

Subject card

Subject name and code	Photodegradation of pharmaceuticals - lecture, PG_00099392						
Field of study	Marine Biotechnology						
Date of commencement of studies	October 2025		Academic year of realisation of subject		2026/2027		
Education level	Master's studies		Subject group		Optional subject group		
Mode of study	full-time studies		Mode of delivery		at the university		
Year of study	2		Language of instruction		English		
Semester of study	4		ECTS credits		1.0		
Learning profile	academic		Assessment form		credit		
Conducting unit	Laboratory of Toxic Substances Transformation -> Department of Chemical Oceanography and Marine Geology -> Faculty of Oceanography and Geography -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. Waldemar Grzybowski				
	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		10.0	27
Subject objectives	Providing knowledge about the importance of photochemical processes in the purification of natural waters and sewage						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[MBMU2-KK01] Is ready to critically evaluate his knowledge and continuously improve, update and upgrade his skills in the field of marine biotechnology		Is ready to critically evaluate his knowledge and constantly improve and update it		[SK1] oral statement/conversation/discussion		
	[MBMU2-KU03] Can use and critically analyze available scientific information; can prepare and present - orally or in writing - a paper covering detailed problems in the field of marine biotechnology on the basis of the scientific information or their own work, with the use of scientific language, including specialized terminology and conceptual apparatus; has the ability to conduct discussions		Is able to use and critically analyze scientific publications in the field of environmental photochemistry		[SU1] oral statement/conversation/discussion		
	[MBMU2-KW04] Knows and deeply understands advanced research methods used in marine biotechnology and related sciences		Knows and understands photochemical processes in the aquatic environment		[SW4] test/exam - oral or written		
Subject contents	Basics of photochemistry - the impact of solar radiation on pharmaceuticals in seawater - wastewater treatment from pharmaceuticals supported by photodegradation						
Prerequisites and co-requisites							
Assessment methods and criteria	Subject passing criteria		Passing threshold		Percentage of the final grade		
	exam		51.0%		100.0%		

Recommended reading	Basic literature	The effects of UV radiation in the marine environment (s. de Mora, S. Demers, M. Vernet, Eds.), Cambridge University Press, Cambridge 2000.
	Supplementary literature	Photocatalytic Detoxication of Polluted Waters. In Environmental Photochemistry (P. Boule, Ed.), Springer-Verlag, Berlin 1999.
	eResources addresses	
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	

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