University of Gdańsk

Subject card

Subject name and code	Changes in water conditions (Laboratory classes), PG_00200805		
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	1	ECTS credits	2.0
Learning profile	academic	Assessment form	credit
Conducting unit	Laboratory of Limnology -> Department of Hydrology -> Faculty of Oceanography and Geography -> Rector		
Name and surname of lecturer (lecturers)	Subject supervisor	dr Kamil Nowiński	
	Teachers		

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	0.0	0.0	15.0	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

1. To acquire knowledge of natural and anthropogenic transformations of water relations.

2. To identify the main factors causing hydrological, hydrochemical and hydrobiological changes in different hydrographic objects (river, lake, wetland, spring).

3. Recognise the effects of changes in water relations on the water resources of the catchment and changes in the ecosystems of selected hydrographic sites.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[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	Knows and understands the causes of environmental phenomena in relation to the hydrosphere, and in interpreting them consistently builds on empirical foundations, using qualitative and quantitative methods	[SW4] test/exam - oral or written
[GFGMU2_U03] is able to use academic literature in the fields of physical geography and geoinformation in Polish and English, selecting it appropriately for the research objective	Can make effective use of skilfully selected scientific literature in the field of water relations transformations in Polish and English.	[SU5] implementation of a problem task
[GFGMU2_W08] knows and understands in a deepened extent the most important contemporary problems in the field of contemporary climate change and environmental crises on a regional and global scale, their essence, genesis and possible consequences	Knows and understands the incidence of aquatic environmental hazards at regional and global scales, their nature, genesis, possible consequences and techniques for analysing their occurrence.	[SW4] test/exam - oral or written
[GFGMU2_W01] knows and understands to a deepened extent the specificity of Earth sciences in the field of physical geography, its internal structure, research subject and main research directions, the methods applied, conceptual apparatus, as well as practical applications of scientific achievements	Knows and understands the conceptual apparatus as well as the practical applications of scientific developments in the field of water relations and their transformation	[SW4] test/exam - oral or written
[GFGMU2_U05] is able to integrate knowledge from the discipline of Earth and environmental sciences, explaining and interpreting the interrelationships between environmental processes and phenomena in order to solve research problems in physical geography and geoinformation	Be able to integrate knowledge from the discipline of earth and environmental sciences, correctly explaining and interpreting the interrelationships between environmental processes and phenomena in order to solve research problems of contemporary hydrology in the context of the analysis of the transformation of water relations.	[SU5] implementation of a problem task
[GFGMU2_U02] is able to precisely and appropriately use terminology in the field of physical geography and geoinformation in oral statements and written works	Can fluently and appropriately apply terminology on water relations and their changes in written work	[SU5] 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	He is ready to critically evaluate his knowledge of hydrosphere transformations, to complement it and to verify his knowledge and skills through critical reading of the literature.	[SK1] oral statement/conversation/ discussion [SK5] implementation of a problem task
[GFGMU2_K03] is ready to accepting responsibility for group work assuming various roles in it, participating in preparation of scientific projects, taking responsibility for the equipment and safety rules, active developing of professional competences and knowledge in Earth and environmental sciences and geoinformation, including interdisciplinarity, as well as developing the principles of professional ethics, respecting copyright rules	He/she is ready to actively broaden his/her professional competences and update his/her knowledge of the hydrosphere, in particular its changes, respecting and developing professional ethics, including respecting copyrights in his/her own activities and those of others	[SK1] oral statement/conversation/ discussion [SK5] implementation of a problem task

<table>
<tr><td>Subject contents</td><td>Influence of natural and anthropogenic conditions on the formation of cause-and-effect relationships between different hydrographic objects.Regional aspects of variation in water relations.Physico-chemical and biological effects of changes in water relations and their impact on changes in aquatic ecosystems.Hydrological and hydrographical effects of changes in water relations (disappearance of peatlands, ponds, regulation of watercourses).Causes and effects of natural and anthropogenic transformation of lakes, methods of protection and restoration of lakes.Changes in water relations in the catchment and their impact on the water cycle in the catchment.Environmental consequences of changes in water relations.Threats and methods to counteract changes in water relations.</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>problem tasks</td><td>51.0%</td><td>50.0%</td></tr>
<tr><td>test</td><td>51.0%</td><td>50.0%</td></tr>
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<tr><td>Recommended reading</td><td>
<table>
<tr><td>Basic literature</td><td>Chełmicki W., 2001, Water. Resources, degradation, conservation, PWN, Warszawa.7

Kajak Z., 1998, Hydrobiologia Limnologia, PWN, Warsaw

Soczyńska U., 1989, Hydrological processes, PWN, Warsaw.</td></tr>
<tr><td>Supplementary literature</td><td>Ciepielowski A., Gutry-Korycka M., 1993, Impact of water reclamation. [in:] Changes of water relations in Poland as a result of natural and anthropogenic processes., UJ, Kraków.</td></tr>
<tr><td>eResources addresses</td><td></td></tr>
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<tr><td>Example issues/ example questions/ tasks being completed</td><td></td></tr>
<tr><td>Work placement</td><td>Not applicable</td></tr>
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