University of Gdańsk

Subject card

Subject name and code	Synoptic climatology - tutorial, PG_00153733						
Field of study	Physical geography and geoinformation						
Date of commencement of studies	October 2024		Academic year of realisation of subject		2024/2025		
Education level	postgraduate studies		Subject group		Obligatory subject group 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				
Conducting unit	Pracownia Badań Klimatu -> Katedra Oceanografii Fizycznej i Badań Klimatu -> Faculty of Oceanography and Geography						
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						
	Additional information: online classes - if necessary						
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		15.0		30.0	60
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_K01] critical assessment of knowledge in the field of Earth and environmental sciences and geoinformation, its completion and verification through 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_W02] 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_U02] 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_U04] describe and analyze the causes and course of physical and geographical processes and phenomena, selecting and applying advanced techniques and research tools in the field of statistical and geoinformation methods, interpreting the results, using theoretical knowledge to formulate own opinions and conclusions	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

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
80	100.0%	90.0%
20	70.0%	10.0%

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	Podstawowe https://www.ecmwf.int/en/forecasts - global forecasts, climate reanalyses and specific datasets, https://www.wetterzentrale.de/de/topkarten.php?model=gfs - synoptic maps https://weather.uwyo.edu/upperair/ - upper air maps, thermodynamic diagrams http://meteo.imgw.pl/ - synoptic maps Uzupełniające Adresy na platformie eNauczanie:
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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