

Subject card

Subject name and code	Changes in water conditions - tutorial, PG_00135492						
Field of study	Physical geography and geoinformation						
Date of commencement of studies	October 2025		Academic year of realisation of subject		2025/2026		
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		dr Kamil Nowiński				
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		15.0		30.0	60
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_U03] effectively use selected scientific literature in the field of physical geography and geoinformation, both in Polish and English	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_W01] the specificity of Earth sciences in the field of physical geography, its internal structure, research subject and main research directions, 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_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	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_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	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_U02] 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_K03] 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
	[GFGMU2_W08] the most important contemporary problems 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_U05] 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

Subject contents	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.		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	problem tasks	51.0%	50.0%
	test	51.0%	50.0%
Recommended reading	Basic literature	Chel'micki W., 2001, Water. Resources, degradation, conservation, PWN, Warszawa.7 Kajak Z., 1998, Hydrobiologia Limnologia, PWN, Warsaw Soczyńska U., 1989, Hydrological processes, PWN, Warsaw.	
	Supplementary literature	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.	
	eResources addresses		
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		

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