1.	**Field of study**	**Biophysics**
2.	Faculty	Faculty of Science and Technology
3.	Academic year of entry	2023/2024 (winter term), 2024/2025 (winter term)
4.	Level of qualifications/degree	first-cycle studies
5.	Degree profile	general academic
6.	Mode of study	full-time

7.	**General information about the module**
Module name	**The Use of Liposomes for Drug Transport**
Module code	W4-BF-FA-S1-5-23-29B
Number of the ECTS credits	3
Language of instruction	Polish
Purpose and description of the content of education	The aim of the module is to familiarize students with the basic issues of liposome technology in the context of drug carriers. As part of the module, students will expand and consolidate their knowledge of the types of liposomes in terms of their structure and size, preparation techniques and methods for their physical and chemical characterization. Students will gain knowledge on how to select the right type of liposomes for a specific application, and will learn about the wide spectrum of use of liposome carriers not only from a therapeutic perspective, but also in the cosmetic and food industries.
List of modules that must be completed before starting this module (if necessary)	not applicable

8. Learning outcomes of the module

Code	Description	Learning outcomes of the programme	Level of competenc (scale 1-5)
E1	The student knows and understands the key issues of liposome technology and its applications.	U02 W01	1 1
E2	The student has a basic knowledge of the types of liposomes, their division by structure and size.	W02	1
E3	The student knows the basic techniques for the preparation of liposomes, methods of encapsulating hydrophilic and hydrophobic drugs in them, and has knowledge of their physical and chemical characteristics.	W06 W07	1 1
E4	The student can carry out the experiment correctly, document and present the results of the determinations and present their interpretation.	U03 U04 U07	1 1 1
E5	The student knows and understands the principles of laboratory work, takes care of safety and hygiene in the biological laboratory, and conscientiously analyses experimental data.	U10 W10	1 1

9.	Methods of conducting classes	
Code	**Category**	**Name (description)**
a01	Lecture methods / expository methods	Formal lecture/ course-related lecture *a systematic course of study involving a synthetic presentation of an academic discipline; its implementation assumes a passive reception of the information provided*
e01	Practical methods	Laboratory exercise / experiment *[also conducted as fieldwork] a method of practical application of knowledge; implemented in three stages: the recognition of a problem induced by the task content, the formulation of the problem and the attempt to solve it accompanied by the assessment of the effects; the goal is to acquire skills, abilities and habits, and to consolidate the acquired knowledge so that it becomes operational; the laboratory method assumes greater independence of learners than carrying out an experiment*

10.	Forms of teaching				
Code	**Name**	**Number of hours**	**Assessment of the learning outcomes of the module**	**Learning outcomes of the module**	**Methods of conducting classes**
FZ1	lecture	15	exam	E1, E2, E3	a01
FZ2	laboratory classes	30	course work	E4, E5	e01

11.	The student's work, apart from participation in classes, includes in particular:		
Code	**Category**	**Name (description)**	**Is it part of the BUNA?**
a02	Preparation for classes	Literature reading / analysis of source materials *reading the literature indicated in the syllabus; reviewing, organizing, analyzing and selecting source materials to be used in class*	Yes
a03	Preparation for classes	Developing practical skills *activities involving the repetition, refinement and consolidation of practical skills, including those developed during previous classes or new skills necessary for the implementation of subsequent elements of the curriculum (as preparation for class participation)*	Yes
b01	Consulting the curriculum and the organization of classes	Getting acquainted with the syllabus content *reading through the syllabus and getting acquainted with its content*	No
c02	Preparation for verification of learning outcomes	Studying the literature used in and the materials produced in class *exploring the studied content, inquiring, considering, assimilating, interpreting it, or organizing knowledge obtained from the literature, documentation, instructions, scenarios, etc., used in class as well as from the notes or other materials/artifacts made in class*	No
c03	Preparation for verification of learning outcomes	Implementation of an individual or group assignment necessary for course/phase/ examination completion *a set of activities aimed at performing an assigned task, to be executed out of class, as an obligatory phase/element of the verification of the learning outcomes assigned to the course*	Yes
d01	Consulting the results of the verification of learning outcomes	Analysis of the corrective feedback provided by the academic teacher on the results of the verification of learning outcomes *reading through the academic teacher's comments, assessments and opinions on the implementation of the task aimed at checking the level of the achieved learning outcomes*	No

Information on the details of the module implementation in a given academic year can be found in the syllabus available in the USOS system: https://usosweb.us.edu.pl.