

**Subject card**

<b>Subject name and code</b>	Synoptic climatology (Classes), PG_00201204						
<b>Field of study</b>	Physical geography and geoinformation						
<b>Date of commencement of studies</b>	October 2026		<b>Academic year of realisation of subject</b>		2026/2027		
<b>Education level</b>	Master's studies		<b>Subject group</b>		Obligatory subject group in the field of study Subject group related to scientific research in the field of study		
<b>Mode of study</b>	full-time studies		<b>Mode of delivery</b>		at the university		
<b>Year of study</b>	1		<b>Language of instruction</b>		Polish		
<b>Semester of study</b>	2		<b>ECTS credits</b>		2.0		
<b>Learning profile</b>	academic		<b>Assessment form</b>		credit		
<b>Conducting unit</b>	Climate Research Laboratory -> Department of Physical Oceanography and Climate Research -> Faculty of Oceanography and Geography -> Rector						
<b>Name and surname of lecturer (lecturers)</b>	Subject supervisor		dr Małgorzata Owczarek				
	Teachers						
<b>Lesson types</b>	<b>Lesson type</b>	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						
<b>Learning activity and number of study hours</b>	<b>Learning activity</b>	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
<b>Subject objectives</b>	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 rely 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	<p>Descriptive and quantitative characteristics of basic processes in the atmosphere</p> <p>Analysis of meteorological information contained in synoptic messages and aerological diagrams</p> <p>Identification of elements presented on the upper and lower synoptic maps</p> <p>Interpretation of the synoptic situation in relation to circulation classification</p> <p>Characteristics of meteorological conditions resulting from specific synoptic situations</p> <p>Characteristics of atmospheric circulation as a climate factor at various spatial scales</p> <p>Analysis of cases of relationships between atmospheric circulation and processes in the geographical environment and human activities of specific areas</p>		
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	<p>Yarnal B., 1994, Synoptic climatology in environmental analysis, Belhaven press, London and Florida</p> <p>Barary R.G., Hall-McKim E.A. 2014 Essentials of the Earth's Climate System, cambridge University Press,</p> <p>Lackmann G. 2012 Midlatitude Synoptic Meteorology, American Meteorological Society</p>
	Supplementary literature	<p>WMO, 1975. Compendium of meteorology: Vol. I, Part I: Dynamic Meteorology, WMO No. 364, Genewa.</p> <p>WMO, 1978. Compendium of meteorology: Vol. I, Part III: Synoptic Meteorology, WMO No. 364, Genewa.</p> <p>Ostrowski M., 1999, Meteorology for sports aviation. Polish Aero Club, Warsaw</p> <p>Kożuchowski K., 2011, Polish climate, new look, PWN, Warsaw</p>
	eResources addresses	
Example issues/ example questions/ tasks being completed	<p>Describe the presented synoptic map</p> <p>Analyze the variability of the NAO index over a given period</p> <p>Based on synoptic maps, determine the type of atmospheric circulation according to the Grosswetterlagen classification</p> <p>Describe the weather conditions associated with the atmospheric circulation shown on the upper and lower synoptic maps</p>	
Work placement	Not applicable	

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