University of Gdańsk

Subject card

Subject name and code	Typology and water protection, PG_00198120						
Field of study	Natural Resources Conservation						
Date of commencement of studies	October 2026		Academic year of realisation of subject	2027/2028			
Education level	Bachelor'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	2		Language of instruction	Polish			
Semester of study	4		ECTS credits	1.0			
Learning profile	academic		Assessment form	credit			
Conducting unit							
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. Krzysztof Banaś				
	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		2.0		8.0	25
Subject objectives	1. Understanding of the phenomena and processes that determine the differentiation and classification of water bodies.2. Knowledge of water protection regulations and ways of assessing water status.						

Learning outcomes

Course outcome	Subject outcome	Method of verification
[OZPL3_W06] The graduate has an advanced understanding of the names and types of natural environments, including their structural and functional characteristics	names and classifies types of aquatic environments and characterizes them in both structural and functional terms	[SW4] test/exam - oral or written
[OZPL3_U04] The graduate is able to plan and carry out simple research tasks in the biological sciences under the guidance of a supervisor	under the guidance of a supervisor, plans and performs simple measurements of features of the aquatic environment	[SU2] presentation/project/paper/ report [SU6] demonstration of practical skills
[OZPL3_K05] The graduate is ready to understand the need to improve their own competences, update their knowledge and improve their skills	Understands the need to improve their own competence and updates the acquired knowledge of reservoirs, aquatic organisms and improves skills to protect them effectively	[SK2] presentation/project/paper/ report [SK8] observation of student's independent or team work
[OZPL3_W07] The graduate has an advanced understanding of the methods and means of nature and environmental protection, including nature monitoring	presents methods and ways to protect water, understands the need for constant monitoring of aquatic ecosystems	[SW4] test/exam - oral or written
[OZPL3_U06] The graduate is able to make observations and perform basic physical, biological and chemical measurements in the field or laboratory	makes field observations and performs basic measurements of physical, chemical and biological characteristics	[SU2] presentation/project/paper/ report
[OZPL3_K07] The graduate is prepared to demonstrate responsibility for the equipment/ materials entrusted and respects the work of others	Is responsible for the measuring equipment entrusted to him and respects the work of others	[SK2] presentation/project/paper/ report [SK8] observation of student's independent or team work
[OZPL3_U01] The graduate is able to use basic apparatus and research tools and maintains the correct sequence of operations in laboratory and field work	uses basic measuring apparatus, research tools and follows the correct sequence of field work performed	[SU2] presentation/project/paper/ report [SU6] demonstration of practical skills

Subject contents

Ways of classifying waters, types of water bodies, specifics of standing and flowing waters, rivers and streams, lake as a water body, classification of lakes according to the genesis of the lake basin, water chemistry and frequency of mixing, harmonic and non-harmonic succession of lakes, artificial reservoirs, water bodies as ecosystems, criteria and ways of assessing water status, vegetation of different types of water bodies, assessment of the ecological status of rivers and lakes. National and European water protection laws

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
written colloquium	51.0%	100.0%

