

**Subject card**

<b>Subject name and code</b>	Water management in the natural and anthropogenically transformed areas - auditorium exercises, PG_00091518						
<b>Field of study</b>	Water Management and Protection of Water Resources						
<b>Date of commencement of studies</b>	October 2024		<b>Academic year of realisation of subject</b>			2025/2026	
<b>Education level</b>	undergraduate studies		<b>Subject group</b>			Obligatory subject group in the field of study Subject group related to scientific research in the field of study Subject group related to practical vocational preparation	
<b>Mode of study</b>	full-time studies		<b>Mode of delivery</b>			at the university	
<b>Year of study</b>	2		<b>Language of instruction</b>			Polish	
<b>Semester of study</b>	4		<b>ECTS credits</b>			2.0	
<b>Learning profile</b>	practical		<b>Assessment form</b>				
<b>Conducting unit</b>	Pracownia Hydrologii -> Katedra Hydrologii -> Faculty of Oceanography and Geography						
<b>Name and surname of lecturer (lecturers)</b>	<b>Subject supervisor</b>		dr Katarzyna Jereczek-Korzeniewska				
	<b>Teachers</b>						
<b>Lesson types</b>	<b>Lesson type</b>	<b>Lecture</b>	<b>Tutorial</b>	<b>Laboratory</b>	<b>Project</b>	<b>Seminar</b>	<b>SUM</b>
	<b>Number of study hours</b>	0.0	30.0	0.0	0.0	0.0	30
	E-learning hours included: 0.0						
<b>Learning activity and number of study hours</b>	<b>Learning activity</b>	<b>Participation in didactic classes included in study plan</b>		<b>Participation in consultation hours</b>		<b>Self-study</b>	<b>SUM</b>
	<b>Number of study hours</b>	30		5.0		25.0	60
<b>Subject objectives</b>	: To know the basic tools of water management and the main problems of water resources management. Teaching the basics of scientific workshop						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[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 in water management and anticipate further developments in water management by carrying out a case study case study, natural valuation and environmental quality assessment	[SU2] presentation/project/paper/report [SU5] implementation of a problem task
	[GWOZWL3-W05] assumptions of the ecosystem approach to management of the environment and human activities in the environment as well as the development directions in the field of applied solutions and scientific research for the protection and restoration of water resources in selected divisions of the national economy	is able to apply the principles of the ecosystem approach to environmental management, and is familiar with the directions of development for the protection and restoration of water resources in selected sectors of the national economy	[SW2] presentation/project/paper/report [SW5] implementation of a problem task
	[GWOZWL3-W09] potential threats and sources of pollution of surface and groundwater resulting from the development of civilization, in particular strong anthropopression	is able to distinguish and characterise potential threats and sources of pollution of surface water and groundwater resulting from the development of civilisation of civilisation	[SW2] presentation/project/paper/report [SW5] implementation of a problem task
	[GWOZWL3-W03] organization and legal basis of environment protection, nature protection and water management, as well as the principles of organization and operation of hydrological and meteorological services and the basics of Integrated Environmental Monitoring	knows the organisation and legal basis of environmental and nature protection related to water management, and is familiar with the organisation and functioning of hydrological and meteorological services	[SW2] presentation/project/paper/report [SW5] implementation of a problem task
	[GWOZWL3-U04] distinguish between objectives, analyze and evaluate modern strategies for managing environment especially in the context of ecosystem approach to managing human activities in the environment with taking into account relevant law regulations and the indication of administrative bodies responsible for the management of waters and the protection of water resources	is able to analyse and evaluate modern management strategies the environment, and in particular water management, taking into account taking into account the relevant legislation and indications from the administrative bodies responsible for water management and protection of water resources waters	[SU2] presentation/project/paper/report [SU5] implementation of a problem task
	[GWOZWL3-K06] an informed and reliable assessment of the impact of humans on the aquatic environment	is prepared to make an informed and honest assessment of the impact of human activities on the the aquatic environment	[SK8] observation of student's independent or team work
	[GWOZWL3-U06] assess the impact of planned investments on value and quality of water resources and propose options for solutions to protect and restore water resources, recognize their weaknesses and strengths as well as opportunities and threats	is able to assess the impact of planned hydraulic and environmental impact on the value and quality of water resources and propose options for solutions to protect and restore water resources	[SU2] presentation/project/paper/report [SU5] implementation of a problem task
Subject contents	B. Exercise problems B.1. Water management options in areas with different water resources. B.2. Methods of water management in environments with different degrees of transformation. B.3. Methods of water management according to the needs of the national economy B. 4 Implications of water management in the natural environment. B.5. Measuring instruments for hydrometeorological monitoring prior to and during water management. B.6. Monitoring network in water management areas.		
Prerequisites and co-requisites	Key competences at upper secondary level, knowledge and skills in geography,		

