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_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
[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	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_U04] is able, either independently or as part of a group, to formulate and test hypotheses regarding the causes and progression of physical-geographical processes and phenomena; selects and applies advanced research methods and tools, including statistical and geoinformatics methods, adapting them to the context where necessary; skilfully visualises the results of spatial data analysis, critically interprets the findings, and formulates conclusions and their own position based on these, which they justify 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

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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