

Subject card

Subject name and code	Methods for the study of CNS, PG_00154584						
Field of study	Medical Biology						
Date of commencement of studies	October 2025		Academic year of realisation of subject		2027/2028		
Education level	Bachelor'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	3		Language of instruction		Polish		
Semester of study	5		ECTS credits		1.0		
Learning profile	academic		Assessment form		credit		
Conducting unit	Department of Animal and Human Physiology -> Faculty of Biology -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. Irena Majkutewicz				
	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	Familiarizing the student with commonly used methods of studying the structure and function of the nervous system and the latest methods used in neurobiology.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[BIOLMEDL3_W16] explains the theoretical basis of experimental methods and lists the most important techniques of biological sciences that can be applied to medical biology and diagnostics		BM_W16 The student describes the most important methods and techniques used in neurobiology.		[SW4] test/exam - oral or written		
	[BIOLMEDL3_K01] understands the need for lifelong learning and to update his/her knowledge of medical biology and related disciplines		BM_K01 The student understands the need for lifelong learning, updating knowledge in the field of neurobiology and becoming familiar with new research methods on an ongoing basis.		[SK4] test/exam - oral or written		
Subject contents	History of CNS research. Contemporary invasive and non-invasive study of CNS activity in humans or experimental animals: neurobrazing (fMRI, CT, PET), cerebral stereotaxy, brain stimulation, microinjections, experimental lesions, electrophysiology and electroencephalography, study of neurochemical processes (voltametry and microdialysis) combined with chemical analysis techniques (electrophoresis, mass spectrometry, HPLC), psychometry, in situ studies (histological techniques, immunohistochemistry and immunofluorescence), ELISA. Use of experimental animals - the most important legal regulations and ethical principles. Behavioral tests on rats or mice. Application of transgenic animals in neurobiology. Optogenetics. The course of clinical neurobiological examination - video presentation. Analysis of publications in the field of neurobiology in which modern methods were used.						
Prerequisites and co-requisites	Fundamentals of Neuroanatomy, Neurophysiology						

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	written test	51.0%	100.0%
Recommended reading	Basic literature	Sadowski B. Zachowanie jako przedmiot badań. In: Biologiczne mechanizmy zachowania ludzi i zwierząt. pp. 30-40. Wydawnictwo Naukowe PWN, Warszawa, 2001 or 2005 or 2009. Lindsay KW., Bone I., Fuller G. Neurobiologia i Neurochirurgia. W.Kozubski (Ed.) Elsevier Urban & Partners Wrocław, Chapters I and II, pp 1-66.	
	Supplementary literature	Altman J. 1974. Observational Study of Behavior: Sampling Methods. Behaviour 49: 227-266. Fronczyk K. Psychometria. Podstawowe zagadnienia + CD. Wydawnictwo: Vizja Press&IT, 2011. Mańkowska M. Wprowadzenie do psychometrii. Wydawnictwo: Katolicki Uniwersytet Lubelski, 2010.	
	eResources addresses		
	Example issues/ example questions/ tasks being completed		
Work placement	Not applicable		

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