University of Gdańsk

Subject card

Subject name and code	Neurobiology of Addictions, PG_00154593		
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	6	ECTS credits	3.0
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 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

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	40.0	75

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_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 (B_U05)	[SU3] text preparation/written work [SU5] implementation of a problem task
[BIOLMEDL3_U07] is able to identify problems corresponding to the needs of an individual and a social group and to undertake basic diagnostic, preventive and educational activities appropriate to the profession of medical biologist	can prepare a well-documented issue on the neurobiological basis of addiction and addiction prevention (BM_U07)	[SU3] text preparation/written work [SU5] implementation of a problem task
[BIOLMEDL3_K04] is able to form opinions about individuals and social groups in a professional context	* is able to formulate opinions about individual people and social groups in the context of susceptibility to addiction and the effects of addiction, and also assess the psychophysical condition of an addicted person in various phases of addiction while maintaining ethical principles (B_K03)	[SK1] oral statement/conversation/ discussion [SK5] implementation of a problem task
[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

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
quizzes	51.0%	30.0%
case study	51.0%	20.0%
discussion	51.0%	10.0%
problem tasks	51.0%	40.0%

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	

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