

Subject card

Subject name and code	, PG_00120321						
Field of study	Oceanography						
Date of commencement of studies	October 2024	Academic year of realisation of subject			2025/2026		
Education level	postgraduate studies	Subject group			Obligatory subject group in the field of study Optional subject group		
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					
Conducting unit	Pracownia Ichtiologii -> Katedra Ekologii Morza -> Faculty of Oceanography and Geography						
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		2.0		3.0	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-K04] is ready to critically evaluate his/her knowledge and received content in the field of natural sciences 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 [SK8] observation of student's independent or team work
	[OCEANMU2-U06] can use specialized computer software and advanced mathematical and statistical methods in data analysis and description of processes and phenomena occurring in the marine environment and coastal zone	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 [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 [SU8] observation of student's independent or team work
[OCEANMU2-U05] is able to use source information in Polish and a selected foreign language, including archival and electronic databases, in the field of oceanographic issues, performs critical analysis and synthesis of information	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	
Subject contents	<p>Trophic relationship modeling</p> <p>Creating modules containing individual elements of the trophic sow</p> <p>Single-population models</p> <p>Multi-species ecological systems</p> <p>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</p>		
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
	performing a practical work ecological model	51.0%	100.0%
Recommended reading	Basic literature	<p>Ecopath with Ecosim users guide, Lenfest Ocean Futures Project 2008</p> <p>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,</p>	

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

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