University of Gdańsk

Subject card

Subject name and code	The basics of marine environment chemistry - lecture, PG_00054236		
Field of study	Oceanography		
Date of commencement of studies	October 2024	Academic year of realisation of subject	2024/2025
Education level	undergraduate studies	Subject group	Obligatory subject group 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	
Conducting unit	Pracownia Transformacji Substancji Toksycznych -> Katedra Oceanografii Chemicznej i Geologii Morza -> Faculty of Oceanography and Geography		
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Marta Staniszewska	
	Teachers	dr hab. inż. Marta Staniszewska	

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	5.0	40.0	75

Subject objectives

Presenting basic concepts and terms in the field of general and inorganic chemistry.

Learning outcomes

Course outcome	Subject outcome	Method of verification
OCEANL3-W01	knows and understands specialist terminology regarding general and inorganic chemistry at an advanced level	[SW4] test/exam - oral or written
OCEANL3-U01	is able to use current terminology in the field of basic chemistry of the marine environment	[SU4] test/exam - oral or written

Subject contents

A.1 Basic chemical concepts and lawsA.2 Modern model of atomic structure and regularities recorded in the periodic table; electron configuration of atoms.A.3 States of matter (gaseous, liquid and solid phases).A.4 Basic groups of inorganic compounds. Properties of oxides, hydrides, acids, bases, salts.A.5 Types of chemical reactions. Speed and equilibrium of chemical reactions.A.6 Discussion of selected elements and chemical compounds occurring in nature and/or having practical importance for humans.A.7 Relationships between the type of chemical bond and the properties of the substance. Electronic and quantum theory of chemical bonds. Intermolecular forces.A.8 Properties of mixtures, dispersion systems, solutions; dissolution, solubility of salts.A.9Equilibrium in electrolyte solutions (theories of acids and bases, electrolytic dissociation, properties of electrolyte solutions; discussion and interpretation of the pH scale, hydrolysis, buffer solutions).A.10 Colloidal systems.A.11 Basics of qualitative and quantitative analysis, classical and instrumental analytical chemistry.

Prerequisites and co-requisites

<table>
<tr><td>Assessment methods and criteria</td><td colspan="3"><table><tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr><tr><td>exam</td><td>51.0%</td><td>100.0%</td></tr></table></td></tr>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td colspan="2">Bielański, Fundamentals of inorganic chemistry, PWN, Warsaw</td></tr>
<tr><td>Supplementary literature</td><td colspan="2">Textbooks for general secondary schools and technical schools. Extended scope</td></tr>
<tr><td>eResources addresses</td><td colspan="2">Adresy na platformie eNauczanie:</td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td colspan="3">Ability to characterize the model of atomic structure (corpuscular model, wave model). Navigating the regularities resulting from the position of an element in the periodic table. What results from the electronic configuration of atoms. Characteristics of states of matter. Basic groups of inorganic compounds, their formulas, basic properties, practical use or occurrence in nature. Characteristics of basic chemical reactions. Ability to record hydrolysis and dissociation reactions. Ability to characterize basic chemical bonds and intermolecular interactions. What is a dispersion system, solution, colloidal system (examples). Acids and bases, their power. Theory of Arrhenius, Bronsted Lowry.....</td></tr>
<tr><td>Work placement</td><td colspan="3">Not applicable</td></tr>
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