University of Gdańsk

Subject card

Subject name and code	Marine Physics - lecture, PG_00205317		
Field of study	Oceanography		
Date of commencement of studies	October 2026	Academic year of realisation of subject	2027/2028
Education level	Bachelor's 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	2	Language of instruction	Polish
Semester of study	4	ECTS credits	3.0
Learning profile	academic	Assessment form	exam
Conducting unit	Laboratory of Physical Oceanography -> Department of Physical Oceanography and Climate Research -> Faculty of Oceanography and Geography -> Rector		
Name and surname of lecturer (lecturers)	Subject supervisor	dr Jordan Badur	
	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	2.0	43.0	75

Subject objectives

Acquire knowledge and understanding of basic laws governing physical processes occurring in the sea

Learning outcomes

Course outcome	Subject outcome	Method of verification
[OCEANL3-U01] is able to use the current scientific terminology in the field of oceanography in various forms of expression	Ability to use correctly science terminology in different forms of expression in the field of marine physics	[SU4] test/exam - oral or written
[OCEANL3-W01] has an advanced knowledge and understanding of the terminology used in oceanography and related exact and natural sciences (in Polish and a selected foreign language)	Knowledge and understanding of the basic concepts and terms used in the field of marine physics and related science (in Polish and English)	[SW4] test/exam - oral or written
[OCEANL3-W02] has a broad knowledge and understanding of physical, biological, chemical, and geological processes and phenomena occurring in aquatic environments, with particular emphasis on the marine environment	Knowledge and understanding of the processes and phenomena occurring in the sea.	[SW4] test/exam - oral or written
[OCEANL3-W05] has an advanced knowledge of techniques, research methods, and tools (mathematical, statistical, and computational) used by oceanographers to describe and interpret processes and phenomena occurring in the marine environment	Knowledge about research methods and approaches (mathematical, statistical and IT tools) used in oceanography in order to describe and interpret physical phenomena in the sea	[SW4] test/exam - oral or written

Subject contents	Black body radiation laws.Solar energy flux at the Earth and its distribution, greenhouse effct. Molecular structure and physical properties of seawater. Forces acting on water in the ocean. Elements of seawater thermodynamics. Equilibrium and water movement - examples of different type of sea currents, wave and convection. Molecular and turbulent exchange of mass, heat and momentum. Acoustic waves in the sea.		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	exam	51.0%	100.0%
Recommended reading	Basic literature	Dera J.: Marine Physics. Wyd. PWN, Warszawa, 1983, 2003. Druet, Kowalik, 1970, Marine dynamics, Wyd. Morskie Gdańsk	
	Supplementary literature	Massel S.R., 2010. Hydrodynamical processes in marine ecosytems. Wyd. Uniwersytetu Gdańskiego.	
	eResources addresses		
Example issues/ example questions/ tasks being completed	Analysis of different expressions.for seawater equation of state.		
Work placement	Not applicable		

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