



## Subject card

Subject name and code	FOUNDATIONS OF PHARMACOLOGY, PG_00038907						
Field of study	Chemistry						
Date of commencement of studies	February 2022	Academic year of realisation of subject			2022/2023		
Education level	second-cycle studies	Subject group			Optional subject group		
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			3.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Department of Pharmaceutical Technology and Biochemistry -> Faculty of Chemistry						
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Marcin Serocki					
	Teachers						
Lesson type and method of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	0.0	0.0	15.0	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	The aim of this subject is to give the elemental knowledge on the mode of action of drugs on the human organism. Pharmacokinetic process describes absorption, distribution, metabolism and elimination of the drug from the human body. Pharmacodynamic process describes the interaction of the drug with the receptor, i.e. explains the pharmacological effect observed after administration of the drug.						
Learning outcomes	Course outcome		Subject outcome			Method of verification	
	K7_W02		Student based on the chemical structure of the compound can propose compartment of distribution of the drug in the body and/or cell and can propose a mechanism of detoxification (metabolism) of a given molecule.			[SW1] Assessment of factual knowledge	
	K7_K02		Student has a knowledge and understand the stages of implementing new medicines. Is aware of the scale of synthesis of the implemented drugs and is able to optimize and/or propose a less onerous method of synthesis of implemented/existing drugs.			[SK5] Assessment of ability to solve problems that arise in practice	
	K7_U01		Student is able to collect information and present the synthesis pathways of known drugs and their impact on the human body (pharmacokinetics and pharmacodynamics). Student understands the problems of drug synthesis and can propose an alternative way to obtain active substances.			[SU5] Assessment of ability to present the results of task	
Subject contents	Basic consideration. Drug action. Pharmaceutical phase. Pharmacokinetic phase. Routes of drug administration. Absorption of drugs. Barriers of absorption. Mechanism of absorption - diffusion, active transport, phagocytosis. Distribution of drug. Biotransformation. Phase I reactions. Cytochrome P450. Phase II - conjugation reactions. Excretion. ABC transporters. Pharmacokinetics. Pharmacokinetic parameters. Bioavailability. Therapeutic concentration. Toxic concentration. Pharmacokinetic models. Pharmacodynamics. Definition of receptor. Interaction drug-receptor. Agonists and antagonists. Dose effect curves. Allergic reactions. Undesirable and toxic effects of drug action. Design and testing of new drugs. Clinical tests. Gene and antisense therapy.						
Prerequisites and co-requisites	Knowledge of Biochemistry is recommended						

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Written exam - 90 minutes .	60.0%	66.0%
	Multimedial presentation on a given subject during seminar	60.0%	34.0%
Recommended reading	Basic literature	"Farmakologia i Toksykologia". Praca zbiorowa pod redakcją E.Muchler. Wydawnictwo Medyczne Urban & Partner. Wrocław 2004 "Toksykologia". Pod redakcją W. Seńczuka. Wydawnictwo Lekarskie PZWL. Warszawa 1999 "Farmacja stosowana. Pod redakcją S.Janickiego, A.Fiebiga i M.Sznitowskiej. Wydawnictwo Lekarskie PZWL. Warszawa 2005	
	Supplementary literature	No requirements	
	eResources addresses		
Example issues/ example questions/ tasks being completed	In what compartment of the body / cells will be located medicines with high lipophilicity? How to improve the solubility of organic active substances in the aqueous solutions?		
Work placement	Not applicable		