University of Gdańsk

Subject card

Subject name and code	Long-term changes in the natural environment, PG_00198110						
Field of study	Natural Resources Conservation						
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 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	2		Language of instruction	Polish			
Semester of study	4		ECTS credits	1.0			
Learning profile	academic		Assessment form	credit			
Conducting unit							
Name and surname of lecturer (lecturers)	Subject supervisor		dr Anna Pędziszewska				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	15.0	0.0	0.0	0.0	15
	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	15		3.0		7.0	25
Subject objectives	To provide a basic knowledge of long-term environmental change as a basis for assessing contemporary natural processes and possible environmental changes in the future. Demonstrate the need for interdisciplinary research, taking into account the geological time scale, for understanding the mechanisms of environmental change. To get acquainted with the possibilities of using bioindicative properties of various groups of organisms for paleoenvironmental reconstructions. To acquire the theoretical knowledge and practical skills needed to select paleoecological methods and sites.						

Learning outcomes

Course outcome	Subject outcome	Method of verification
[OZPL3_W11] The graduate have an advanced knowledge and understanding of the concepts and terminology of natural science, as well as knowledge of the evolution of natural sciences and the research methods employed in them. They are also cognizant of the potential for practical application	is familiar with basic paleoecological concepts and terminology and is aware of their potential use in predicting future environmental changes	[SW1] oral statement/ conversation/discussion [SW3] text preparation/written work
[OZPL3_W05] The graduate understands the principles and mechanisms of life at the population, biocenosis, and ecosystem levels, as well as the temporal and spatial factors that influence biodiversity.	explains the basic rules and describes the mechanisms of functioning of ecosystems and the temporal and spatial determinants of changes in the natural environment	[SW1] oral statement/ conversation/discussion [SW3] text preparation/written work
[OZPL3_K06] The graduate is prepared to demonstrate responsibility for their own and others' safe working conditions in the laboratory and in the field, and is able to recognise hazardous situations and take appropriate action	Demonstrates responsibility for safe working conditions of self and others in the laboratory and in the field, and is able to recognize hazardous situations and take appropriate actions	[SK8] observation of student's independent or team work
[OZPL3_K08] The graduate is ready to systematically update his/ her natural knowledge and to apply it in practice	systematically updates natural science knowledge and knows its practical applications	[SK1] oral statement/conversation/ discussion
[OZPL3_U04] The graduate is able to plan and carry out simple research tasks in the biological sciences under the guidance of a supervisor	under the guidance of a mentor, performs simple research tasks in the field of paleoecology	[SU5] implementation of a problem task [SU6] demonstration of practical skills
[OZPL3_U06] The graduate is able to make observations and perform basic physical, biological and chemical measurements in the field or laboratory	makes observations of paleoecological material and performs in the field and laboratory basic descriptions and analyses of the material	[SU3] text preparation/written work [SU5] implementation of a problem task
[OZPL3_K01] The graduate is ready to recognise the limitations in his/her own knowledge and understands the need for continuous learning and development	Knows the limits of his own knowledge and understands the need for continuous learning and development	[SK1] oral statement/conversation/ discussion
[OZPL3_W06] The graduate has an advanced understanding of the names and types of natural environments, including their structural and functional characteristics	names the types of paleoecological sites and characterizes the degree of of transformation of the natural environment	[SW1] oral statement/ conversation/discussion [SW3] text preparation/written work

Subject contents

diversification of post-glacial relief and characterization of the composition of selected plant communities in the Holocene in Poland.Northern. Assessment of the degree of transformation of the natural environment under the influence of various forms of anthropopression. Types of paleoecological sites.Methods of collecting paleoecological material in the field (drilling in a peat bog, collection of lake sediments) and methods of collectingsurface botanical samples. Use of the bioindicative role of plants to determine the nature of natural and anthropogenic habitats.

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
report I	51.0%	50.0%
report II	51.0%	50.0%

Recommended reading	Basic literature	Tobolski K. 2000. Przewodnik do oznaczania torfów i osadów jeziornych. PWN, Warszawa. Berglund B.E. 1986. Handbook of Holocene Palaeoecology and Palaeohydrology. Wiley & Sons, Chichester-New York. Mojski J.E. 2005. Ziemie polskie w czwartorzędzie. Zarys morfogenezy. PIG, Warszawa. Lindner L. 1992. Czwartorzęd. Osady, metody badań, stratygrafia. Wyd. PAE, Warszawa. Starkel L. (red.). 1999. Geografia Polski. Środowisko Przyrodnicze. PWN, Warszawa.
	Supplementary literature	Pędziszewska A., Latałowa M. 2016. Stand-scale reconstruction of late Holocene forest succession on the Gdańsk Upland (N. Poland) based on integrated palynological and macrofossil data from paired sites. Veg. Hist. Archaeobot. 25: 239-254. Latałowa M., Pędziszewska A., Maciejewska E., Święta-Musznicka J. 2013. Tilia forest dynamics, Kreitzschmaria deusta attack, and mire hydrology as palaeoecological proxies for mid-Holocene climate reconstruction in the Kashubian Lake District (N. Poland). The Holocene 23(5): 667-677. Dybova-Jachowicz S., Sadowska A. (red.). 2003. Palinologia. Wyd. IB PAN, Kraków.
	eResources addresses	
Example issues/ example questions/ tasks being completed	field trip I : History of plant communities, site selection for paleoecological studies, documentation of the drilling site, collection of materials for paleoecological studies (drilling in a peat bog), description of sediments by non-genetic method (T-S).field trip II: coastal relief, history of the Baltic Sea, assessment of the conservation status of forest communities (climate change, anthropogenic influence, shaping factors - synanthropization, eutrophication, etc.). The importance of actopalinological studies: - research on modern pollen fallout - the role of paleoecology in shaping forest management- forecasting seed years on the basis of contemporary observationsCollection of materials (bryophyte samples) for actopalinological studies, vegetation mapping.	
Work placement	Not applicable	

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