University of Gdańsk

Subject card

Subject name and code	Chemistry of Suspended Particulate Matter - laboratory, PG_00206149		
Field of study	Oceanography		
Date of commencement of studies	October 2026	Academic year of realisation of subject	2028/2029
Education level	Bachelor'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	3	Language of instruction	Polish
Semester of study	6	ECTS credits	2.0
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. Dorota Burska, prof. UG	
	Teachers		

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	0.0	0.0	25.0	0.0	0.0	25

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	25	2.0	23.0	50

Subject objectives

Indication of analytical methods and environmental measurements that allow quantitative and qualitative characterization of suspended solids in the aquatic environment .

Learning outcomes

Course outcome	Subject outcome	Method of verification
[OCEANL3-U02] is able to independently and collaboratively conduct observations and perform measurements in the field or laboratory using appropriately selected techniques, tailored to the research problem	Can individually and in teams perform basic measurements and analyses on the quantity of marine suspensions and their chemical composition, using techniques appropriate to the problem posed, conversions	[SU4] test/exam - oral or written
[OCEANL3-K03] is ready to exercise caution and criticism in accepting information from scientific literature, the Internet and other media relating to natural sciences	Is ready to be cautious and critical in accepting information available in scientific literature, the Internet or other sources regarding the marine environment, especially in the field of information regarding the quantity and quality of suspensions	[SK2] presentation/project/paper/ report
[OCEANL3-U03] is able to process, describe, and present results, and draw conclusions	Can develop, describe and present the results of measurements and analysis of chemical composition of suspensions obtained in experiments. Carries out Correct inference on the basis of the obtained results.	[SU2] presentation/project/paper/ report [SU3] text preparation/written work
[OCEANL3-K01] is willing to plan and implement, individually or as a team, the subsequent stages of the entrusted task, is willing to take responsibility for the results of these works, effectively cooperates in the team and performs various roles in it	Is ready to take responsibility for his own work in a chemical laboratory; complies with the principles of teamwork by accepting various tasks; is responsible for jointly conducted experiments in the field of chemical suspensions and the correctness of the obtained results.	[SK2] presentation/project/paper/ report

Subject contents

1. Determination of suspension concentration using the gravimetric method.2. Correction of salinity using the weighing method (preparation of a salinity curve, salt washing).3. Sorption/flocculation processes in the aquatic environment (natural and anthropogenic absorbents).4. Determination of selected components of the suspension, e.g.: mineralization (e.g. phosphorus/nitrogen/carbon in suspension), extraction (e.g. chlorophyll a) with final spectrophotometric determination.5. Chemical composition of suspensions in various sea and land areas (natural and anthropogenic suspensions, e.g. calcium carbonate, humus, plastic, soot) - analysis of archival data (cruise reports, online databases, hydrodynamic model, SatBałtyk) using the literature on the subject.

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
poster/presentation	51.0%	25.0%
Worksheet/databases	51.0%	40.0%
Test	51.0%	35.0%

Recommended reading

Basic literature

1.Głuch I., Balcerzak M., (red), 2007, Chemia analityczna, Ćwiczenia laboratoryjne, Wyd. Politechniki Warszawskiej, Warszawa

2. Parsons T. R.,Maita Y.,Lalli C. M.,1984, A manual of chemical and biological methods for seawater analysis,Pergamon Press,New York, 173 pp.

3. Falkowska L Bolałek J. Łysiak-Pastuszak E. 1999, Biogenic elements: N, P, Si, Fe, Chemical analysis of sea water Vol. 2, Ed. Gdańsk University Press , Gdańsk

	Supplementary literature	1. Burska D., Szymczak E., Pryputniewicz-Flis D. 2022: Suspended matter in the waters of the Bay of Puck, [in]: Bolałek J., Burska D., (red). 2022 Puck Bay. Chemical aspects. Volume 2. Ed. Gdańsk University Press, Gdańsk (in Polish) 2. Burska D., Szymczak E., 2018, Suspension in the waters of the Vistula Lagoon. [in] The Vistula Lagoon J.Bolałek (red.), PWN, 115-129; warsaw (in Polish) 3. scientific publications, environmental reports, thematic studies
	eResources addresses	
Example issues/ example questions/ tasks being completed	Test: calculate the concentration of suspended forms of P, N, C; Suspension concentration using the gravimetric method - provide methods for correcting the effect of salinity; provide the procedure for performing the kinetics of phosphate sorption on lime carbonate (examples)Presentation topics: Suspended organic carbon in fresh and salt water; Forms of phosphorus in suspension in the coastal zone; Presence of salt on glass filters - SEM images, presence of plastics - FTIR spectra (examples)	
Work placement	Not applicable	

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