University of Gdańsk

Subject card

Subject name and code	Introduction to Marine Optics - lecture, PG_00205344		
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	2.0
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 hab. Mirosław Darecki	
	Teachers		

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	25.0	0.0	0.0	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	Description of the interaction between light and optically active constituents of seawater and light energy transport in the sea.

<table>
<tr><td>Learning outcomes</td><td>
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<tr><th>Course outcome</th><th>Subject outcome</th><th>Method of verification</th></tr>
<tr><td>[OCEANL3-U01] is able to use the current scientific terminology in the field of oceanography in various forms of expression</td><td>Ability to use correctly science terminology in different forms of expression in the field of marine optics</td><td>[SU4] test/exam - oral or written</td></tr>
<tr><td>[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)</td><td>Knowledge and understanding of the basic concepts and terms used in the field of marine optics and related science (in Polish and English)</td><td>[SW4] test/exam - oral or written</td></tr>
<tr><td>[OCEANL3-W04] has an advanced understanding of issues and research problems in oceanography, and recognizes their connection with other scientific disciplines</td><td>Knowledge and understanding of matters and problems in the field of marine optics as well as their relationships with other scientific disciplines.</td><td>[SW4] test/exam - oral or written</td></tr>
<tr><td>[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</td><td>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</td><td>[SW4] test/exam - oral or written</td></tr>
<tr><td>[OCEANL3-K03] is ready to exercise caution and criticism in accepting information from scientific literature, the Internet and other media relating to natural sciences</td><td>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</td><td>[SK4] test/exam - oral or written</td></tr>
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<tr><td>Subject contents</td><td>Basic quantities in radiometry. Sun radiation and its characteristic. Transfer of light through the water surface. Inherent optical properties of seawater optically active constituents. Transport of light energy in the sea. Elements of underwater visibility. Optical research in oceanography.</td></tr>
<tr><td>Prerequisites and co-requisites</td><td>Differential and integral calculus at elementary level</td></tr>
<tr><td>Assessment methods and criteria</td><td>
<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>
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<tr><td>Recommended reading</td><td>
<table>
<tr><td>Basic literature</td><td>Dera J., 2003. Marine physics. PWN, 540 str.</td></tr>
<tr><td>Supplementary literature</td><td>www.oceanopticsbook.info</td></tr>
<tr><td>eResources addresses</td><td></td></tr>
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<tr><td>Example issues/ example questions/ tasks being completed</td><td>Formulation of the radiative transfer equation in the sea.</td></tr>
<tr><td>Work placement</td><td>Not applicable</td></tr>
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