

**Subject card**

Subject name and code	, PG_00120917						
Field of study	Geology						
Date of commencement of studies	October 2024	Academic year of realisation of subject			2026/2027		
Education level	Bachelor's studies	Subject group			Optional subject group		
Mode of study	full-time studies	Mode of delivery			at the university		
Year of study	3	Language of instruction			Polish		
Semester of study	5	ECTS credits			2.0		
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 Iga Nehring				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	0.0	0.0	0.0	30
	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	30		1.0		20.0	51
Subject objectives	Familiarizing the student with the issue of environmental protection; indication of the impact of anthropogenic activities on environmental degradation; getting acquainted with pro-ecological activities undertaken on a global and local scale; indication of various sources of contamination, their effects on water, air and soil, and their impact on human and animal health.						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	[GEOLL3_W02] knows and understands the terminology appropriate in science and natural sciences	knows and understands the terminology related to pollution chemicals and environmental protection			[SW4] test/exam - oral or written		
	[GEOLL3_K03] is willing to exercise caution and criticism in receiving information from scientific literature, the Internet and other media related to natural sciences	is ready to be careful and critical when accepting information from scientific literature, the Internet and other media relating to environmental protection			[SK2] presentation/project/paper/report		
	[GEOLL3_W07] knows the anthropogenic transformation of the natural environment, including the effects of the exploitation of mineral resources	knows the consequences of anthropogenic activities on the environment natural environment and human health			[SW4] test/exam - oral or written		
	[GEOLL3_U08] is able to write, report and properly illustrate scientific work in Polish and English on the basis of available sources on a selected topic in the field of geological issues	can report a scientific work in Polish in the field of protection environment			[SU2] presentation/project/paper/report		
	[GEOLL3_U02] has the skill of analytical and synthetic way of reasoning leading to correct inference based on the results obtained or the facts presented	has the ability to analytically and synthetically understand the processes related to pollution of the natural environment			[SU4] test/exam - oral or written		

Subject contents	<p>1 Properties of organic and inorganic endocrine disruptors flowing into the sea.</p> <p>2. Toxicity of metals, their sources and importance for the environment.</p> <p>3. Toxic warfare agents lying at the bottom of marine sediments.</p> <p>4. Radiation threats and protection against them.</p> <p>5. Conventions and legislation on the monitoring of toxic substances to the marine environment.</p> <p>6. Are sewage treatment plants efficient in dealing with toxic compounds?</p> <p>7. Soil and sediments as a reservoir and source of toxic substances.</p> <p>8. Pollution and air protection. The impact of burning fossil fuels on the quality of inhaled air.</p> <p>9. The problem of microplastics in the environment.</p> <p>10. Renewable energy sources and clean technologies</p>		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	test	51.0%	50.0%
	oral presentation	51.0%	50.0%
Recommended reading	Basic literature	<p>Bolalek J., Protection of the marine environment. From theory to practice. University of Gdańsk , Gdańsk 2016</p> <p>Chemical Munitions Dumped in the Baltic Sea, HELCOM Report, 2013</p> <p>Sonesten, L., Undeman, E., Svendsen, L. M., Frank-Kamenetsky, D., &amp; Haapaniemi, J. (2021). Inputs of hazardous substances to the Baltic Sea.</p> <p>S. Zakrzewski. Basics of environmental toxicology. PWN, Warsaw 2000.</p>	
	Supplementary literature	<p>S.E. Manahan. Fundamentals of Environmental and Toxicological Chemistry: Sustainable Science. Wyd. CRC Press, 2013.</p> <p>K. Górka, B. Poskrobko, W. Radecki. Environmental Protection. PWE, Warsaw 2001</p> <p>Kenig - Witkowska M., International environmental law. C.H. Beck, Warsaw 2011</p>	
	eResources addresses		
Example issues/ example questions/ tasks being completed	<p>Knowledge of the main institutions and conventions on environmental protection.</p> <p>Knowledge of the main inputs of pollutants into the marine environment.</p> <p>Ability to describe the impact of burning fossil fuels on the quality of the environment.</p> <p>The ability to link the cause and effect of the influx of pollutants into the environment with climate change.</p>		
Work placement	Not applicable		

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