

1.	<b>Field of study</b>	<b>Biophysics</b>
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

<b>7. General information about the module</b>	
<b>Module name</b>	<b>Mathematics I</b>
Module code	W4-BF-S1-1-23-04
Number of the ECTS credits	9
Language of instruction	Polish
Purpose and description of the content of education	The purpose of the module is to introduce the basic concepts of higher mathematics and familiarize students with mathematical methods used in solving biophysics problems. During the course students acquire knowledge and skills in the use of methods of mathematical analysis applying elements of mathematical logic, linear algebra, complex numbers and from differential and integral calculus of functions of one and many variables.
List of modules that must be completed before starting this module (if necessary)	not applicable

<b>8. Learning outcomes of the module</b>			
Code	Description	Learning outcomes of the programme	Level of competenc (scale 1-5)
E1	The student understands the civilizational importance of mathematics, especially its applications in biophysics and medical physics.	W08	1
E2	The student knows the basic concepts and theorems of the studied branches of mathematics and basic examples illustrating specific mathematical concepts.	W08	1
E3	Students can present correct mathematical reasoning and understandably formulate theorems and definitions orally and in writing.	U05 W08	1 1
E4	Students know the basic concepts of logic, algebra, and mathematical analysis, and has theoretical and practical knowledge of sequences and number series, functions, and differential and integral calculus of real functions of one variable and fundamentals of differential equations.	W08	1
E5	The student can obtain information from literature, databases and other sources to deepen his understanding of his knowledge in mathematics.	U08	1

<b>9. Methods of conducting classes</b>		
Code	Category	Name (description)
a05	Lecture methods / expository methods	Explanation/clarification

		<i>explication involving the derivation of a predetermined theorem from other, already known ones, in the number of steps specified by the person teaching the course</i>
b07	Problem-solving methods	Activating methods: a case study <i>a comprehensive description of a phenomenon connected with the selected discipline; reflecting the reality, presenting the 'what', 'where' and 'how' of the phenomenon, i.e., all of its key aspects to be discussed in class; used as a reproduction, presentation, discussion or diagnosis of factors that shape the phenomenon or interact with it; an in-depth qualitative analysis and evaluation of a selected phenomenon</i>
b08	Problem-solving methods	Activating method – peer learning <i>learning through the exchange of knowledge in a group/team/pair of students, i.e., in the so-called learning cell; a kind of mutual learning; an approach focused on student activity under the guidance of the person teaching the course; a learning situation where students with a similar level of experience learn from one another</i>

<b>10. Forms of teaching</b>					
Code	Name	Number of hours	Assessment of the learning outcomes of the module	Learning outcomes of the module	Methods of conducting classes
FZ1	discussion classes	120	course work	E1, E2, E3, E4, E5	a05, b07, b08

<b>11. The student's work, apart from participation in classes, includes in particular:</b>			
Code	Category	Name (description)	Is it part of the BUNA?
a01	Preparation for classes	Search for materials and review activities necessary for class participation <i>reviewing literature, documentation, tools and materials as well as the specifics of the syllabus and the range of activities indicated in it as required for full participation in classes</i>	No
a02	Preparation for classes	Literature reading / analysis of source materials <i>reading the literature indicated in the syllabus; reviewing, organizing, analyzing and selecting source materials to be used in class</i>	No
a03	Preparation for classes	Developing practical skills <i>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)</i>	Yes
b01	Consulting the curriculum and the organization of classes	Getting acquainted with the syllabus content <i>reading through the syllabus and getting acquainted with its content</i>	No
c02	Preparation for verification of learning outcomes	Studying the literature used in and the materials produced in class <i>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</i>	No
c03	Preparation for verification of learning outcomes	Implementation of an individual or group assignment necessary for course/phase/ examination completion <i>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</i>	Yes

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>.