

**Subject card**

<b>Subject name and code</b>	Introduction to Satellite Remote Sensing - lecture, PG_00205346						
<b>Field of study</b>	Oceanography						
<b>Date of commencement of studies</b>	October 2026	<b>Academic year of realisation of subject</b>			2028/2029		
<b>Education level</b>	Bachelor's studies	<b>Subject group</b>			Obligatory subject group in the field of study Optional subject group Subject group related to scientific research in the field of study		
<b>Mode of study</b>	full-time studies	<b>Mode of delivery</b>			at the university		
<b>Year of study</b>	3	<b>Language of instruction</b>			Polish		
<b>Semester of study</b>	5	<b>ECTS credits</b>			1.0		
<b>Learning profile</b>	academic	<b>Assessment form</b>			credit		
<b>Conducting unit</b>	Laboratory of Physical Oceanography -> Department of Physical Oceanography and Climate Research -> Faculty of Oceanography and Geography -> Rector						
<b>Name and surname of lecturer (lecturers)</b>	Subject supervisor		dr Katarzyna Bradtke				
	Teachers						
<b>Lesson types</b>	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						
<b>Learning activity and number of study hours</b>	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
<b>Subject objectives</b>	Familiarizing students with <ul style="list-style-type: none"> <li>• basic concepts in the field of satellite remote sensing,</li> <li>• physical basis of remote sensing of the marine environment and coastal zone using devices recording electromagnetic radiation,</li> <li>• satellite missions and devices used in Earth observations,</li> <li>• the specificity of satellite data and their processing</li> </ul>						
<b>Learning outcomes</b>	<b>Course outcome</b>		<b>Subject outcome</b>		<b>Method of verification</b>		
	[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)		The student knows and understands at an advanced level the terminology used in satellite remote sensing, the physical basis of satellite remote sensing of the marine environment and the coastal zone, as well as the processes that can be studied remotely using devices recording electromagnetic radiation.		[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		The student has advanced knowledge of research techniques and methods used in the work of an oceanographer to describe and interpret processes and phenomena occurring in the marine environment using data		[SW4] test/exam - oral or written		

Subject contents	<p>1. Physical basis of satellite remote sensing - electromagnetic radiation, basic concepts of satellite remote sensing</p> <p>2. Satellite orbits and systems used in Earth observations, image resolution</p> <p>3. Passive recording techniques in various spectral ranges</p> <p>- sensors' types</p> <p>- features of images</p> <p>- surface phenomena and properties affecting the recorded signal, limitations</p> <p>4. Imaging geometry, geolocation, data processing steps</p> <p>5. Sources of satellite data and examples of their applications in marine research</p>		
Prerequisites and co-requisites	knowledge of physics within the scope of the "Physics for Oceanographers" course, knowledge of the basics of physical, chemical and biological oceanography		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Test	51.0%	100.0%
Recommended reading	Basic literature	<ol style="list-style-type: none"> <li>1. Hejmanowska B., Wężyk P. (ed.), Dane satelitarne dla administracji publicznej, Polska Agencja Kosmiczna 2020; <a href="https://polsa.gov.pl/wp-content/themes/polsa/files/Podrecznik.pdf">https://polsa.gov.pl/wp-content/themes/polsa/files/Podrecznik.pdf</a></li> <li>2. Emery W., Camps A., 2017, Introduction to Satellite Remote Sensing. Atmosphere, Ocean, Land and Cryosphere Applications, Elsevier</li> </ol>	
	Supplementary literature	<ol style="list-style-type: none"> <li>1. Martin S., 2014, An introduction to ocean remote sensing. Wydanie drugie. Cambridge University Press</li> <li>2. Robinson I.S., 2004, Measuring the oceans from space : the principles and methods of satellite oceanography, Springer</li> <li>3. Emilio Chuvieco, 2016, Fundamentals of Satellite Remote Sensing, CRC Press</li> <li>4. Adamczyk J., Będkowski K., 2007, Metody cyfrowe w teledetekcji. Wyd. SGGW, Warszawa</li> </ol>	
	eResources addresses		
Example issues/ example questions/ tasks being completed	<p>Assessment criteria:</p> <ul style="list-style-type: none"> <li>• understanding basic concepts in the field of satellite remote sensing</li> <li>• understanding the physical basis of remote sensing and knowledge of processes occurring in the marine environment that can be studied remotely using devices recording electromagnetic radiation</li> <li>• knowledge of satellite recording techniques, their possibilities and limitations</li> <li>• knowledge of satellite data processing steps</li> </ul>		
Work placement	Not applicable		

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