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	credit work - essay	51.0%	50.0%
	making a presentation	51.0%	50.0%
Recommended reading	Basic literature	<p>Gutry-Korycka M., Werner-Więckowska H., 1989, Przewodnik do hydrograficznych badań terenowych, PWN, Warszawa Kistowski M., 2004, Wybrane aspekty zarządzania ochrony przyrody w parkach krajobrazowych, Bogucki Wydawnictwo Naukowe, Gdańsk-Poznań Hydrographic map in the scale 1:50 000 with commentary. Mapa sozologiczna w skali 1:50 000 wraz z komentarzem. Mikulski Z., 1998, Gospodarka wodna, PWN, Warszawa Obarska-Pempkowiak H., 2009, Ogólnopolska Konferencja Naukowa Inżynieria Ekologiczna, Gdańsk University of Technology, Lber DUO S.C., Lublin Pociask-Karteczka, 2006, Catchment, Properties and Processes, Jagiellonian University Publishing House, Krakow Rodriguez-Iturbe I., Porporato, 2006, Ecohydrology of Water-Controlled Ecosystems, Cambridge Wójcik A. R., 2008-2009, River Basin Management Plans as a tool for implementation of the Water Framework Directive, Information materials, RZGW, 2008-2009. Water Framework Directive, Information materials, RZGW, Gliwice A.2. studied independently by the student Gutry-Korycka M., Werner-Więckowska H., 1989, Guide to hydrographic field studies, PWN, Warsaw Kistowski M., 2004, Wybrane aspekty zarządzania ochrony przyrody w parkach krajobrazowych, Bogucki Wydawnictwo Naukowe, Gdańsk-Poznań Hydrographic map in the scale 1:50,000 with commentary. Mapa sozologiczna w skali 1:50 000 wraz z komentarzem. Mikulski Z., 1998, Gospodarka wodna, PWN, Warszawa Pociask-Karteczka, 2006, Catchment, properties and processes, Wydawnictwo UJ, Kraków Wójcik A. R., 2008-2009, Water Management Plans in River Basins as a tool for implementation of the Water Framework Directive. Water Framework Directive, Information materials, RZGW, Gliwice</p>	
	Supplementary literature	<p>B. Supplementary literature Chlost I., Cieśliński R., 2018, Effects of environmental and anthropogenic determinants on changes in groundwater levels in selected peat bogs of Slowinski National Park, northern Poland, Geologos 24, 1, 13-28. Cieśliński R., 2016, Changes in salinity and water level of Lake Jamno resulting from the construction of storm surge gates, Engineering and Environmental Protection Environment, 19 (4), 517-539, DOI: 10.17512/ios.2016.4.7 Cieśliński R., Przybylski M., 2017, Hydrochemical assessment of the ecological disaster on Lake Druzno and the Wąska River in 2014, CZASOPISMO LAND ENGINEERING, ENVIRONMENT AND ARCHITECTURE, JCEEA, , vol. XXXIV, z. 64 (2/II/17), 63-81. Duda F., Woźniak E., Jereczek-Korzeniewska K., Cieśliński R., 2017, Dynamics of water level fluctuations in degraded Baltic peatlands, Geological Review, Geological Review, 65 (8), 526-532. Jankowski A. T., Rzętała M., 2005, Lakes and artificial water reservoirs, natural processes and socio-economic significance, University of Śląski, Sosnowiec Kowalczyk K., Cieśliński R., 2017, Utilization of the Hydroelectric Potential of the Pomorskie Voivodship, Regional Barometer, 15 (3), 73-83 Kozerski B., 2007, Gdańsk Aquifer System, Gdansk University of Technology, Gdansk, Poland Hydrographic map in the scale 1:50 000 with commentary. Sozological map in scale 1:50 000 with commentary. Mitsch W. J., Gosselink J. G., 2007, Wetlands, Wiley Rodriguez-Iturbe I., Porporato, 2006, Ecohydrology of Water-Controlled Ecosystems, Cambridge Żuławy Delta Wisły na przełomie mileni, 2001, zeszyt I, Żuławy Wiślane, a unique area in Poland and Europe, ECOBALITC Foundation, Gdańsk</p>	
	eResources addresses	Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed	- Dwindling water resources - a problem of today or tomorrow - What forms of water management (methods) can and should "cure" water management? What will be the effects of these measures (examples)		
Work placement	Not applicable		

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