

Subject card

Subject name and code	Field classes - Geology of coastal zone II, PG_00199145						
Field of study	Geology						
Date of commencement of studies	October 2026	Academic year of realisation of subject			2027/2028		
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						
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: <ul style="list-style-type: none"> • Field exercises • Research vessel cruise • Individual and group work • Case study analysis • Discussion • Geological measurements and data processing 						
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		5.0		75.0	125
Subject objectives	Field classes include an analysis of the geological structure and contemporary sedimentary processes in the area of the Vistula River mouth and the Vistula Lagoon. Students become familiar with the origin of spits and lagoons as well as the functioning of deltaic systems. Particular attention is given to sediment transport and accumulation processes, the influence of the hydrodynamics of the Baltic Sea on the development of coastal landforms, and the significance of human activities (including the Vistula Spit canal) for the dynamics of the coastal environment. Students carry out basic field measurements, document geological exposures, and analyse processes of erosion and sediment accumulation in the coastal zone. They also learn methods of conducting geological research on board a research vessel.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[GEOLL3_U10] is able to work individually and cooperate in laboratory and field groups performing various functions in them and performing various tasks	The student is able to cooperate in field teams while conducting observations and documenting sedimentary processes.	[SU6] demonstration of practical skills [SU8] observation of student's independent or team work
	[GEOLL3_U06] is able to identify geological objects and combine them with geological processes and anthropogenic environmental transformations	The student is able to identify landforms related to sedimentary processes and explain their origin.	[SU1] oral statement/conversation/discussion [SU2] presentation/project/paper/report [SU4] test/exam - oral or written [SU5] implementation of a problem task
	[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	The student is able to interpret the geological development of deltaic and barrier-lagoon systems of the southern Baltic Sea.	[SU1] oral statement/conversation/discussion [SU2] presentation/project/paper/report [SU4] test/exam - oral or written [SU5] 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	The student is able to conduct basic field measurements and geological documentation in river mouth, lagoon, beach environments	[SU2] presentation/project/paper/report [SU6] demonstration of practical skills
	[GEOLL3_W07] knows the anthropogenic transformation of the natural environment, including the effects of the exploitation of mineral resources	The student knows the impact of human activity on coastal transformations, including the example of the Vistula Spit canal.	[SW4] test/exam - oral or written [SW1] oral statement/conversation/discussion [SW2] presentation/project/paper/report
	[GEOLL3_W05] knows the structure and geological development of selected regions in Poland and in the world	The student knows the geological structure and evolution of the delta and spit-lagoon systems of the southern Baltic Sea.	[SW4] test/exam - oral or written [SW1] oral statement/conversation/discussion [SW2] presentation/project/paper/report
	[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	The student is ready to follow safety regulations during fieldwork in river-mouth and coastal environments and during research conducted on the vessel.	[SK1] oral statement/conversation/discussion [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	The student knows contemporary sedimentary processes occurring in river mouth areas and lagoon environments.	[SW4] test/exam - oral or written [SW1] oral statement/conversation/discussion [SW2] presentation/project/paper/report	
Subject contents	<p>SITES</p> <p>Zalew Wiślany Mierzeja Wiślana Przekop Mierzei Mikoszewo Klif Orłowski Klif Gdyński Słowiński Park Narodowy</p> <ol style="list-style-type: none"> 1. Geological structure and evolution of the Vistula Lagoon as a lagoonal system. 2. Origin and development of the Vistula Spit as an accumulative barrier. 3. Sediment transport and sedimentation processes in barrierlagoon systems. 4. Morphology of the Vistula River mouth and deltaic processes in the Mikoszewo area. 5. Influence of the hydrodynamics of the Baltic Sea on the development of coastal landforms. 6. Anthropogenic transformations of the coast the Vistula Spit canal. 7. Geological structure of the cliffs of Gdynia and Orłowo and their contemporary dynamics. 8. Contemporary sedimentary processes in river mouth zones. 9. The role of aeolian transport in the formation of dunes in Słowiński National Park. 10. The importance of geological research for coastal protection planning and coastal zone management. 11. Beach morphology and beach profiling. 12. Coastal sediments and their characteristics. 		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	written assessment	51.0%	75.0%
	worksheets	51.0%	25.0%

