

Subject card

Subject name and code	The basics of marine environment chemistry - laboratory exercises, PG_00054238						
Field of study	Oceanography						
Date of commencement of studies	October 2025		Academic year of realisation of subject		2025/2026		
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	1		Language of instruction		Polish		
Semester of study	1		ECTS credits		3.0		
Learning profile	academic		Assessment form		credit		
Conducting unit	Department of Chemical Oceanography and Marine Geology -> Faculty of Oceanography and Geography -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. inż. Marta Staniszevska				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	30.0	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		5.0		55.0	90
Subject objectives	Acquiring basic skills in working in a chemical laboratory, including the principles of basic analytical techniques, principles of correct nomenclature, knowledge of the properties of basic groups of inorganic compounds, knowledge of equilibria in electrolyte solutions, basic stoichiometry and chemical conversions, and principles of safety in the laboratory.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	OCEANL3-W01		knows and understands specialized terminology related to general and inorganic chemistry at an advanced level		[SW4] test/exam - oral or written [SW3] text preparation/written work		
	OCEANL3-U11		can work individually and cooperate in groups during classes in the chemical laboratory		[SU8] observation of student's independent or team work		
	OCEANL3-U01		is able to use current terminology in the field of basic chemistry of the marine environment		[SU3] text preparation/written work [SU4] test/exam - oral or written		
	[OCEANL3-K05] is willing to take responsibility for the safety of his/her own and others' work, is aware of the risks and threats resulting from the work performed		is ready to be responsible for the safety of his/her own work and that of others, knowing the risks and threats arising from work performed in a chemical laboratory		[SK8] observation of student's independent or team work		

Subject contents	B.1 Basic equipment, safety and rules of work in a chemical laboratory. Basic laboratory activities.B.2 Basic groups of inorganic compounds, oxides, hydrides, acids, bases, salts. Obtaining, properties, nomenclature, formulas. Basic chemical reactions, redox reactions.B.2. Predicting the properties of basic inorganic compounds based on their structure and position in the periodic table of elements. Nonelectrolytes and electrolytes. Strong and weak electrolytes. Electrolytic dissociation. Protolytic reactions.B.3 Solutions: expressing and calculating concentrations of solutions, converting concentrations. Units, multiples, submultiples. Preparation of solutions of specific concentration.B.4. Basics of quantitative analysis. Basic rules for obtaining the correct result and its recording; precision, accuracy, significant and certain figures. Measurement error.B.5 Salt hydrolysis. Testing the pH of selected salts. pH indicators. pH of the solution. B. 6 Titration methods, alkacymetric titration.B.7 Gravimetric methods. Methods of preparing biological and sediment samples for environmental analysis. Principles of proper use of laboratory balances. Methods of removing moisture and organic matter from solid samples.		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	report 2	51.0%	10.0%
	test 1	51.0%	20.0%
	report 1	51.0%	10.0%
	test 4	51.0%	15.0%
	test 3	51.0%	20.0%
	work card	51.0%	5.0%
	test 2	51.0%	20.0%
Recommended reading	Basic literature	Warnke Z. (ed.), Calculations in general chemistry UG Publishing House Kocjan, Analytical chemistry. Volume 1. Qualitative analysis. Classical quantitative analysis, PZWL, 2014	
	Supplementary literature	Minczewski J., Marczenko Z., 2011. Analytical chemistry. Chemical methods of quantitative analysis, Vol. 2, PWN Wesołowski M., Szefer K., Zimna D. (2002). Collection of tasks from chemical analysis. PWN Scientific Publishing House. Pazdro, K. M., & Rola-Noworyta, A. (2017). Academic collection of tasks from general chemistry. Krzysztof Pazdro Educational Office	
	eResources addresses		
Example issues/ example questions/ tasks being completed	Ability to select appropriate laboratory glassware for preparing aqueous solutions.Ability to prepare solutions of a given concentration.Knowledge of how to measure the pH of aqueous solutions and how to use a burette.Knowledge of the scheme for preparing biological and sediment samples for gravimetric analyses.Knowledge of basic parameters (including sample moisture, organic matter content) and processes (including drying, freeze-drying and roasting of samples) Knowledge of basic groups of inorganic compounds, their properties, nomenclature and formulas. Predicting the properties of basic inorganic compounds based on their structure and position in the periodic table. Ability to use the periodic table. Recording basic chemical reactions.		
Work placement	Not applicable		

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