University of Gdańsk

Subject card

Subject name and code	Synoptic climatology (Classes), PG_00201204						
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	2		ECTS credits	2.0			
Learning profile	academic		Assessment form	credit			
Conducting unit	Climate Research Laboratory -> Department of Physical Oceanography and Climate Research -> Faculty of Oceanography and Geography -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr Małgorzata Owczarek				
	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		2.0		33.0	50
Subject objectives	Preparation to independently analyze basic problems in the field of meteorology and synoptic climatology Determining the role of atmospheric circulation in shaping climatic conditions at various spatial scales						

Learning outcomes

Course outcome	Subject outcome	Method of verification
[GFGMU2_U04] is able to analyse and interpret the causes and course of physical-geographical processes and phenomena, selects and applies advanced research methods and tools, including statistical and geoinformatics methods, and critically interprets the results obtained, drawing conclusions and formulating their own position on that basis, justified in debate.	Student is able to use sources of synoptic information, identify processes taking place in the atmosphere based on measurement results and their visualization, and is able to analyze and interpret them.	[SU2] presentation/project/paper/ report [SU4] test/exam - oral or written [SU5] implementation of a problem task
[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	Student knows and understands basic issues in the field of atmospheric dynamics, enabling understanding of complex processes and phenomena occurring in the Earth's atmosphere and their consequences.	[SW4] test/exam - oral or written [SW1] oral statement/ conversation/discussion [SW5] implementation of a problem task
[GFGMU2_K01] is ready to critically assess the knowledge obtained in the field of Earth and environmental sciences, particularly physical geography and geoinformation, its completion and verification through further critical analysis of scientific literature	Student is able to use the literature on synoptic climatology, is aware of the responsibility for the reliability of the analyzes conducted and the need to expand his knowledge and skills	[SK2] presentation/project/paper/ report [SK5] implementation of a problem task [SK8] observation of student's independent or team work
[GFGMU2_U02] is able to precisely and appropriately use terminology in the field of physical geography and geoinformation in oral statements and written works	Student is able to use scientific terminology appropriate to describe and interpret processes occurring in the atmosphere and in the field of geoinformatic applications in synoptic climatology.	[SU1] oral statement/conversation/ discussion [SU2] presentation/project/paper/ report [SU4] test/exam - oral or written [SU8] observation of student's independent or team work

Subject contents

Descriptive and quantitative characteristics of basic processes in the atmosphere

Analysis of meteorological information contained in synoptic messages and aerological diagrams

Identification of elements presented on the upper and lower synoptic maps

Interpretation of the synoptic situation in relation to circulation classification

Characteristics of meteorological conditions resulting from specific synoptic situations

Characteristics of atmospheric circulation as a climate factor at various spatial scales

Analysis of cases of relationships between atmospheric circulation and processes in the geographical environment and human activities of specific areas

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
20	70.0%	10.0%
80	100.0%	90.0%

Recommended reading	Basic literature	Yarnal B., 1994, Synoptic climatology in environmental analysis, Belhaven press, London and Florida Barary R.G., Hall-McKim E.A. 2014 Essentials of the Earth's Climate System, cambridge University Press, Lackmann G. 2012 Midlatitude Synoptic Meteorology, American Meteorological Society
	Supplementary literature	WMO, 1975. Compendium of meteorology: Vol. I, Part I: Dynamic Meteorology, WMO No. 364, Genewa. WMO, 1978. Compendium of meteorology: Vol. I, Part III: Synoptic Meteorology, WMO No. 364, Genewa. Ostrowski M., 1999, Meteorology for sports aviation. Polish Aero Club, Warsaw Kożuchowski K., 2011, Polish climate, new look, PWN, Warsaw
	eResources addresses	
Example issues/ example questions/ tasks being completed	Describe the presented synoptic map Analyze the variability of the NAO index over a given period Based on synoptic maps, determine the type of atmospheric circulation according to the Grosswetterlagen classification Describe the weather conditions associated with the atmospheric circulation shown on the upper and lower synoptic maps	
Work placement	Not applicable	

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