GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	MYCOLOGY AND PARASITOLOGY MOLECULAR, PG_00065569		
Field of study	MYKOLOGIA I PARAZYTOLOGIA MOLEKULARNA		
Date of commencement of studies	October 2024	Academic year of realisation of subject	2025/2026
Education level	second-cycle studies	Subject group	Optional subject group Specialty subject group Subject group related to scientific research in the field of study
Mode of study	Full-time studies	Mode of delivery	at the university
Year of study	2	Language of instruction	Polish
Semester of study	3	ECTS credits	3.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Department of Biotechnology and Microbiology -> Faculty of Chemistry -> Faculties of Gdańsk University of Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Anna Brillowska-Dąbrowska	
	Teachers	dr hab. inż. Lucyna Holec-Gąsior dr inż. Martyna Mroczyńska-Szeląg	

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	30.0	0.0	30.0	0.0	0.0	60

E-learning hours included: 0.0

eNauczanie source addresses:
Moodle ID: 1316 MYKOLOGIA I PARAZYTOLOGIA MOLEKULARNA 2025/2026
https://enauczanie.pg.edu.pl/2025/course/view.php?id=1316

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	60	5.0	25.0	90

Subject objectives

Knowledge and understanding of the processes relating to replication and expression of the genetic material of microscopic fungi and parasites. Knowledge of a variety of molecular biology techniques and the ability to use them in the disciplines of mycology and parasitology. Gaining the skill to both independent work and in group in molecular biology lab using the tools of research and analysis and develop the results

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K7_U05] proposes solutions to technological and scientific problems in biotechnology and related fields using experimental methods and bioinformatics, statistics and specialized databases	The student is capable of rationally selecting methods appropriate for conducting research tasks. They can optimize diagnostic procedure protocols.	[SU2] Ocena umiejętności analizy informacji [SU4] Ocena umiejętności korzystania z metod i narzędzi
[K7_W01] defines the phenomena, processes and laws of living nature applied to the production of useful goods and the carrying out of services	The student knows how to solve advanced problems and research tasks in their field of specialization, using tools applied in genetic engineering and molecular genetics	[SW1] Ocena wiedzy faktograficznej
[K7_U02] uses research methods used in biotechnology and related fields	The student can find up-to-date information on the current state of knowledge and technology in the fields of mycology and parasitology and use it to update their knowledge.	[SU2] Ocena umiejętności analizy informacji

<table>
<tr><td>Subject contents</td><td>Course content – lecture
Data wygenerowania: 12.04.2025 03:20 Strona 2 z3
Subject contents 1. Mycology - introduction.
2. Taxonomy of fungi - the impact of the development of molecular biology to the reclassification of fungi.
3. The use of molecular biology methods in mycology.
4. Molecular diagnosis of fungal infections.
5. Molecular basis of fungal resistance to antimycotics (azoles and echinocandins).
6. The study of gene expression levels.
7. Parasitism and other interspecies relationships.
8. Parasites in the system of the animal world.
9. Environmental determinants of parasitic diseases.
10. Factors immune system parasite-host.
11. Biochemical aspects of the interaction of two organisms of particular importance in medicine
12 The most common parasitic infections.
13 Biology and pathogenicity of selected species of parasitic protozoa.
14. Laboratory diagnosis of selected parasitosis: molecular methods for detection of parasites, microscopic examination and serological diagnostics.
15.Medical parasitology.

Course content – laboratory
A.
1. Identification of molds and yeasts - 5 hours.
2 Molecularn identification of molds ngi and yeasts - 5 hours.
3. The study of gene expression levels of some species of fungi responsible for the resistance to azoles - 15 hours.
B.
1. Microscopy of ready-made preparations of various species of parasites.
2. DNA isolation from canine blood and molecular detection of Babesia canis DNA using PCR and real-time PCR.
3. DNA isolation from mouse tissues (liver, heart, brain, kidney, spleen) and molecular detection of Toxoplasma gondii tissue cysts in intermediate host tissues using two molecular targets.</td></tr>
<tr><td>Prerequisites and co-requisites</td><td>Advanced knowledge of molecular biology</td></tr>
<tr><td>Assessment methods and criteria</td><td>
<table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>Written Exam for the Mycology Lecture</td><td>60.0%</td><td>25.0%</td></tr>
<tr><td>Written Exam for the Parasitology Lecture</td><td>60.0%</td><td>25.0%</td></tr>
<tr><td>Report - Parasitology Laboratories</td><td>60.0%</td><td>12.0%</td></tr>
<tr><td>Assessment Tests - Parasitology Laboratories</td><td>60.0%</td><td>13.0%</td></tr>
<tr><td>Report - Mycology Laboratories</td><td>60.0%</td><td>12.0%</td></tr>
<tr><td>Testing - Mycology Laboratories</td><td>60.0%</td><td>13.0%</td></tr>
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<tr><td>Recommended reading</td><td>
<table>
<tr><td>Basic literature</td><td>• Zarys parazytologii ogólnej Katarzyna Niewiadomska, Teresa Pojmańska, Barbara Machnicka, Andrzej Czubaj, Wydawnictwo Naukowe PWN, 2001
• Choroby pasożytnicze- epidemiologia, diagnostyka, objawy Alicja Buczek, Wydawnictwo Koliber Lublin, 2010
• Atlas pasożytów człowieka Alicja Buczek, Wydawnictwo Koliber Lublin, 2005
• Zarys parazytologii ogólnej Katarzyna Niewiadomska, Teresa Pojmańska, Barbara Machnicka, Andrzej Czubaj, Wydawnictwo Naukowe PWN, 2001
• Choroby pasożytnicze- epidemiologia, diagnostyka, objawy Alicja Buczek, Wydawnictwo Koliber Lublin, 2010
• Atlas pasożytów człowieka Alicja Buczek, Wydawnictwo Koliber Lublin, 2005
• Fungal Infection: Diagnosis and Management - Malcolm D.Richardson, David W. Warnock, Wiley
• Atlas grzybów chorobotwórczych człowieka - Paweł Krzyściak, Medpharm Polska</td></tr>
<tr><td>Supplementary literature</td><td>• Choroby zakaźne i pasożytnicze Zdzisław Dziubek, Wydawnictwo Lekarskie PZWL, Warszawa, 2010
• Publications in scientific journals provided by the academic teacher</td></tr>
<tr><td>eResources addresses</td><td></td></tr>
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<tr><td>Example issues/ example questions/ tasks being completed</td><td>Mechanisms of fungal resistance to antifungal agents.</td></tr>
<tr><td>Practical activites within the subject</td><td>Not applicable</td></tr>
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