

1.	Field of study	Biotechnology
2.	Faculty	Faculty of Natural Sciences
3.	Academic year of entry	2025/2026 (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		Parasitology and parasitological diagnostics
Module code		1BT_23_40
Number of the ECTS credits		2
Language of instruction		
Purpose and description of the content of education		<p>The course aims to familiarize students with the most important issues related to parasitism in the world of plants and animals, with particular emphasis on human parasites and methods used in laboratory tests for the presence of parasites. During seminar classes and laboratories, students learn the fundamental issues of parasitology, its subject, divisions, definitions and types of parasitism as an ecological phenomenon, and the relationships in the parasitoid-host system. The course's main objective will be to familiarize the student with the species of plant, animal and human parasites belonging to different types and their diagnostic features at various stages of development, which facilitates diagnosis during laboratory tests. Students will have the opportunity to learn the details of the biology of parasites by tracking and analyzing their development cycles with particular emphasis on the morphology of eggs and larval stages and hosts. In addition, students get acquainted with parasitic diseases and ways of infection with a specific focus on food products, including various diagnostics for parasite infection and prevention methods. The subject is particularly attractive for students interested in environmental biotechnology.</p> <p>Detailed substantive content:</p> <ul style="list-style-type: none"> <li>• Subject and definition of parasitology</li> <li>• History of parasitology research</li> <li>• Parasitism against other interspecies interactions</li> <li>• Parasites, parasitoids, hyperparasitism</li> <li>• Parasite-host system (traits and evolution)</li> <li>• Parasitic disease (parasitosis)</li> <li>• Clinical conditions in parasitic diseases</li> <li>• Epidemiology of parasitic diseases</li> <li>• Notifiable parasitic diseases</li> <li>• Diagnostics of parasitic diseases</li> <li>• Laboratory methods in the study of parasites, including molecular and antigen tests</li> <li>• Image recognition in clinical parasitology</li> <li>• Overview of selected parasitic diseases</li> <li>• Review of parasitological preparations in order to learn the features necessary in parasitological diagnostics</li> </ul>
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)
K01	The student understands the basic principles of ethical conduct during the acquisition of parasitological material for biotechnological research.	1BT_K02 1BT_K03 1BT_K05	3 4 4
U1	The student is able to characterize diseases caused by animal and human parasites, the ways of their spread and methods of protection, including factors conducive to human infection, the most important sources of infection, including those from food. The student has the skills of protection against parasites and laboratory diagnostics to identify parasites.	1BT_U01 1BT_U02 1BT_U04 1BT_U07 1BT_U09 1BT_U11	4 4 4 4 4 3
W01	Has basic knowledge of the history of research on the phenomenon of parasitism and the evolution of the parasite-host system, knows and characterizes various definitions and types of parasitism and branches of parasitology.	1BT_W03 1BT_W11	4 2
W02	The student gains knowledge about individual parasites of animals and humans. He knows their morphology and characteristics, development cycles with particular emphasis on entry routes, individual developmental stages and hosts.	1BT_W02 1BT_W03 1BT_W04	2 4 5

9. Methods of conducting classes		
Code	Category	Name (description)
a03	Lecture methods / expository methods	Description <i>a description of objects, phenomena, processes or people; it involves specifying the structure and characteristic features of the object, phenomenon, or process being described; it is usually accompanied by a demonstration of the described object or by its models, drawings, tables, charts, etc.; a description may take the form of an explanation, classification, justification or comparison</i>
b02	Problem-solving methods	Lecture-discussion <i>transmission of content involving interaction with the lecture audience; discussion of lecture-related issues is one of its elements or constitutes its follow-up</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>
b09	Problem-solving methods	Activating method – flipped classroom <i>anticipatory learning; work in class is based on previously studied material indicated by the person teaching the course; preparation outside the classroom serves the purpose of getting familiar with the issues whose knowledge is necessary for participating in the in-class discussion and the training in the related practical skills; the activity is based on the work of students under the guidance of the person teaching the course</i>
d01	Programmed learning methods	Working with a computer

		e.g., Webquest; implementation of educational tasks using electronic and digital devices, computer programs and Internet applications; the academic teacher acts as a consultant; students' work is carried out step by step according to the plan laid own by the person teaching the course and following his instructions, and proceeds towards producing the indicated results within the set deadline
d02	Programmed learning methods	Working with a programmed textbook working with a textbook containing instructional material covering part of or the entire curriculum of the module as well as a formula for studying the content; includes working with a subject textbook, an atlas, a catalogue, a problem book, etc.
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
f01	Methods of self-learning	Self-education a method which involves independent acquisition of knowledge, skills and social competences, extending their scope and quality; complementary to the learning process taking place in class; taking on the task of developing and adjusting qualifications on one's own; self-study
f02	Methods of self-learning	Individual work with a text searching for and acquiring new information using textbooks and other written sources (including their digital versions); searching for texts, selecting fragments for analysis/interpretation, using other texts to solve a problem related to the studied issue
f03	Methods of self-learning	Conceptual work a (mainly intellectual) activity carried out independently (or in a selected group) resulting in the creation of a concept, idea or project; creating a plan based on a vision; developing a general outline of a project; producing a simplified sketch of the variant versions of a procedure/product/work

<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
01	discussion classes	10	course work	K01, U1, W01, W02	a03, b02, b07, b09, d01, d02, f01, f02, f03
02	laboratory classes	20	course work	K01, U1, W01, W02	e01, f01, f02

<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 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		Yes
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		No
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)		No

a04	Preparation for classes	Consulting materials complementary to those indicated in the syllabus <i>agreeing on materials complementary to those indicated in the syllabus, supporting the implementation of tasks resulting from or necessary 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>	Yes
c01	Preparation for verification of learning outcomes	Determining the stages of task implementation contributing to the verification of learning outcomes <i>devising a task implementation strategy embracing the division of content, the range of activities, implementation time and/or the method(s) of obtaining the necessary materials and tools, etc.</i>	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 <i>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</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>.