

Subject card

Subject name and code	Central Nervous System Plasticity - selected issues, PG_00146641						
Field of study	Biology						
Date of commencement of studies	October 2025		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		
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		credit		
Conducting unit	Laboratory of Neurobiology -> Department of Animal and Human Physiology -> Faculty of Biology -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr Beata Grembecka				
	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 purpose of the subject is to demonstrate the role of plastic processes in human health and disease.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[BIOLMU2_W04] the graduate has an in-depth knowledge of the chosen specialisation in the biological sciences		The student acquires expert knowledge in a selected thematic area and is able to present it in written form		[SW4] test/exam - oral or written [SW3] text preparation/written work		
	[BIOLMU2_U03] the graduate can critically analyse and select biological information, especially from electronic sources		The student is able to critically search for and analyze the latest research results and present them in written form.		[SU3] text preparation/written work		
	[BIOLMU2_W01] the graduate has an in-depth knowledge and understanding of natural phenomena and processes at different levels of complexity		The student acquires knowledge about neuroplastic processes at various levels of complexity		[SW4] test/exam - oral or written [SW3] text preparation/written work		
Subject contents	Types of brain plasticity: developmental, compensatory, and memory plasticity. The significance of plastic processes at various stages of brain development. Brain structures involved in plastic processes - the role of the prefrontal cortex and hippocampus. Basics of learning and memory. Phenomena of habituation and sensitization as the basis for plastic changes. Classification of types of memory based on its duration and the subject of memory, and methods of memory assessment. Cellular and molecular bases of memory. The importance of sleep phases in brain plasticity processes and the consequences of their deficiency. Long-term strengthening and weakening of synaptic connections as the basis for modifying intercellular connections, the role of theta rhythm. The formation of memory traces and their storage. Classification of memory disorders. Repair of damage in the central and peripheral nervous system and its effectiveness.						
Prerequisites and co-requisites	Basic knowledge of human anatomy and physiology, especially the general structure of the nervous system are required						
Assessment methods and criteria	Subject passing criteria		Passing threshold		Percentage of the final grade		
	essay type written work		51.0%		50.0%		
	passing test		51.0%		50.0%		

Recommended reading	Basic literature	Kossut M. Neuroplastyczność. 2018. Medyk. Kossut M. (red.) 1994. Mechanizmy plastyczności mózgu. Wydawnictwo Naukowe PWN, Warszawa. Górska T., Grabowska A., Zagrodzka J. (red.) 2013. Mózg a zachowanie. Wydawnictwo Naukowe PWN, Warszawa.
	Supplementary literature	Quartarone, A., Ghilardi, M. F., & Boller, F. (Eds.). (2022). Neuroplasticity: From Bench to Bedside. Current scientific articles recommended by the lecturer
	eResources addresses	
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	

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