University of Gdańsk

Subject card

Subject name and code	Water Protection and Restoration (Lecture), PG_00200867		
Field of study	Physical geography and geoinformation		
Date of commencement of studies	October 2027	Academic year of realisation of subject	2028/2029
Education level	Master's studies	Subject group	Obligatory subject group in the field of study Optional subject group 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	English
Semester of study	3	ECTS credits	2.0
Learning profile	academic	Assessment form	credit
Conducting unit	Centrum Monitoringu i Ochrony Wód -> Faculty of Oceanography and Geography -> Rector		
Name and surname of lecturer (lecturers)	Subject supervisor	prof. dr hab. inż. Julita Dunalska	
	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

Familiarization with the problems of water protection and restoration; preparation to take action to improve water quality.

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 phenomena and processes occurring in surface waters; has knowledge of the principles of lake protection and restoration; defines methods for the water resources restoration.	[SW1] oral statement/ conversation/discussion [SW5] implementation of a problem task
[GFGMU2_K02] is prepared to undertake or co-organise initiatives in the public interest, fulfil its social responsibilities and organise activities promoting sustainable development	When inferencing, it demonstrates the attitude of conscious and reliable assessment of the impact of human activities on the aquatic environment.	[SK1] oral statement/conversation/ discussion
[GFGMU2_U07] is able to apply practically English in the field of physical geography and geoinformation in accordance with the requirements specified for level B2+ of the Common European Framework of Reference for Languages	The student is able to use English in a practical context in relation to the topics covered in the course, in accordance with the requirements set out for level B2+ of the Common European Framework of Reference for Languages	[SU1] oral statement/conversation/ discussion [SU5] implementation of a problem task

<table>
<tr><td>Subject contents</td><td>- Challenges and opportunities of aquatic ecosystems protection.

- Methods and techniques of water protection and restoration (presentation of solutions implemented in New Zealand, Australia, Florida U.S. and Poland).

- The concept of modern water protection and restoration in accordance with "Nature-Based Solutions" and "Circular Economy".

- The role of "Citizen Science" in the planning of conservation and restoration activities.</td></tr>
<tr><td>Prerequisites and co-requisites</td><td>Knowledge of English</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>After confirming the implementation of learning outcomes, the student obtains a grade depending on the score obtained (51-60% - 3.0; 61-70% - 3.5; 71-80% - 4.0; 81-90% - 4.5; 91-100% - 5.0).</td><td>51.0%</td><td>100.0%</td></tr></table></td></tr>
<tr><td>Recommended reading</td><td><table><tr><td>Basic literature</td><td>- Cooke G. D., E. B. Welch, S. A. Peterson, S. A. Nichols. 2005. Restoration and management of lakes and reservoirs. Third edition. Boca Raton: Taylor&Francis.</td></tr><tr><td>Supplementary literature</td><td>- Abell J. 2018. Ecofish - shallow lakes restoration review - final shallow lakes: A literature review. Waikato Regional Council Technical Report, 13.

- Hamilton D.P, Dada A. 2016. Lake management: A restoration perspective. In: Advances in New Zealand Freshwater Science. Jellyman PG, Davie TLA, Pearson CP, Harding JS (Eds.). New Zealand Freshwater Sciences Society and New Zealand Hydrological Society Publishers, 531-552.

- Jeppesen E., Søndergaard M., Jensen H.S., Ventäla A-M. 2009. Lake and reservoir management. Encyclopedia of Inland Waters, 295-309. - Klapper H. 2003. Technologies for lake restoration. J. Limnol., 62(1): 73-90.</td></tr><tr><td>eResources addresses</td><td></td></tr></table></td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td>Analysis of lake restoration techniques</td></tr>
<tr><td>Work placement</td><td>Not applicable</td></tr>
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