University of Gdańsk

Subject card

Subject name and code	Ecological Modelling - lecture, PG_00204932		
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	exam
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	10.0	0.0	0.0	0.0	0.0	10

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	10	2.0	13.0	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-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	knows and understands to an in-depth degree basic and advanced mathematical, statistical and IT tools used to create models of phenomena and processes occurring in the aquatic environment	[SW4] test/exam - oral or written
[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	Explanation of methods of creating ecological models, teaching the principles of creating models of the functioning of marine ecosystems	[SW4] test/exam - oral or written

<table>
<tr><td>Subject contents</td><td colspan="3">Types of ecological models

Construction of block models

Mathematical modelling tools

Population models . Dynamic models of matter circulation and energy flow

Simulation and forecasting models</td></tr>
<tr><td>Prerequisites and co-requisites</td><td colspan="3">basic knowledge of statistics, knowledge of the general principles of functioning of marine ecosystems</td></tr>
<tr><td>Assessment methods and criteria</td><td colspan="3"><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></table></td></tr>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td colspan="2">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</td></tr>
<tr><td>Supplementary literature</td><td colspan="2">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</td></tr>
<tr><td>eResources addresses</td><td colspan="2"></td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td colspan="3"></td></tr>
<tr><td>Work placement</td><td colspan="3">Not applicable</td></tr>
</table>

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