Recommended reading	Basic literature	**1. literature used during the class** Allan J. D. 1998. Ekologia wód płynących. Wyd. PWN, Warszawa. Banaś K. 2016. The principal regulators of vegetation structure in lakes of north west Poland. A new approach to the assembly of macrophyte communities, Wydawnictwo Uniwersytetu Gdańskiego, Gdańsk, 237 pp. Banaś K., Gos K., 2007. Specyfika siedliskowa, roślinność i stan zachowania jezior lobeliowych, Rozdz. 13, s. 223-240, [W:] D. Borowiak (red.), Jeziora Kaszubskiego Parku Krajobrazowego, Ser. Bad. Limnol. 5, Wyd. KLUG, Gdańsk. Banaś K., Gos K. 2008. Features and diversity of pomeranian peatland lakes. p. 13-17, [In:] E. Bajkiewicz-Grabowska, D. Borowiak (eds), Anthropogenic and natural transfor-mations of lakes. Vol. 2., Wyd. KLUG-PTLim, Gdańsk. Ciecierska H., Dynowska M. 2013. Biologiczne metody oceny stanu środowiska, Tom II - Ekosystemy wodne, podręcznik metodyczny, Wydawnictwo Mantis, Olsztyn. Gos K., Bociąg K., Banaś K. 1998. Roślinność podwodna w kwaśnych jeziorach Pomorza. s. 261-277, [W:] J. Banaszak, K. Tobolski (red.), Park Narodowy Bory Tucholskie. Wyd. WSP Bydgoszcz. Gos K., Banaś K., Macura E. 2007. Warunki środowiskowe i struktura roślinności jezior śródtorfowiskowych, Rozdz. 12, p. 197-221, [W:] D. Borowiak (red.), Jeziora Kaszubskiego Parku Krajobrazowego, Ser. Bad. Limnol. 5, Wyd. KLUG, Gdańsk. Herbich J. (red.) 2004. Poradnik ochrony siedlisk i gatunków Natura 2000. Tom I. Wody słodkie i torfowiska. Ministerstwo Środowiska, Warszawa. Kajak Z. 1998. Hydrobiologia-Limnologia. Ekosystemy wód śródlądowych. Wyd. PWN, Warszawa. Kołodziejczyk A., Koperski P. 2000. Bezkręgowce słodkowodne Polski. WUW, Warszawa. Kownacki A., Soszka H. 2004. Wytyczne do oceny stanu rzek na podstawie makrobezkręgowców oraz do pobierania prób makrobezkręgowców w jeziorach. Zakład Ochrony Przyrody PAN Kraków, Instytut Ochrony Środowiska Warszawa. Lampert W., Sommer U. 1996. Ekologia wód śródlądowych. Wyd. PWN, Warszawa. Mróz W. (red.) 2012. Monitoring siedlisk przyrodniczych. Przewodnik metodyczny. Cz. II. GIOŚ, Warszawa. Podbielkowski Z., Tomaszewicz H. 1996. Zarys hydrobotaniki. PWN, Warszawa. Szmeja J. 2005. Przewodnik do badań roślinności wodnej. Wyd. Uniw. Gdańskiego, Gdańsk. Wetzel R. G. 2001. Limnology. Lake and River Ecosystems. Elsevier Acad. Press, San Diego, Londyn.

		2. literature studied by the student independently Ciecierska H., Dynowska M. 2013. Biologiczne metody oceny stanu środowiska, Tom II - Ekosystemy wodne, podręcznik metodyczny, Wydawnictwo Mantis, Olsztyn. Kajak Z. 1998. Hydrobiologia-Limnologia. Ekosystemy wód śródlądowych. Wyd. PWN, Warszawa. Lampert W., Sommer U. 1996. Ekologia wód śródlądowych. Wyd. PWN, Warszawa. Szmeja J. 2005. Przewodnik do badań roślinności wodnej. Wyd. Uniw. Gdańskiego, Gdańsk.
	Supplementary literature	DYREKTYWA 2000/60/WE PARLAMENTU EUROPEJSKIEGO I RADY z dnia 23 października 2000 r. ustanawiająca ramy wspólnotowego działania w dziedzinie polityki wodnej (Dz. U. UE z dnia 22 grudnia 2000 r.) tzw. Ramowa Dyrektywa Wodna DYREKTYWA RADY 92/43/EWG z dnia 21 maja 1992 r. w sprawie ochrony siedlisk przyrodniczych oraz dzikiej fauny i flory (Dz.U. L 206 z 22.7.1992) - tzw. Dyrektywa Siedliskowa ROZPORZĄDZENIE MINISTRA ŚRODOWISKA z dnia 9 listopada 2011 r. w sprawie sposobu klasyfikacji stanu jednolitych części wód powierzchniowych oraz środowiskowych norm jakości dla substancji priorytetowych (Dz. U. z dnia 29 listopada 2011 r.) Ustawa z dnia 20 lipca 2017 r. Dz.U. 2017 poz. 1566 - Prawo wodne Banaś K. 2013. The hydrochemistry of peatland lakes as a result of the morphological characteristics of their basins. Oceanol. and Hydrobiol. Studies. 42 (1): 28-39. Banaś K., Gos K., Szmeja J., 2012. Factors controlling vegetation structure in peatland lakes. Aquatic Botany 96: 42-47.
	eResources addresses	
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	

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