Recommended reading	Basic literature	<p>Basiński, T., Pruszek, Z., Tarnowska, M., Zeidler, R. (1993). <i>Coastal Protection</i>. Institute of Hydro-Engineering, Polish Academy of Sciences, Gdańsk.</p> <p>Jurys, L., Kaulbarsz, D., Koszka-Maróń, D., Zaleszkiewicz, L. (2008). Baltic cliffs and much more. <i>Przegląd Geologiczny</i>, 56.</p> <p>Kaulbarsz, D. (2005). Geological structure and glaciotectionics of the Orłowo Cliff in Gdynia. <i>Przegląd Geologiczny</i>, 53, 572581.</p> <p>Łęczyński, L., Szymczak, E. (2010). Physical properties of bottom sediments. In: J. Bolałek (ed.), <i>Physical, Biological and Chemical Studies of Marine Bottom Sediments</i>. University of Gdańsk Press.</p> <p>Pędziński, J., Szymczak, E. (2020). Macroscopic description of marine bottom sediments. In: E. Szymczak (ed.), <i>Fundamentals of Interdisciplinary Research of the Baltic Sea: Coursebook for Undergraduate Students of Oceanography</i>. University of Gdańsk Press, Gdańsk, pp. 8693.</p> <p>Szymczak, E. (2019). Characteristics of sediments in changing environmental conditions in the Vistula Lagoon (Poland). <i>IOP Conference Series: Earth and Environmental Science</i>, 362, 111.</p> <p>Szymczak, E. (2015). Selected lithological features of sediments from the Vistula River mouth. In: M. Witak (ed.), <i>Geological Processes in the Coastal Zone of the Sea</i>. University of Gdańsk Press, Gdańsk, pp. 5362.</p> <p>Szymczak, E. (2018). Lithodynamics of surface sediments of the Vistula Lagoon. In: J. Bolałek (ed.), <i>The Vistula Lagoon</i>. PWN Scientific Publishers, Warsaw, pp. 217223.</p> <p>Szymczak, E. (2019). Characteristics of sediments in changing environmental conditions in the Vistula Lagoon (Poland). <i>IOP Conference Series: Earth and Environmental Science</i>, 362, 111. DOI: 10.1088/1755-1315/362/1/012048.</p> <p>Szymczak, E. (2020). Sedimentary record for the past century found in clayey-silty sediments from the Gulf of Gdańsk (southern Baltic Sea). <i>IOP Conference Series: Earth and Environmental Science</i>, 609, 18. DOI:10.1088/1755-1315/609/1/012082.</p> <p>Uścińowicz, S. et al. (2021). Holocene development of the Vistula Spit (Baltic Sea coast). <i>The Holocene</i>.</p> <p>Witak, M. (2018). Outline of the geological structure of the pre-Quaternary basement. In: J. Bolałek (ed.), <i>The Vistula Lagoon</i>. PWN Scientific Publishers, Warsaw.</p> <p>Witak, M. (2013). Outline of the postglacial evolution of the southern Baltic Sea. In: J. Cyberski (ed.), <i>Coastal Protection in the State Maritime Policy</i>. Kashubian-Pomeranian School of Higher Education, Wejherowo, pp. 3148.</p> <p>Witak, M., Pędziński, J. (2018). Pleistocene. In: J. Bolałek (ed.), <i>The Vistula Lagoon</i>. PWN Scientific Publishers, Warsaw, pp. 1719.</p> <p>Witak, M., Pędziński, J. (2018). Late Glacial and Early Holocene. In: J. Bolałek (ed.), <i>The Vistula Lagoon</i>. PWN Scientific Publishers, Warsaw, pp. 2025.</p> <p>Witak, M., Pędziński, J. (2018). Middle and Late Holocene. In: J.</p>
---------------------	------------------	--

		Bolalek (ed.), <i>The Vistula Lagoon</i> . PWN Scientific Publishers, Warsaw, pp. 2634.
	Supplementary literature	<p>Czarnogórska M., Graniczny M., Uścińowicz 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, <i>Przeg. Geol.</i> 60</p> <p>Subotowicz W. 1980. Geodynamics of cliff shores of the Gdańsk region. In: Rosa B. (ed.) <i>Peribalticum. Problemy badawcze obszaru bałtyckiego</i>, GTN, Gdańsk.</p> <p>Rotnicki, K. Identification, age and causes of Holocene transgressions and regressions of the Baltic Sea on the Polish central coast. <i>Słowiński National Park Publishing House, Smołdzino.</i></p>
	eResources addresses	
Example issues/ example questions/ tasks being completed	Scharakteryzuj morfologię plaży na podstawie wykonanego profilu plażowego i obserwacji terenowych.	
Work placement	Not applicable	

Document generated electronically. Does not require a seal or signature.