University of Gdańsk

Subject card

Subject name and code	Regulation of sleep and wakefulness, PG_00207351						
Field of study	Biology						
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	2		ECTS credits		1.0		
Learning profile	academic		Assessment form		credit		
Conducting unit	Faculty of Biology -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. Jolanta Orzeł-Gryglewska				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	0.0	0.0	0.0	15
	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	15		2.0		8.0	25
Subject objectives	The aim of the classes is to demonstrate the importance of undisturbed sleep for proper human functioning.						

Learning outcomes

Course outcome	Subject outcome	Method of verification
[BIOLMU2_U07] is able to critically compare biological information from various sources and draw justified conclusions on this basis	the student is able to critically confront information on the subject of classes that comes from various sources and draw justified conclusions from them	[SU1] oral statement/conversation/ discussion
[BIOLMU2_W05] has an in-depth knowledge and understanding of the dynamic development of the biological sciences and is well versed in new research trends and disciplines	- the student is aware of continuous progress in biological sciences and is aware of the emergence of new research directions in the field of physiology and sleep medicine	[SW4] test/exam - oral or written [SW1] oral statement/ conversation/discussion
[BIOLMU2_W01] has a deep knowledge and understanding of natural phenomena and processes at various levels of complexity	the student understands phenomena and processes related to the regulation of the rhythm of sleep and wakefulness at the systemic and cellular level	[SW4] test/exam - oral or written [SW1] oral statement/ conversation/discussion
[BIOLMU2_U03] is able to critically analyze and select biological information, especially from electronic sources	the student is able to properly select information regarding the regulation of sleep and wakefulness	[SU1] oral statement/conversation/ discussion
[BIOLMU2_K07] is ready to systematically update biological knowledge and information on its practical applications	the student is ready to systematically update knowledge about sleep hygiene and its practical applications	[SK1] oral statement/conversation/ discussion [SK4] test/exam - oral or written
[BIOLMU2_K01] shows initiative and is ready to act independently and feels the need for lifelong learning	the student shows initiative and is ready to act independently in acquiring knowledge	[SK1] oral statement/conversation/ discussion

Subject contents

Methods of examining brain function during wakefulness and sleep. Participation of individual brain structures in the development of wakefulness, slow-wave and paradoxical sleep. Sleep changes in phylogenetic and ontogenetic development. Chronobiology of the sleep-wake rhythm; biological clock and the role of melatonin. Consequences of sleep deprivation. Human sleep disorders; parasomnias, neurobiological basis of insomnia and narcolepsy.

Prerequisites and co-requisites

Basic knowledge of human anatomy and physiology

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
passing test	51.0%	100.0%

Recommended reading

Basic literature

Rowan J., Tolunsky E. 2004. Podstawy EEG z miniatlasem. Wydawnictwo Medyczne Urban & Partner, Wrocław.

Jurkowlaniec E. 2014. Paradoksy snu paradoksalnego. Kosmos, 63, 2: 181-187.

Orzeł-Gryglewska J., 2010. Consequences of sleep deprivation. Int. J. Occup. Med. Environ. Health, 23(1), 95-114.

Orzeł-Gryglewska J., 2017. Zaburzenia snu związane z nadmierną ekspozycją na światło. Polish Journal of Sustainable Development, 21(2), 91-100.

	Supplementary literature	Jurkowlaniec E. 2002. Podstawowe mechanizmy snu i czuwania: udział głównych układów neurotransmiterowych mózgu. Sen, 2 (1), 21-32. Jurkowlaniec E. 2003. Regulacja hipokampalnego rytmu theta. Sen, 3 (2), 49-56. Orzeł-Gryglewska J., Wysocka D., Hołda M. Fizjologia i znaczenie snu. W: Wolf J., Grabowski K., Mamcarz A., Skalski M., Wichniak A. [red.]: Medycyna snu 1. PZWL, Warszawa **2025**, 19-102. Scammell TE, Arrigoni E, Lipton JO. 2017. Neural circuitry of wakefulness and sleep. Neuron, 93, 747-765. http://dx.doi.org/10.1016/j.neuron.2017.01.014 Kryger M.H., Roth T., Dement W.C. 2011 oraz 2017. Principles and Practice of Sleep Medicine. Elsevier, Saunders (wyd.), Philadelphia, USA. Jernajczyk W. [red.]. W krainie snu. 2014, Kosmos, 63, 2 (303). Kubera M. [red.]. Neurobiologia snu. 2020, Kosmos, 69,3.
	eResources addresses	
Example issues/ example questions/ tasks being completed	The definition of electroencephalography. What are the most important advantages of this method? What does the abbreviation SWA mean in electroencephalography? What is polysomnography? Explain the abbreviations: EEG, EMG and EOG - what the term means. What does the term "PGO waves" mean? When do they occur?	
Work placement	Not applicable	

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