University of Gdańsk

Subject card

Subject name and code	Structure and Functioning of Food Webs in the Marine Environment - seminar, PG_00206197		
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	2.0
Learning profile	academic	Assessment form	credit
Conducting unit	Faculty of Oceanography and Geography -> Rector		
Name and surname of lecturer (lecturers)	Subject supervisor	prof. dr hab. Adam Sokołowski	
	Teachers		

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	20.0	0.0	0.0	0.0	0.0	20

E-learning hours included: 0.0

Additional information:

Multimedia presentation and scientific discussion.

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	5.0	25.0	50

Subject objectives

Developing knowledge about trophic interactions, the structure and principles of functioning of the food webs, energy flow and the cycling of matter in the marine environment as well trophic transfer of contaminant pollutants.

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	Student is able to search for, synthesise and verify source information partaining to the subject scope.	[SU1] oral statement/conversation/ discussion [SU2] presentation/project/paper/ report
[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	Student defines and solves problems related to the organization and functioning of trophic links using interdisciplinary knowledge and skills.	[SU1] oral statement/conversation/ discussion [SU2] presentation/project/paper/ report
[OCEANMU2-U12] can independently expand and update oceanographic knowledge when planning and developing a professional career, as well as motivates others to deepen their knowledge	Student is able to independently gather information from different sources and develop knowledge in the field of the organization and functioning of food webs in the marine environment.	[SU1] oral statement/conversation/ discussion [SU2] presentation/project/paper/ report
[OCEANMU2-W01] knows and understands in-depth specialized terminology used in oceanography and related sciences (in Polish and a selected foreign language)	Student knows and correctly applies specialized terminology on the structure and functioning of food webs in the marine environment.	[SW1] oral statement/ conversation/discussion [SW2] presentation/project/paper/ report
[OCEANMU2-K03] is ready to effectively organize his/her own work, is active and persistent and punctuality in completing tasks, is ready to carrying out evaluation of their own activities	In an active and systematic way student organizes own work aimed at learning the principles of functioning of food webs in the marine environment.	[SK1] oral statement/conversation/ discussion [SK2] presentation/project/paper/ report

Subject contents

1. Definition, components, concepts and descriptors of the food web.
2. Modern methods for identyfying the sources of organic matter in marine ecosystems and for defining trophic interactions.
3. Methods of constructing a food web, parameters describing quantitatively and qualitatively the flow of energy, functioning and stability of food webs. Food web theories.
4. Food web in the Baltic Sea on the example of the Gulf of Gdansk - the use of stable isotopes.
5. Current trends in food web research - biodiversity, trophic transfer of contaminant pollutants, protection and management of the coastal zone.

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Contribution to the discussion on given topic.	51.0%	15.0%
Multimedia presentation on a given topic.	51.0%	70.0%
Interpretation of the obtained computational results.	51.0%	15.0%

Recommended reading

Basic literature	Polis G.A., Winemiller K.O., 1996. Food Webs: Integration of Patterns and Dynamics. Chapman and Hall, New York Rundel P.W., Ehleringer J.R., Nagy K.A., 1989. Stable isotopes in ecological research. Springer-Verlag, New York Belgrano A., Scharler U.M., Dunne J., Ulanowicz R.E., 2005. Aquatic Food Webs. An Ecosystem Approach. Oxford University Press, Oxford Scientific publications on the topics covered in the course.
Supplementary literature	Coleman D.C., Fry B., 1991. Carbon Isotope Techniques. Academic Press, San Diego Karasov W.H., Martinez del Rio C., 2007. Physiological Ecology: How Animals Process Energy, Nutrients and Toxins. Princeton University Press, Princeton
eResources addresses	

Example issues/ example questions/ tasks being completed

Classical methods for determining trophic interactions within a biocenosis.

The microbial loop.

Work placement

Not applicable

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