evolutionary history of the South Baltic on the basis of maps, cross-sections and field exposures	[SU3] text preparation/written work [SU4] test/exam - oral or written [SU6] demonstration of practical skills
[GEOLL3_U06] is able to identify geological objects and combine them with geological processes and anthropogenic environmental transformations	is able to identify petrographic, palaeontological and structural features linking them to exogenous processes	[SU1] oral statement/conversation/ discussion [SU3] text preparation/written work [SU8] observation of student's independent or team work
[GEOLL3_K03] is willing to exercise caution and criticism in receiving information from scientific literature, the Internet and other media related to natural sciences	is prepared to be cautious and critical in accepting information from scientific literature, the internet and other media relating to coastal zone research	[SK1] oral statement/conversation/ discussion [SK3] text preparation/written work
[GEOLL3_K05] is willing to comply with the principles of occupational safety and health, takes care of specialized equipment entrusted to them, is aware of the risk connected with the performed work	is prepared to comply with the rules of health and safety at work, to take care of the specialised equipment entrusted to him, is aware of the risks of his work in the sea shore area	[SK6] demonstration of practical skills [SK8] observation of student's independent or team work
[GEOLL3_W04] knows and understands phenomena and processes occurring in the past and today in the interior of the Earth and on its surface, defines the methods of how to study them	knows and understands phenomena and processes occurring in the coastal zone of the sea, defines the methods of their investigation	[SW4] test/exam - oral or written [SW2] presentation/project/paper/ report
[GEOLL3_W07] knows the anthropogenic transformation of the natural environment, including the effects of the exploitation of mineral resources	knows the anthropogenic changes of the natural environment, including the effects of mineral exploitation on the coast of the South Baltic Sea	[SW4] test/exam - oral or written
[GEOLL3_U08] is able to write, report and properly illustrate scientific work in Polish and English on the basis of available sources on a selected topic in the field of geological issues	is able to describe, on the basis of available palaeogeographic maps, the evolution of a selected region of the South Baltic Sea	[SU3] text preparation/written work
[GEOLL3_W08] knows the basic principles of occupational health and safety, legal regulations conditioning geological and engineering activities	knows the basic principles of health and safety at work during fieldwork	[SW5] implementation of a problem task

Course outcome	Subject outcome	Method of verification
[GEOLL3_W05] knows the structure and geological development of selected regions in Poland and in the world	knows the geological structure and evolution of selected regions of the South Baltic coast	[SW4] test/exam - oral or written [SW3] text preparation/written work
[GEOLL3_U10] is able to work individually and cooperate in laboratory and field groups performing various functions in them and performing various tasks	is able to sample sediments in the sea and coastal zone and profile the beach in field groups	[SU1] oral statement/conversation/ discussion [SU3] text preparation/written work [SU8] observation of student's independent or team work

Subject contents

1. Evidence of marine, aeolian, fluvial, glacial and limnic processes in the marine coastal zone
2. Elements of stratigraphy and lithology of erosional and accumulation shores
3. Geological development of the western part of the East European Platform on the basis of the deep borehole IG-1
4. Evolution of the Baltic Sea and coastal areas
5. Methods of coastal protection
6. Mineral deposits in the South Baltic coastal area
7. Profiling of the beach and shallow coastal bottom to a depth of 1 m.
8. Sediment sampling methods.

Routes to choose from:

Option I: Rewa - Reda - Osłonino - Rzucewo - Hel - Chłapowo - Rozewie - Dębki - Słowiński Park Narodowy.

Option II: Rewa - Reda - Osłonino - Rzucewo - Hel - Chłapowo - Rozewie - Dębki - Vistula Spit

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
worksheets	51.0%	25.0%
written assessment	51.0%	75.0%

