University of Gdańsk

Subject card

Subject name and code	MSc thesis laboratory, PG_00197333		
Field of study	Biotechnology		
Date of commencement of studies	October 2026	Academic year of realisation of subject	2027/2028
Education level	Master's studies	Subject group	Obligatory subject group in the field of study Optional 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	4	ECTS credits	20.0
Learning profile	academic	Assessment form	credit
Conducting unit	Intercollegiate Faculty of Biotechnology UG-MUG -> Rector		
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. Andrea Lipińska	
	Teachers		

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	0.0	0.0	400.0	0.0	0.0	400

E-learning hours included: 0.0

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	400	15.0	85.0	500

Subject objectives

The student improves the ability to collect and interpret the obtained experimental data, independently uses methods and computer tools. He/she acquires the ability to independently formulate conclusions based on experimental and literature data. The student implements himself/herself in laboratory work, organising his/her own time in the laboratory. He/she learns to plan experiments, prepare research material for experiments, and learns to organise his/her time and responsibility for the tasks performed.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[BIOTECHMU2_W06] The graduate has in-depth knowledge and understands the risks associated with conducting laboratory works, including those resulting from working with infectious material, GMOs and GMMs.	The student recognizes biological hazards associated with laboratory work, including those resulting from contact with infectious materials, GMOs, and GMMs. Adheres to procedures for handling biological and genetically modified materials in accordance with applicable laws and bioethical guidelines.	[SW3] text preparation/written work
[BIOTECHMU2_U06] The graduate is able to prepare, in a targeted manner in Polish and / or English, a written study, a scientific publication in the field of biotechnology using scientific language, including specialist terminology and conceptual apparatus.	In cooperation with the supervisor, the student prepares a master's thesis as a written scientific study of the experimental results obtained during the master's laboratory, in Polish and/or English, maintaining the structure typical of diploma theses and using correct scientific language and specialist terminology appropriate to biotechnology and medical sciences.	[SU3] text preparation/written work
[BIOTECHMU2_U04] The graduate possesses the ability to proficiently use scientific information, including English, regarding biotechnology; critically analyses and selects information; uses electronic sources; has the ability to use appropriate databases.	In preparation for laboratory work and thesis writing, the student student searches for and selects scientific literature in the field of biotechnology, using databases and other electronic sources, including English-language scientific publications. She/he critically analyzes scientific content, assessing the credibility of sources, research methodology, and the substantive value of publications.	[SU3] text preparation/written work
[BIOTECHMU2_U01] The graduate possesses the skills necessary to design and conduct laboratory research, critically assessing risks, method limitations, and ethical implications of undertaken activities.	The student designs and conducts experimental research in biotechnology/medical sciences, selecting appropriate methods, tools, and materials while maintaining biosafety and occupational health and safety standards. Critically assesses the limitations and risks of the methods used, including potential biological, chemical, and environmental hazards.	[SU3] text preparation/written work [SU5] implementation of a problem task [SU8] observation of student's independent or team work
[BIOTECHMU2_U02] The graduate is able to collect and interpret empirical data; use statistical methods and IT tools in data analysis; formulate conclusions based on empirical data.	While performing experiments in the field of biotechnology/medical sciences, the student collects and interprets empirical data; in their analysis for the purpose of writing a diploma thesis, he/she uses appropriately selected statistical methods and IT tools; and formulates conclusions based on empirical data.	[SU3] text preparation/written work [SU5] implementation of a problem task [SU8] observation of student's independent or team work
[BIOTECHMU2_U08] The graduate is able to learn independently, effectively plan and organize work independently or as part of a team.	During Master's project realization, the student independently plans and organizes the course of laboratory research, setting goals, scheduling, and prioritizing tasks. They effectively manage time and resources both individually and as part of a research team. They collaborate within a group, dividing tasks, coordinating team activities, and communicating results in a clear and scientifically accurate manner.	[SU8] observation of student's independent or team work
[BIOTECHMU2_K03] The graduate effectively plans and organizes own work, especially laboratory work; plans an individual professional career.	The student analyzes and evaluates his/her own work effectiveness, identifying areas for improvement and implementing improvements in laboratory work organization. She/he plans an individual career path, taking into account her/his own competencies, research interests, and the demands of the biotechnology labor market.	[SK8] observation of student's independent or team work

<table>
<tr><td>Subject contents</td><td colspan="3">Depending on the research topic of the thesis supervisor, the content of the course may include: analysis of protein structure and function using advanced spectroscopic, biophysical and biochemical techniques; deepening knowledge of the biochemistry and biotechnology of plant lipids; application of molecular biology methods in the construction of new-generation antiviral vaccines; analysis of the structure and function of viral proteins; analysis of the molecular mechanism of aggressive cancer cell behaviour and the search for markers for the diagnosis and therapy of these diseases.</td></tr>
<tr><td>Prerequisites and co-requisites</td><td colspan="3"></td></tr>
<tr><td>Assessment methods and criteria</td><td colspan="3"><table><tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr><tr><td>Master's project (evaluation form)</td><td>51.0%</td><td>100.0%</td></tr></table></td></tr>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td colspan="2">Scientific publications (in Polish and in English) related to the topic of the master's project, including scientific publications of the supervisor of the project of the master's project.</td></tr>
<tr><td>Supplementary literature</td><td colspan="2">None</td></tr>
<tr><td>eResources addresses</td><td colspan="2"></td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td colspan="3"></td></tr>
<tr><td>Work placement</td><td colspan="3">Not applicable</td></tr>
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