University of Gdańsk

Subject card

Subject name and code	Neurobiological basis of addictions, PG_00149301						
Field of study	Medical Biology						
Date of commencement of studies	October 2024		Academic year of realisation of subject	2026/2027			
Education level	undergraduate 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	3		Language of instruction	Polish			
Semester of study	6		ECTS credits	2.0			
Learning profile	academic		Assessment form				
Conducting unit	Pracownia Neurobiologii -> Katedra Fizjologii Zwierząt i Człowieka -> Faculty of Biology						
Name and surname of lecturer (lecturers)	Subject supervisor	dr Wojciech Glac					
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	30.0	0.0	0.0	0.0	30
	E-learning hours included: 0.0						
	Additional information: The course is based on gamification system (the structure are based on game mechanics, elements and plot), in which student, by systematically performing various types of tasks and obtaining points, makes progress in the game, which, in accordance with the given criteria, translates into the possibility of obtaining a given final grade (without having to participate in an exam or colloquium).						
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	2.0	18.0	50		
Subject objectives	understanding the mechanisms leading to pharmacological and behavioral addiction and the basis of individual differences in susceptibility to addiction; learning the properties, mechanisms of action and effects of the most popular addictive substances; ability to recognize addiction and symptoms of taking addictive substances						

Learning outcomes

Course outcome	Subject outcome	Method of verification
[BIOLMEDL3_W06] describes, explains and compares systemic control mechanisms in animal and human organisms (including onto- and phylogenetic points of view) and the neurobiological and genetic basis of different disorders	understands the physiological processes occurring in response to the intake (administration) of various types of addictive substances and their relationship with the addiction process and understands the neural mechanism of addiction (BM_W05, BM_W06)	[SW3] text preparation/written work
[BIOLMEDL3_W05] knows the structure, properties and functions of human cells, tissues and organs; human physiological and biochemical processes and mechanisms of disease pathophysiology	knows the structure and functions of the brain in terms of the neuronal mechanism of addiction (BM_W05)	[SW4] test/exam - oral or written [SW3] text preparation/written work
[BIOLMEDL3_K03] is aware of his/her own limitations and knows when to seek expert assistance	is aware of having insufficient knowledge and skills in the field of addiction neurobiology and is able to formulate questions (BM_K03)	[SK1] oral statement/conversation/ discussion [SK5] implementation of a problem task
[BIOLMEDL3_U05] synthesises data from different sources and draws appropriate conclusions from them	synthesizes data from various sources in order to determine the degree of harmfulness, addictive potential of substances and the individual's susceptibility to developing addiction (BM_U05)	[SU3] text preparation/written work [SU5] implementation of a problem task

Subject contents

- the definitions of addiction;
- psychological and physical addictions;
- behavioral and pharmacological addictions;
- neurobiological mechanism of addiction;
- theories on the development of addiction;
- mechanisms of action and effects of the main pharmacological groups of addictive drugs - stimulants, depressants and psychedelics - including: amphetamine, cocaine, caffeine, nicotine, alcohol, barbiturates, benzodiazepines, opioids, LSD, psilocybin, MDMA, ketamine, phencyclidine, cannabinols and others;
- individual differences in susceptibility to addiction and the effects of taking addictive substances;
- treatment of addiction

Prerequisites and co-requisites

basic knowledge about the structure and functioning of the central nervous system

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
discussion	51.0%	10.0%
problem tasks	51.0%	20.0%
case study	51.0%	40.0%
quizzes	51.0%	30.0%

Recommended reading

Basic literature	• Bijak i Lasoń (red.), Neuropsychofarmakologia: dziś i jutro, Instytut Farmakologii Klinicznej PAN, Wydawnictwo Palo-tyn, Kraków, 2000 • Szukalski, Narkotyki kompendium wiedzy o środkach uzależniających, Instytut Psychiatrii i Neurologii, Warszawa, 2005 • Longstaff, Neurobiologia, PWN, Warszawa, 2002
Supplementary literature	articles in specialist scientific journals (provided by teacher)
eResources addresses	Adresy na platformie eNauczanie:

Example issues/ example questions/ tasks being completed

- test - indicate substances that are physically addictive (indicate all correct answers)
- problem work - create a synthetic theory of addiction based on various theories
- case study - based on the described story, indicate and justify what substances the described has taken, and why fatal overdose occurred
- discussion - topic: therapeutic potential of psychedelics

Work placement

Not applicable

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