University of Gdańsk

Subject card

Subject name and code	Introduction to the methodology of experimental research, PG_00198285		
Field of study	Genetics and Experimental Biology		
Date of commencement of studies	October 2026	Academic year of realisation of subject	2026/2027
Education level	Bachelor's studies	Subject group	Obligatory subject group in the field of study
Mode of study	full-time studies	Mode of delivery	at the university
Year of study	1	Language of instruction	Polish
Semester of study	1	ECTS credits	1.0
Learning profile	academic	Assessment form	credit
Conducting unit			
Name and surname of lecturer (lecturers)	Subject supervisor	dr Monika Maciąg-Dorszyńska	
	Teachers		

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	10.0	0.0	0.0	0.0	0.0	10

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	10	6.0	9.0	25

Subject objectives

Familiarizing students with the issues of proper planning and execution of experiments, as well as control of the experimental setup.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[GBEL3_W05] A graduate has an advanced knowledge and understanding of: principles for planning research based on the achievements of biological sciences and related disciplines and the possibility of putting their results into practice, principles for the operation of equipment and apparatus used in molecular genetics research, and the principle of interpreting biological phenomena and processes based on empirical data in research work and practical action, taking into account the sustainable use of biodiversity.	Student knows principles of research planning based on achievements in biological sciences and related fields, possibilities of using their results in practice, principles of operation of equipment and apparatus used in molecular genetics research, as well as the principle of interpreting biological phenomena and processes based on empirical data in research work and practical activities, with consideration for sustainable use of biodiversity.	[SW1] oral statement/ conversation/discussion [SW2] presentation/project/paper/ report [SW3] text preparation/written work
[GBEL3_U03] The graduate is able to: use research apparatus and tools and, following the correct sequence of operations, carry out simple physical, biological or chemical observations and measurements in laboratory work in the biological sciences.	Student is able to use research equipment and tools, while following the correct sequence of actions, to carry out simple physical, biological, or chemical observations and measurements in laboratory work in the field of biological sciences.	[SU1] oral statement/conversation/ discussion [SU2] presentation/project/paper/ report
[GBEL3_K08] The graduate is prepared to: takes responsibility for equipment/materials entrusted to it and respects the work of others.	Student responsibly uses the assigned equipment/materials and respects the work of others.	[SK1] oral statement/conversation/ discussion [SK2] presentation/project/paper/ report

<table>
<tr><td>Subject contents</td><td>- What actions can be considered as scientific research, asking research questions, framework of a scientific project
- Planning experiments: control of the experimental setup, pilot experiments, positive and negative controls, difference between hypothesis and research model
- Evaluation of results obtained in experimental research in the context of knowledge regarding control of the experimental setup.</td></tr>
<tr><td>Prerequisites and co-requisites</td><td>none</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>asking research questions</td><td>0.0%</td><td>20.0%</td></tr>
<tr><td>project proposal in writing</td><td>50.0%</td><td>60.0%</td></tr>
<tr><td>design of a biological experiment</td><td>0.0%</td><td>20.0%</td></tr>
</table>
</td></tr>
<tr><td>Recommended reading</td><td>
<table>
<tr><td>Basic literature</td><td>Kathy Barker, At the Bench: a laboratory navigator, Cold Spring Harbor Laboratory Press 2005</td></tr>
<tr><td>Supplementary literature</td><td>Kathy Barker, At the Bench: a laboratory navigator, Cold Spring Harbor Laboratory Press 2005</td></tr>
<tr><td>eResources addresses</td><td></td></tr>
</table>
</td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td>how to design experimental controls to make sure that the observed effect is dependent on the independent variable introduced to the system?</td></tr>
<tr><td>Work placement</td><td>Not applicable</td></tr>
</table>

Document generated electronically. Does not require a seal or signature.