University of Gdańsk

Subject card

Subject name and code	Ecological Modelling - laboratory , PG_00204930		
Field of study	Oceanography		
Date of commencement of studies	October 2026	Academic year of realisation of subject	2027/2028
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	2	Language of instruction	Polish
Semester of study	3	ECTS credits	1.0
Learning profile	academic	Assessment form	credit
Conducting unit	Laboratory of Ichthyology -> Department of Marine Ecology -> Faculty of Oceanography and Geography -> Rector		
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. Mariusz Sapota	
	Teachers		

Lesson types							
	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	20.0	0.0	0.0	20
	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	20	1.0	4.0	25

Subject objectives	Explanation of methods of creating ecological models, teaching the principles of creating models of the functioning of marine ecosystems

Learning outcomes

Course outcome	Subject outcome	Method of verification
[OCEANMU2-U05] is able to use source information in Polish and a chosen foreign language, including archival and electronic databases, within the field of oceanography; critically analyzes and synthesizes information, and is capable of performing critical interpretation and synthesis of data	is able to use source information, in Polish and English, including archival and electronic databases, in the field of ecosystem functioning, performs a critical analysis and synthesis of information	[SU2] presentation/project/paper/ report [SU5] implementation of a problem task [SU8] observation of student's independent or team work
[OCEANMU2-U01] is able to formulate and solve complex and unusual problems regarding the functioning of individual components of the marine environment using knowledge from various fields and scientific disciplines and propose solutions	is able to formulate and solve complex problems concerning the functioning of individual components of the marine environment by integrating knowledge from various fields and scientific disciplines	[SU2] presentation/project/paper/ report [SU5] implementation of a problem task
[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 specialized computer software as well as mathematical and statistical methods in modeling and describing phenomena and processes occurring in the marine environment and the coastal zone	[SU2] presentation/project/paper/ report [SU5] implementation of a problem task
[OCEANMU2-K04] is ready to critically evaluate his/her knowledge and received content in the field of natural sciences in in particular in the field of the studied specialty, a in problematic situations, supports oneself with knowledge experts	is self-critical and draws conclusions based on analysis, acts in accordance with the principles of professional ethics	[SK5] implementation of a problem task [SK6] demonstration of practical skills

Subject contents

Trophic relationship modeling

Creating modules containing individual elements of the trophic sow

Single-population models

Multi-species ecological systems

A model of energy flow and matter circulation in a marine ecosystem. During the course, the student will use the Ecopath, Ecosim and Ecospace modules to create a model of the functioning of the marine ecosystem. After verifying its functioning, the student can receive a certificate of completion of the Ecopath with Ecosim (EwE) course

Prerequisites and co-requisites

basic knowledge of statistics, knowledge of the general principles of functioning of marine ecosystems

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Implementation of a problem task	51.0%	100.0%

Recommended reading

Basic literature

Ecopath with Ecosim users guide, Lenfest Ocean Futures Project 2008

Witek Z. 1993. Structure and function of marine ecosystem In the Gdansk Basin on the basis of studies performed in 1987. (ed.) Studia I Materialy Oceanologiczne nr 63,

	Supplementary literature	Kremer J.N., Nixon S.W. A Coastal Marine Ecosystem, , Ecological Studies 24, 1978 Fennel W. Neumann T., Introdustion to the modeling of marine ecosystems, , Elsevier Oceanography Series 72, 2004 Dzierzbicka-Glowacka L. 2000 Matematyczne modelowanie procesow biologicznych w gornej warstwie morza, Rozprawy i monografie IO PAN Sopot, 13
	eResources addresses	
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	

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