University of Gdańsk

Subject card

Subject name and code	Thermodynamics of Sea Water - lecture, PG_00204971		
Field of study	Oceanography		
Date of commencement of studies	October 2026	Academic year of realisation of subject	2026/2027
Education level	Master'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	1	Language of instruction	Polish
Semester of study	2	ECTS credits	1.0
Learning profile	academic	Assessment form	credit
Conducting unit	Department of Geophysics -> Faculty of Oceanography and Geography -> Rector		
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. Marcin Paszkuta	
	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	1.0	9.0	25

Subject objectives

Understand the mechanisms, causes and effects of thermodynamic processes in the sea.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[OCEANMU2-W04] has an in-depth understanding of the latest research trends in oceanography, as well as the possibilities for practical application of related achievements; evaluates their usefulness and limitations in solving scientific research problems, and critically analyzes and assesses their applicability	Understands in depth the course of complex marine processes in relation to marine thermodynamics (curriculum content: A1-A4).	[SW4] test/exam - oral or written
[OCEANMU2-W02] knows and understands complex processes and phenomena occurring in the marine environment, with particular emphasis on the coastal zone, as well as complex relationships between living and non-living elements of the aquatic environment	Knows in depth the practical application of marine thermodynamics (curriculum content: A1-A4).	[SW4] test/exam - oral or written

Subject contents

A. Problems of the lecture:
A.1 Fundamentals of general phenomenological thermodynamics,
A.2 Application of thermodynamic principles to physically pure (simple) substances,
A.3 Application of the thermodynamics of phase transitions to comparison in physically pure substances and in the sea,
A.4 Introduction to the physical thermodynamics of the sea in statistical terms.

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>Test</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">1. Dera. J., 2003. Fizyka Morza. Wyd. PWN, Warszawa, ISBN: 83-01-14020-8</td></tr>
<tr><td>Supplementary literature</td><td colspan="2">1 Leyendekkers. J.V., Hood W. D., 1976. Thermodynamics of Seawater. New York, ISBN 0-8247-6486-2;</td></tr>
<tr><td>eResources addresses</td><td colspan="2"></td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td colspan="3">A.1 Fundamentals of general phenomenological thermodynamics,
A.2 Application of thermodynamic principles to physically pure (simple) substances,
A.3 Application of the thermodynamics of phase transitions for comparison in physically pure substances and the sea,
A.4 Introduction to the physical thermodynamics of the sea in statistical terms.</td></tr>
<tr><td>Work placement</td><td colspan="3">Not applicable</td></tr>
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