University of Gdańsk

Subject card

Subject name and code	Environmental change reconstructions (Lecture), PG_00196128		
Field of study	Physical geography and geoinformation		
Date of commencement of studies	October 2026	Academic year of realisation of subject	2026/2027
Education level	Master'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	1	ECTS credits	3.0
Learning profile	academic	Assessment form	exam
Conducting unit	Laboratory of Geomorphological Reconstructions -> Department of Geomorphology and Quaternary Geology -> Faculty of Oceanography and Geography -> Rector		
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. Piotr Woźniak, prof. UG	
	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	43.0	75

Subject objectives

1. Presentation of the main methods used in palaeoenvironmental reconstructions.

2. Explanation of the mechanisms conditioning long-term environmental changes.

3. Presentation of indicator features of selected sedimentary environments.

4. Presentation of the role of research on the past of the environment in the context of its current and future changes.

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[GFGMU2_U05] is able to integrate knowledge from the discipline of Earth and environmental sciences, explaining and interpreting the interrelationships between environmental processes and phenomena in order to solve research problems in physical geography and geoinformation	Is able to integrate knowledge in the field of Earth and environmental sciences, correctly explaining and interpreting the mutual relations between processes and phenomena accompanying environmental changes at different time scales.	[SU4] test/exam - oral or written
	[GFGMU2_K01] is able to behave appropriately in the workplace and in everyday life by critically evaluating information received in the light of their existing knowledge, recognising the importance of knowledge in solving cognitive and practical problems, and, when faced with difficulties, drawing on expert knowledge	Can prepare for the exam by assimilating the knowledge passed on during lectures and critically reading the literature.	[SK4] test/exam - oral or written
	[GFGMU2_W02] knows and understands to a deepened extent issues in the field of exact sciences enabling the understanding of complex processes and phenomena occurring in the Earth's natural environment, and in their interpretations consistently relay on empirical foundations, using qualitative and quantitative methods	Knows and understands the interdisciplinary approach in Earth and environmental sciences, as well as qualitative and quantitative methods used in environmental reconstructions.	[SW4] test/exam - oral or written
	[GFGMU2_U03] is able to use academic literature in the fields of physical geography and geoinformation in Polish and English, selecting it appropriately for the research objective	Can choose the literature necessary to prepare for the exam. PROSZĘ USUNĄĆ TEN EFEKT.	[SU4] test/exam - oral or written
	[GFGMU2_W08] knows and understands in a deepened extent the most important contemporary problems in the field of contemporary climate change and environmental crises on a regional and global scale, their essence, genesis and possible consequences	Knows and understands the problem of anthropogenic changes in the natural environment on a regional and global scale, their essence, genesis and possible consequences.	[SW4] test/exam - oral or written
	[GFGMU2_U02] is able to precisely and appropriately use terminology in the field of physical geography and geoinformation in oral statements and written works	Can properly apply terminology used in the palaeoenvironmental reconstructions.	[SU4] test/exam - oral or written
	[GFGMU2_W01] knows and understands to a deepened extent the specificity of Earth sciences in the field of physical geography, its internal structure, research subject and main research directions, the methods applied, conceptual apparatus, as well as practical applications of scientific achievements	Knows and understands the interdisciplinary approach in Earth and environmental sciences, as well as qualitative and quantitative methods used in environmental reconstructions.	[SW4] test/exam - oral or written

Subject contents	1. Natural environmental archives. 2. Methods of sediment and natural processes dating. 3. Mechanisms for controlling changes in the environment. 4. The use of abiotic indicators in environmental reconstructions. 5. The use of biotic indicators in environmental reconstructions. 6. Reconstructions of fluvial and fluvioglacial environments. 7. Reconstructions of aeolian and periglacial environments. 8. Reconstructions of mass movements and seismic phenomena. 9. Reconstructions of the glacial environment. 10. Ice cores as a source of information about the past of the environment. 11. Oceanic and marine sediments as a source of information about the past of the environment. 12. Lake sediments as a source of information about the past of the environment. 13. Peat bogs as a source of information about the past of the environment. 14. Fossil soils as a source of information about the past of the environment. 15. Environmental reconstruction and forecasting future changes.
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

Allen P.A., 2000, Procesy kształtujące powierzchnię Ziemi. PWN, Warszawa.

Bennet M.R., Glasser N.F., 2009, Glacial geology. Ice sheets and landforms. John Wiley & Sons, Chichester.

Mannion A.M., 2001, Zmiany środowiska Ziemi. PWN, Warszawa.

Mycielska-Dowgiałło E., Rutkowski J. (red.), 2007, Badania cech teksturalnych osadów czwartorzędowych. SWPR, Warszawa.

Smol J.P., 2008, Pollution of Lakes and Rivers. A Paleoenvironmental Perspective. Blackwell Publishing, Oxford.

Weiner J., 2006, Życie i ewolucja biosfery. PWN, Warszawa.

Zieliński T., 2014, Sedymentologia. Osady rzek i jezior. UAM, Poznań.

	Supplementary literature	Mojski J. E., 2005, Ziemie polskie w czwartorzędzie, PIG, Warszawa. Renfrew C., Bahn P., 2002, Archeologia. Teorie, metody, praktyka. Prószyński i S-ka, Warszawa. Stanley S.M., 2005, Historia Ziemi. PWN, Warszawa.
	eResources addresses	
Example issues/ example questions/ tasks being completed	1. Link the research material to the method of its dating. 2. List biotic indicators used in palaeenvironmental research.	
Work placement	Not applicable	

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