University of Gdańsk

Subject card

Subject name and code	Ecophysiology of Marine Animals - lecture, PG_00204900		
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	3.0
Learning profile	academic	Assessment form	exam
Conducting unit	Laboratory of Ecophysiology and Bioenergetics -> Department of Marine Ecology -> Faculty of Oceanography and Geography -> Rector		
Name and surname of lecturer (lecturers)	Subject supervisor	prof. dr hab. Monika Normant-Saremba	
	Teachers		

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	30.0	0.0	0.0	0.0	0.0	30

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	30	4.0	41.0	75

Subject objectives

Learning about the basic life processes of marine animals, as well as their behavioral and physiological adaptations to the environment and occurring changes.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[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	Knows and understands in depth the course of complex physiological processes in animals living in the marine environment, including the coastal zone, as well as the dependence of these processes on changes occurring in the environment.	[SW4] test/exam - oral or written
[OCEANMU2-W04] has an in-depth understanding of the latest research trends in oceanography, as well as the possibilities for practical application of related achievements; evaluates their usefulness and limitations in solving scientific research problems, and critically analyzes and assesses their applicability	Knows and understands in-depth the latest research trends in the ecophysiology of marine animals, as well as the possibilities of practical application of scientific achievements.	[SW4] test/exam - oral or written
[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	Knows and understands in-depth research methods used in ecophysiological studies of marine animals.	[SW4] test/exam - oral or written

Subject contents	The lecture topics include the following issues: introduction to ecophysiology, food consumption and assimilation, excretion, water-ion regulation, respiration and circulation, energy metabolism, energy value and biochemical composition, energy balance and individual production, control and regulation of physiological functions, behavioral-physiological adaptation of animals to the environment and changes occurring in it, practical application of ecophysiological research results - behavioral and physiological biomarkers in diagnostics, environmental monitoring and forecasting changes, ethics in physiological research - limiting the number of animals in research, their pain and suffering.	
Prerequisites and co-requisites		
Assessment methods and criteria	Subject passing criteria: Test/ exam	Passing threshold: 51.0% / Percentage of the final grade: 100.0%
Recommended reading	Basic literature	Hochachka P. W., Somero G. N., 1973. Strategies of Biochemical Adaptation. W.B. Saunders Company, Philadelphia. Prus T., 1975. Chapter 5: Calorimetry and Body Composition, 5A Measurement of calorific value using Phillipson microbomb calorimeter. In: Grodzinski In., Klekowski R.Z., Duncan A. (eds), Methods for Ecological Bioenergetics. IBP Handbook No. 24, Blackwell Scientific Publications, 149- 160. Schmidt-Nielsen K., 1997. Animal Physiology - Adaptation to Environment. 5th Edition, Cambridge University Press. Solan M., Whiteley N.M., 2016. Stressors in the Marine Environment. Physiological and ecological responses; societal implications. Oxford University Press. Willmer, P., Stone, G., Johnston, I., 2000. Environmental Physiology of Animals. Blackwell Science Ltd.
	Supplementary literature	Harris, R.R., Aladin, N.V., 1997. The ecophysiology of osmoregulation in Crustacea. W: Hazon, N., Eddy, F.B., Flik, G. (eds.), Ionic Regulation in Animals. Springer, Berlin, 1-25. Kay I., 1998. Introduction to Animal Physiology. BIOS Scientific Publishers Limited.
	eResources addresses	
Example issues/ example questions/ tasks being completed	Tolerance and physiological stress zones, acclimation, acclimatization and adaptation, physiological phenotypic plasticity, conformity and regulation, physiological processes and body mass, biological rhythms, homeostasis, reception and processing of stimuli from the environment, regulation and coordination of chemical processes in cells and tissues, digestion and food assimilation efficiency, respiration, ventilation, heart rate and oxygen transport, aerobic and anaerobic metabolism, excretion of metabolic products, maintaining water-ion balance, individual production, behavioral and physiological indicators of animal condition and of environmental changes, effect of endo- and exogenous factors on the rate of the physiological processes.	
Work placement	Not applicable	

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