1.	**Field of study**	**Biotechnology**
2.	Faculty	Faculty of Natural Sciences
3.	Academic year of entry	2022/2023 (winter term), 2023/2024 (winter term), 2024/2025 (winter term)
4.	Level of qualifications/degree	second-cycle studies
5.	Degree profile	general academic
6.	Mode of study	full-time

Module: Selected problems of pharmacology

Module code: 2BT_56A

1. Number of the ECTS credits: 1

2. Learning outcomes of the module

code	description	learning outcomes of the programme	level of competence (scale 1-5)
2BT_56_1	Student demonstrates the knowledge of techniques and tools applied in pharmacology, is able to find connections between physiological and pharmacological data, considering the challenges of biotechnological medicaments.	2BT_W02_P	5
2BT_56_2	Student operates with the acquired knowledge joining pharmacology and physiology, is able to process and analyze data and present them in an assessable way	2BT_U02_P	4
2BT_56_3	Student demonstrates the knowledge of English pharmacological and physiological pharmacology that enables them to acquire information from electronic sources, medical databases including molecular targets and mechanisms of action.	2BT_U05_P	5
2BT_56_4	Student is able to analyze critically the information about medicaments, found without tutor’s help; is able to differentiate between commercial and scientific description.	2BT_K01_P	4
2BT_56_5	Can independently and / or in a team solve a research, theoretical or practical problem in the field of physiology of drug action and present its solution in an oral or written report	2BT_U03_P	4
2BT_56_6	Student is able to draw conclusions from available metaanalyses and clinical researches, connect them with his/her knowledge and appreciate the significance of the data obtained from the studies on large, randomized groups by means of adequate statistical tools.	2BT_U01_P	5
2BT_56_7	Student is in a habit to use various sources of scientific information, including newsletters and scientific portals and to apply the rulet of critical concluding during the assessment of their reliability and credibility. Student independently, of their own initiative, searches for medicament information and share it with other students during the classes.	2BT_U06_P	3

3. Module description

Description	The aim of the classes is to acquire the knowledge of molecular targets and mechanisms of medicament action, including physiological causation (homeostasis) and practical skills enabling the student to use the data from medicament descriptions, including biotechnological medicaments.

	Conversation classes cover the review of physiological and pathophysiological bases of pharmacology (medicament receptors, cascades of induced or inhibited reactions) and elements of pharmacokinetics and pharmacoeconomics. Practical trainings show the students the way of aprotective action of the antioxidants. Student’s own work with handbooks and electronic sources of data is aimed at the preparation for the classes and creating of schemes and reports used during the classes.
Prerequisites	Knowledge and skills in animal physiology, biochemistry, molecular biology and cell biology acquired during the previous study stages, enabling the students to understand the language of pharmacology and pathophysiological attempt to the medicament description. It is recommended, though not necessary to possess elementary knowledge of patophysiology..

4. Assessment of the learning outcomes of the module

code	type	description	learning outcomes of the module
2BT_56_w_1	Coursework	according to the Syllabus	2BT_56_1, 2BT_56_2, 2BT_56_3, 2BT_56_4, 2BT_56_5, 2BT_56_6, 2BT_56_7

5. Forms of teaching

code	form of teaching			required hours of student's own work		assessment of the learning outcomes of the module
	type	description (including teaching methods)	number of hours	description	number of hours	
2BT_56_fs_1	laboratory classes	Practical classes during which students assess antioxidative action of selected antioxidants in an experimental setup.	5	Searching for information necessary for the classes in databases	5	2BT_56_w_1
2BT_56_fs_2	discussion classes	Solving, individually or in teams, a scientific problem. Discussion of the mini-presentations, analysis and finding solutions to emerging problems; indication of literature and internet sources	10	Preparation of mini-presentations based on information acquired without teacher’s help	10	2BT_56_w_1