Recommended reading

Basic literature

Basiński T., Pruszak Z., Tarnowska M., Zeidler R. 1993. Protection of seashores. Published by IBW PAN, GdańskWitak M., 2013, Outline of the postglacial evolution of the Southern Baltic Sea, [in:] Cyberski, J. (ed.) Coastal protection in state maritime policy, Kaszubsko-Pomorska Szkoła Wyższa in Wejherowo, Wejherowo, 31-48Witak M. 2018, Outline of geological structure of the sub-Quaternary subsoil, [in:] Bolałek J. (ed) The Vistula Lagoon. Wydawnictwa Naukowe PWN, Warsaw,Witak M., Pędziński J. 2018, Pleistocene, [in:] Bolałek J. (ed) The Vistula Lagoon. Wydawnictwa Naukowe PWN, Warsaw, 17-19Witak M., Pędziński J. 2018, Late Glacial and early Holocene, [in:] Bolałek J. (ed) The Vistula Lagoon. Wydawnictwa Naukowe PWN, Warsaw, 20-25Witak M., Pędziński J. 2018, Middle and late Holocene, [in:] Bolałek J. (ed) The Vistula Lagoon. Wydawnictwa Naukowe PWN, Warsaw, 26-34Łęczyński L., Szymczak E., 2010. Physical properties of bottom sediments. [in:] J. Bolałek (ed.) Physical, biological and chemical studies of marine bottom sediments. UG Jurys. L, Kaulbarsz D., Koszka-Maroń D., Zaleszkiewicz L. 2008. Baltic cliffs and much more, Przeg. Geol. 56Masłowska M., Olszak I.J., Jurys L., Michałowska M. 2003. Geological structure, stratigraphy and palaeogeography of sediments of the southern part of the Osłoninski Cliffs, Geology and Geomorphology, 5Petelski K. 1989. Morphogenesis of the Reda-Łeby proglacial valley and its relationship to the Żarnowieckie Lake trough, Stud. i Mat. Oceanol. 56Rotnicki K. Identification, age and causes of Holocene ingressions and regressions of the Baltic Sea on the Polish central coast. Wydawnictwo Słowińskiego Parku Narodowego, Smołdzino.Skompski S. 1989. Morphogenesis and age of the Kashubian Coast, Stud. i Mat. Oceanol. 56Zaleszkiewicz L., Koszka-Maroń D. 2005. Processes activating the degradation of the cliff coast of the Puck Bay, Przeg. Geol. 53 Szymczak E. 2019, Characteristics of sediments in a changing environmental conditions in Vistula Lagoon (Poland) IOP Conference Series: Earth and Environmental Science, vol. 362, s.1-11Zatoka Pucka. Volume I. Geological and Physical Aspects, eds. J. Bolałek, D. Burska

	Supplementary literature	Czarnogórska M., Graniczny M., Uścinowicz Sz., Nutricato R., Triggiani S., Nitti D.O., Bovenga F., Wąsowski J. 2012. Analysis of surface deformations along the south-western coasts of the Gulf of Gdańsk using satellite interferometric data, Przeg. Geol. 60Kramarska R. 2002. Tertiary in the coastal zone between Jastrzębia Góra and Władysławowo, Guidebook of the LXXIII Congress of the Polish Geological Society.Marzec M., Woźny E. 1972. Lithology and stratigraphy of Tertiary formations in the vicinity of Jastrzębia Góra near Puck, Przeg. Geol. 12Olszak J. 1998. Chronostratygraphy of the western part of the cliff of Kępa Swarzewska near Jastrzębia Góra (Baltic Coast). In: Gołębiewski R. (ed.) Peribalticum VII, GTN.Sierżęga P. 2002. Hydrogeological conditions in the area of Żarnowieckie Lake, Guidebook of the LXXIII Congress of the Polish Geological Society (PTG).Subotowicz W. 1980. Geodynamics of cliff shores of the Gdańsk region. In: Rosa B. (ed.) Peribalticum. Problemy badawcze obszaru bałtyckiego, GTN, Gdańsk.Tomczak A. 2005. Stan i zagrożenia Półwyspu Helskiego. Selected issues from the geological past and future of the Hel Peninsula. GTN Gdańsk
	eResources addresses	Basic https://baza.pgi.gov.pl/geoportal - CBDG Geoportal for spatial data PGI
Example issues/ example questions/ tasks being completed	Based on the attached geological cross-sections, describe similarities and differences in the geological structure of the Reda-Leba proglacial valley and the Kashubian Meander.	
Work placement	Not applicable	

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