University of Gdańsk

Subject card

Subject name and code	Introduction to Seabed Morphometry - laboratory , PG_00205000		
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	1	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 Dominik Pałgan	
	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

Additional information:

exercises using a computer

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

To know and understand methods for processing bathymetric data and quantitative and qualitative description of seabed morphometry.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[OCEANMU2-U06] is able to use specialized computer software as well as advanced mathematical and statistical methods to analyze data and describe processes and phenomena occurring in the marine and coastal environment; evaluates their reliability and usefulness and performs critical analysis	is able to use specialised computer software and advanced mathematical and statistical methods in the analysis of bathymetric data (content: B.1-B.4)	[SU3] text preparation/written work [SU6] demonstration of practical skills [SU8] observation of student's independent or team work
[OCEANMU2-W03] has an in-depth understanding of research methods used in oceanography and related sciences, and interprets their mechanisms and interrelationships across different spatial and temporal scales	has a thorough understanding of research methods and the latest trends in non-invasive seabed surveying and morphometric analysis (content: B.4)	[SW3] text preparation/written work [SW5] implementation of a problem task
[OCEANMU2-U04] is ready to develop in an analytical and synthetic way research and analysis results and based on them creating conclusions	is able to analyse analytically and synthesise the results of seabed morphometric analyses and make correct inferences from these (content: B.1-B.4)	[SU3] text preparation/written work [SU6] demonstration of practical skills [SU8] observation of student's independent or team work
[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	have a thorough understanding of complex seabed processes and phenomena taking place on the seabed, including the coastal area, and the complex interrelationship between living and non-living elements of the seabed environment - based on analysis of seabed morphometrics (B.1-B.4)	[SW3] text preparation/written work [SW5] implementation of a problem task
[OCEANMU2-W05] knows and understands the principles of planning and conducting field and laboratory research as well as advanced methods and tools of scientific research, especially in the field of the studied specialty	has an in-depth knowledge and understanding of the principles of planning and conducting field and laboratory investigations and of advanced scientific research methods, and tools in seabed morphometry (content: B.1-B.4)	[SW3] text preparation/written work [SW5] implementation of a problem task

Subject contents

B.1 Practical aspects of the interpolation and production of the Numerical Terrain Model.B.2. Practical interpretation of the statistical features of the Numerical Terrain Model.B.3 Application of numerical image analysis to depictions of bottom morphology.B.4. Learn the principles of classification of morphological features and sediment types from non-invasive seabed recordings.

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Completion of writing assignments	51.0%	100.0%

Recommended reading

Basic literature

Lucieer, V.L., Lecours, V., Dolan, M.F.J. (eds) 2019. Marine Geomorphometry. MDPI Basel, Switzerland.

Hengl, T., Reuter, H.I. (eds) 2008. Geomorphometry: Concepts, Software, Applications. Developments in Soil Science, vol. 33, Elsevier, 772 pp.

Urbański J (2012) GIS in environmental research. University of Gdańsk, Gdańsk

	Supplementary literature	Harris, P.T, Baker, E.K. (eds) 2012. Seafloor Geomorphology as Benthic Habitat. GeoHAB Atlas of Seafloor Geomorphic Features and Benthic Habitats. Elsevier, 900 pp. Medwin H. and Clay C. S., 1998. Fundamentals of Acoustical Oceanography. Academic Press, Boston, 712. Medwin H., 2005. Sounds in the Sea. From Ocean Acoustics to Acoustical Oceanography. Cambridge University Press, New York, 643.
	eResources addresses	
Example issues/ example questions/ tasks being completed	I. Interpolation in GIS softwareII. Calculation of geostatistical parameters in GIS softwareIII. Interpretation of geostatistical parameters in GIS software	
Work placement	Not applicable	

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