University of Gdańsk

Subject card

Subject name and code	Valorisation of water resources (Lecture), PG_00196149		
Field of study	Physical geography and geoinformation		
Date of commencement of studies	October 2027	Academic year of realisation of subject	2027/2028
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	2	ECTS credits	2.0
Learning profile	academic	Assessment form	exam
Conducting unit	Laboratory of Limnology -> Department of Hydrology -> Faculty of Oceanography and Geography -> Rector		
Name and surname of lecturer (lecturers)	Subject supervisor	dr Katarzyna Jereczek-Korzeniewska	
	Teachers		

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	15.0	0.0	0.0	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	1.0	34.0	50

Subject objectives

1. Recognize the conditions of water in the environment.2. To identify the types of water resources and their importance in water management.3. To gain knowledge about the functioning of rivers and lakes and their role in the natural environment.4. Functions and economic importance of lakes, methods of their protection and restoration.5. to discuss the renewability of water resources in the hydrological cycle

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[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 effectively use skillfully selected for the purpose of application scientific literature in the field of water resources valorization in Polish, as well as in English	[SU4] test/exam - oral or written
	[GFGMU2_K01] is able to behave appropriately in the workplace and in everyday life by critically evaluating information received in the light of their existing knowledge, recognising the importance of knowledge in solving cognitive and practical problems, and, when faced with difficulties, drawing on expert knowledge	He is ready to critically evaluate his knowledge of water resource valorization, to supplement it and to verify his knowledge and skills by critically reading the literature on the subject	[SK4] test/exam - oral or written
	[GFGMU2_U02] is able to precisely and appropriately use terminology in the field of physical geography and geoinformation in oral statements and written works	Fluently and appropriately apply the terminology of of hydrology in oral statements and written work	[SU4] 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	Is 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 modern hydrology in the context of valorization of water resources	[SU4] 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 achievements in the valorization of watercourses and lakes	[SW4] test/exam - oral or written
	[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 most important problems of threats to the water environment on a regional and global scale, their nature, genesis and possible consequences	[SW4] test/exam - oral or written
	[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 issue of pollution of surface water and groundwater consequences, and in their interpretation and valorization	[SW4] test/exam - oral or written
	[GFGMU2_K03] is prepared to fulfil professional responsibilities in both independent and team-based work by advancing the field of geography, upholding the profession’s ethos, adhering to and developing the principles of professional ethics, and ensuring compliance with these principles	He is ready to actively expand his professional competence and update his hydrological knowledge enriching it with an interdisciplinary dimension, observing and developing the principles of professional ethics, including respecting copyrights in his own and others' activities	[SK4] test/exam - oral or written

Subject contents	Types of water resources static and dynamic resources.Water needs of various branches of the economy (including therapeutic mineral water, thermal water) and the population taking into account the concept of inviolable flow.Water-economic balance. Natural and disposable water resources of the catchment area.Quality of surface and groundwater water bodies.Eutrophication of waters and its consequences. Lake restoration methods and their effectiveness.Hydromorphological valorization of watercourses (RHS). River and lake systems.Water-dependent ecosystems determinants of water management.Quantitative and qualitative threats to water resources.Small-scale retention. Hydrological land reclamation and its effects. Water erosion of soils and its prevention.Hydrological role of forest.Regional differentiation of water resources in Poland areas of water surplus and shortage.Water management systems and instruments of water resources management. Good practices in water resources management in a catchment area.	
Prerequisites and co-requisites		
Assessment methods and criteria		

Subject passing criteria	Passing threshold	Percentage of the final grade
Written exam with open and closed questions (tasks)	51.0%	100.0%

Recommended reading	Basic literature	Ciepielowski A., 1999, Basics of water management. SGGW, Warsaw, Poland.Lampert W., Sommer U., 1996, Ecology of inland waters. PWN, Warsaw.Mikulski Z., 1999, Water management. PWN, Warsaw.Wetzel R.G., 2001, Limnology. Lake and River Ecosystems. Elsevier, San Diego, London.
	Supplementary literature	Bajkiewicz-Grabowska E., 2002, Circulation of matter and energy in river and lake systems. UW, Warsaw.Borowiak D., 2011, Optical properties of lake waters of Pomerania, UG, Gdansk.Fac-Beneda J., Bogdanowicz R. (eds.), 2009, Water resources and protection. Circulation of water and matter in river catchments. FRUG, Gdańsk.Jereczek-Korzeniewska K., 2009, Hydromorphological valorization of watercourses of the Puck Plateau and the Framework Water Directive [in:] Bogdanowicz R., Fac-Beneda J. (eds.) Water resources and protection: circulation of water and matter in river catchments. FRUG, Gdansk: 122-127Kajak Z., 1979, Eutrophication of lakes. PWN, Warsaw. Lidzbarski M., 2015, Identification of the groundwater circulation system in the process of establishing renewable resources on the example of the Reda and Zagórska Struga catchments. Geological Review, 63: 893-900. Mioduszewski W., Dembek W. (eds.), 2009, Water in rural areas. IMUZ, Warsaw, Falenty.Paczyński B., Sadurski A., 2007, Hydrogeologia regionalna Polski: Tom I Wody słodkie, Tom II Wody mineralne, lecznicze i termalne oraz kopalniane. PIG, Warsaw.Sobolewski W., Borowiak D., Borowiak M., Skowron R., 2014, Database of Polish lakes and its use in limnological research. UMCS / Picador Graphic Communication, Lublin-Lubartow.Szoszkiewicz K., Zgoła T., Jusik S., Hryc-Jusik B., Hugh Dawson F., Raven P., 2012, Hydromorphological assessment of flowing waters, Handbook for field studies according to the River Habitat Survey method in Polish conditions. Bogucki Wydawnictwo Naukowe, Poznań-Warrington.
	eResources addresses	

Example issues/ example questions/ tasks being completed	Definition of water resources. Water resources (actual, inviolable, disposable). Limnological succession and trophic status assessment of lakes. Water crisis. What measures should be taken to reduce the water deficit? Methods of hydromorphological valorization of rivers. Limnological typologies.
Work placement	Not applicable

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