University of Gdańsk

Subject card

Subject name and code	Principles of synoptic meteorology, PG_00091472		
Field of study	Water Management and Protection of Water Resources		
Date of commencement of studies	October 2025	Academic year of realisation of subject	2027/2028
Education level	Bachelor's studies	Subject group	Obligatory subject group in the field of study Optional subject group Subject group related to scientific research in the field of study Subject group related to practical vocational preparation
Mode of study	full-time studies	Mode of delivery	at the university
Year of study	3	Language of instruction	English
Semester of study	6	ECTS credits	2.0
Learning profile	practical	Assessment form	
Conducting unit	Laboratory of the Biogeochemical Cycle of Elements -> Department of Chemical Oceanography and Marine Geology -> Faculty of Oceanography and Geography -> Rector		
Name and surname of lecturer (lecturers)	Subject supervisor	dr Michalina Bielawska	
	Teachers		

Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	20.0	0.0	0.0	0.0	0.0	20
	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	20	2.0	30.0	52

Subject objectives	During the classes, students will become familiar with the physical foundations of atmospheric processes and phenomena occurring on a synoptic scale. In addition, the subject will provide insight into practical aspects of analyzing synoptic maps and meteorological data.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[GWOZWL3-U13] read with understanding specialized scientific texts in Polish and English	Can read and understand specialized scientific texts in Polish and English.	[SU1] oral statement/conversation/ discussion [SU2] presentation/project/paper/ report
[GWOZWL3-W02] the importance of knowledge in the sciences allowing to understand the processes and phenomena occurring in the hydrosphere, as well as knowledge of the social sciences and of the Earth's geographic environment - as a a system of interrelated and interacting components	Understands the importance of knowledge in the field of exact sciences, which allows for understanding the processes and phenomena occurring in the hydrosphere, as well as knowledge in the field of social sciences and the geographical environment of the Earth - as a system of interconnected and interacting components.	[SW1] oral statement/ conversation/discussion [SW2] presentation/project/paper/ report
[GWOZWL3-W08] basic concepts and problems in the field of study in English	Knows basic concepts and problems within the field of study in English.	[SW1] oral statement/ conversation/discussion [SW2] presentation/project/paper/ report
[GWOZWL3-U11] prepare oral presentations of of a scientific nature	Is able to prepare oral presentations of a scientific nature.	[SU1] oral statement/conversation/ discussion [SU2] presentation/project/paper/ report
[GWOZWL3-U03] observe and describe the changes taking place in water management and predict further directions of its development as well as conduct a critical analysis of: case studies of problems of water management and protection of water resources in terms of impact on ecological, social and economic systems natural valorization and assessment of quality of the environment	Is able to observe and describe changes occurring in water management, predict further directions of its development and conduct critical analysis.	[SU1] oral statement/conversation/ discussion [SU2] presentation/project/paper/ report
[GWOZWL3-U01] make basic observations of processes and phenomena occurring in the hydrosphere and carry out basic measurements of selected processes of water purification on a laboratory scale	Is able to make basic observations of processes and phenomena occurring in the hydrosphere and perform basic measurements of selected water purification processes on a laboratory scale.	[SU1] oral statement/conversation/ discussion [SU2] presentation/project/paper/ report
[GWOZWL3-K03] systematic further education and professional development, updating and expand their knowledge and skills, understands the limitations of his own knowledge in the context of civilization progress and recognizes authorities in the professional and scientific environment	understands the limitations of his/ her own knowledge in the context of civilization progress and recognizes authorities in the professional and scientific environment.	[SK1] oral statement/conversation/ discussion [SK2] presentation/project/paper/ report
[GWOZWL3-U12] formulate opinions on a selected topic and prepare small studies in English	Can formulate opinions on a chosen topic and create short studies in English.	[SU1] oral statement/conversation/ discussion [SU2] presentation/project/paper/ report
[GWOZWL3-W01] in advanced basic biological, physical and chemical processes and phenomena, as well as analyzes their mutual relations and course in relation to natural environment and socio-ecological systems	Knows the basic biological, physical and chemical processes and phenomena at an advanced level, and analyzes their mutual relationships and course in relation to the natural environment and social-ecological systems.	[SW1] oral statement/ conversation/discussion [SW2] presentation/project/paper/ report

<table>
<tr><td>Subject contents</td><td>1) Introductory classes. Mind map.

2) Clouds.

3) Water in the atmosphere.

4) Solar radiation in the atmosphere.

5) The vertical balance of the atmosphere.

6) Atmospheric circulation.

7) Air masses and atmospheric fronts.

8) Measurement and observation network.

9) Application of meteorological data for various types of analyses.

10) Presentation on a selected topic.</td></tr>
<tr><td>Prerequisites and co-requisites</td><td></td></tr>
<tr><td>Assessment methods and criteria</td><td>
<table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>Preparation for classes</td><td>51.0%</td><td>40.0%</td></tr>
<tr><td>Presentation (in pairs)</td><td>51.0%</td><td>20.0%</td></tr>
<tr><td>Activity in class</td><td>51.0%</td><td>40.0%</td></tr>
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<tr><td>Recommended reading</td><td>
<table>
<tr><td>Basic literature</td><td>1.Stefan Trzeciak, Marine Meteorology with Oceanography, PWN, Warsaw 2004

2.Alojzy Woś, Meteorology for Geographers, PWN, Warsaw 2002

3. edited by Krzysztof Kożuchowski, Meteorology and Climatology, Warsaw 2012</td></tr>
<tr><td>Supplementary literature</td><td>1.James R. Holton. An introduction to dynamic meteorology, San Diego : Academic Press, 1992.</td></tr>
<tr><td>eResources addresses</td><td></td></tr>
</table>
</td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td>How clouds are formed

• cloud definition
• cloud and mist ?
• types of clouds
• meteorological phenomena associated with a specific type of cloud</td></tr>
<tr><td>Work placement</td><td>Not applicable</td></tr>
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