

Subject card

Subject name and code	Ecophysiology of marine animals - laboratory exercises, PG_00054559						
Field of study	Oceanography						
Date of commencement of studies	October 2025		Academic year of realisation of subject		2025/2026		
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		credit		
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		dr Joanna Hegele-Drywa				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	30.0	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		5.0		50.0	85
Subject objectives	Learning about the basic life processes of marine animals, as well as behavioural-physiological adaptations to the environment and the various types of changes in it.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[OCEANMU2-U04] is ready to develop in an analytical and synthetic way research and analysis results and based on them creating conclusions	Student can elaborate analytically and synthetically the results of laboratory tests and analyses and make correct conclusions about the influence of biotic and abiotic factors on the behaviour and basic physiological processes of marine animals .	[SU3] text preparation/written work
	[OCEANMU2-U02] can use scientific terminology fluently and appropriately in presenting and discussing problems in the field of oceanography	Student can use scientific terminology fluently and appropriately in presenting and discussing problems in marine animal ecophysiology.	[SU1] oral statement/conversation/discussion [SU3] text preparation/written work [SU4] test/exam - oral or written
	[OCEANMU2-W03] knows and understands research methods used in oceanography and related sciences	Student knows and understands the research methods used in marine animal ecophysiology research.	[SW4] test/exam - oral or written [SW1] oral statement/conversation/discussion
	[OCEANMU2-K01] is ready to plan, implement and supervise, individually or collectively, next stages of the entrusted task, is ready to take responsibility for its results, cooperates effectively in the team and performs its functions in it various functions, including managerial ones	Student is able to plan, carry out and supervise, individually or in a team, the successive stages of laboratory investigations into the fundamental physiological processes of marine animals, takes responsibility for the results, works effectively in a team in a variety of roles including leadership.	[SK3] text preparation/written work [SK8] observation of student's independent or team work
Subject contents	1 The influence of abiotic factors on the behaviour of marine animals. 2. Nutrition (filtration rate, food preference, food consumption rate). 3. Oxygen consumption (aerobic metabolism) and heat production (total metabolism). 4. Ammonia excretion in selected marine animals. 5. Osmotic regulation. 6. Energy value of marine animals.		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	preparation for classes and activity	51.0%	10.0%
	colloquium/test	51.0%	70.0%
	factual correctness of the report	51.0%	20.0%
Recommended reading	Basic literature	Hochachka P. W., Somero G. N., 1978. Strategie Adaptacji Biochemicznych. Wydawnictwo PWN, Warszawa Klekowski R.Z., Fischer Z., 1993. Bioenergetyka Ekologiczna Zwierząt Zmiennocieplnych. PAN, Wydział II Nauk Biologicznych, Warszawa. Schmidt-Nielsen K., 2008. Fizjologia Zwierząt. Adaptacja do środowiska. Wydawnictwo Naukowe PWN, Warszawa Willmer, P., Stone, G., Johnston, I., 2000. Environmental Physiology of Animals. Blackwell Science Ltd Cymborski B., 1987. Zegary biologiczne, PWN.	
	Supplementary literature	Harris, R.R., Aladin, N.V., 1997. The ecophysiology of osmoregulation in Crustacea. W: Hazon, N., Eddy, F.B., Flik, G. (red.), Ionic Regulation in Animals. Springer, Berlin, str. 1-25. Kinne, O., 1971. Marine Ecology. A comprehensive, integrated treatise on life in oceans and coastal waters, Vol. 1. Environmental factors. Part 2, Wiley-Interscience, a Division of John Wiley & Sons Ltd., London, New York, Sydney, Toronto. Norrbin F., Bamstedt U., 1984. Energy contents in benthic and planktonic invertebrates of Kosterfjorden, Sweden. A comparison of energetic strategies in marine organism groups. Ophelia 23 (1), 47-64. Regnault, M., 1987. Nitrogen excretion in marine and fresh-water Crustacea. Biol. Rev. 62, 1-24.	
	eResources addresses		
	Example issues/ example questions/ tasks being completed		
Work placement	Not applicable		

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