University of Gdańsk

Subject card

Subject name and code	Palaeoecology, PG_00103542		
Field of study	Environmental Protection		
Date of commencement of studies	October 2026	Academic year of realisation of subject	2028/2029
Education level	Bachelor's studies	Subject group	Optional subject group
Mode of study	full-time studies	Mode of delivery	at the university
Year of study	3	Language of instruction	Polish
Semester of study	5	ECTS credits	2.0
Learning profile	academic	Assessment form	credit
Conducting unit	Laboratory of Paleoecology and Archaeobotany -> Department of Plant Ecology -> Faculty of Biology -> Rector		
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. Joanna Święta-Musznicka	
	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	5.0	15.0	50

Subject objectives

The aim of the lecture is to provide basic knowledge of long-term environmental change in the past as a basis for assessing contemporary natural processes and building scenarios for the direction, rate and extent of future change. It is assumed that knowledge in this area allows for a proper assessment of the modifying natural processes of the human role in transforming the environment (e.g. the greenhouse effect).

Learning outcomes

Course outcome	Subject outcome	Method of verification
[OŚL3_K05] Identifies the level of her/his knowledge and skills, demonstrates the need to update knowledge about the environment and its protection, demonstrates the need for continuous professional training and personal development.	the student is able to discuss with palaeoecologists the problem of environmental research on archaeological and natural sites; the student is able to formulate research problems independently in the context of cooperation with a palaeoecologist	[SK1] oral statement/conversation/ discussion [SK8] observation of student's independent or team work
[OŚL3_W09] Describes the basic methods, techniques and tools that allow the rational use, shaping and restoration of natural resources.	learns about new directions and applications of new methods in environmental research; understands the importance and functioning of global paleoecological databases	[SW4] test/exam - oral or written [SW1] oral statement/ conversation/discussion
[OŚL3_W05] Explains the course of natural and anthropopressional physical, chemical and biological processes and phenomena occurring in nature at various levels of matter organisation.	understands the phenomena, processes and mechanisms of environmental change; understands the need for interdisciplinary research in the study of environmental change	[SW4] test/exam - oral or written [SW1] oral statement/ conversation/discussion
[OŚL3_W02] Characterises the relationships and relationships between various disciplines of natural sciences and science, uses knowledge of mathematics, physics, chemistry and biology in the description of basic concepts, concepts and principles in environmental protection.	the student understands that the natural environment is a complex system of interacting factors; understands the need for long-term research that takes into account the historical and geological time scale	[SW4] test/exam - oral or written [SW1] oral statement/ conversation/discussion

Subject contents	An overview of the methods and problems of Quaternary palaeoecology. The lecture emphasises the interdisciplinary and integrative character of this field of science, the main objective of which is the comprehensive reconstruction of palaeoenvironments and the study of mechanisms and relationships determining the transformations of the natural environment at the global, regional and local scales. A review of palaeobotanical, palaeozoological and lithological methods; methods of absolute and relative dating; examples of the use of bioindicative properties of organisms for the reconstruction of individual elements of terrestrial and aquatic environments; examples of interdisciplinary palaeoecological projects currently carried out in Europe and Poland - their results and significance not only for the knowledge of the past, but also as a basis for forecasting future changes in the environment, including climate change. Outline of changes in the natural environment of Europe in the Quaternary against the background of the theory of climatic-edaphic cycles; changes in the natural environment of Poland after the last glaciation, taking into account the impact of settlement and prehistoric economy. Main forms of human use of plants; development of agriculture; synanthropisation.
Prerequisites and co-requisites	

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
written pass (test, open questions)	51.0%	100.0%

Recommended reading

Basic literature	Alverson K.D., Bradley R.S., Pedersen T.F. 2003. Paleoclimate, Global Change and the Future. Springer, Berlin-Heidelberg-New York. Berglund B.E. 1986. Handbook of Holocene Palaeoecology and Palaeohydrology. Wiley & Sons, Chichester-New York. Birks H.J.B., Birks H.H. 1980. Quaternary Palaeoecology. E. Arnold, London. Elias i in. 2005-2007. Encyclopedia of Quaternary Sciences. Elsevier. Mackay A., Battarbe R., Birks J., Oldfield F. 2003. Global change in the Holocene. Arnold, New York
Supplementary literature	Lindner L. 1992. Czwartorzęd. Osady, metody badań, stratygrafia. Wyd. PAE, Warszawa. Starkel L. (red.). 1999. Geografia Polski. Środowisko Przyrodnicze. PWN, Warszawa. Dybova-Jachowicz S., Sadowska A. (red.). 2003. Palinologia. Wyd. IB PAN, Kraków. Lityńska-Zając M., Wasylikowa K. 2005. Przewodnik do badań archeobotanicznych. Sorus, Poznań. Makohonienko M., Makowiecki D., Kurnatowska Z. (red.), 2007. Studia interdyscyplinarne nad środowiskiem i kulturą w Polsce. ŚrodowiskoCzłowiek-Cywilizacja, tom I. Bogucki Wyd. Naukowe, Poznań.
eResources addresses	

Example issues/ example questions/ tasks being completed	Sources of material for palaeoecological studies. Quaternary sediments - classification, description. Pollen and macroscopic plant remains analyses as complementary methods in reconstruction of vegetation history. Eemian interglacial - characteristics of climatic conditions and vegetation. Division of the Late Vistulian into periods and their characteristics. Environmental changes in the Holocene. Theories on the extinction of large mammals at the end of the Pleistocene. Impact of Neolithic cultures on the environment. Main stages of synanthropisation, division of synanthropic plants. Centres of plant domestication.
Work placement	Not applicable

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