

Subject card

Subject name and code	Introduction to Marine Optics - laboratory , PG_00205343						
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	5	ECTS credits			1.0		
Learning profile	academic	Assessment form			credit		
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		mgr Marta Misiewicz				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	15.0	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	Description of the interaction between light and optically active constituents of seawater and light energy transport 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 optics	[SU1] oral statement/conversation/discussion [SU5] implementation of a problem task
	[OCEANL3-U05] is able to use general-purpose and specialized software, as well as mathematical and statistical methods, in data analysis and the presentation of results	Ability to use application and specialistic software as well as mathematical and statistical methods in data analysis and results' presentation in the field of marine optics	[SU5] implementation of a problem task
	[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 optics and related science (in Polish and English)	[SW1] oral statement/conversation/discussion [SW5] implementation of a problem task
	[OCEANL3-W04] has an advanced understanding of issues and research problems in oceanography, and recognizes their connection with other scientific disciplines	Knowledge and understanding of matters and problems in the field of marine optics as well as their relationships with other scientific disciplines.	[SW1] oral statement/conversation/discussion [SW5] implementation of a problem task
	[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 marine optics in order to describe and interpret phenomena and processes occurring in the sea	[SW1] oral statement/conversation/discussion [SW5] implementation of a problem task
[OCEANL3-K03] is ready to exercise caution and criticism in accepting information from scientific literature, the Internet and other media relating to natural sciences	Readiness to be cautious and critical with respect to the information from the field of marine optics given in science literature, websites and other media	[SK1] oral statement/conversation/discussion [SK8] observation of student's independent or team work	
Subject contents	Computing basic radiometry quantities. Light reflection and transmission through the water surface. Analysis of the light attenuation coefficients spectra. Analysis of basic equations governing radiative transfer in the sea.		
Prerequisites and co-requisites	Differential and integral calculus at elementary level		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	activity	51.0%	25.0%
	short written tests	51.0%	75.0%
Recommended reading	Basic literature	Dera J.: Marine physics. Wyd. PWN, Warszawa, 2003.	
	Supplementary literature	oceanopticsbook.info	
	eResources addresses		
Example issues/ example questions/ tasks being completed	Determine irradiance at a surface when directional distribution of radiance is isotropic		
Work placement	Not applicable		

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