University of Gdańsk

Subject card

Subject name and code	Virology lab, PG_00153616		
Field of study	Biotechnology		
Date of commencement of studies	October 2024	Academic year of realisation of subject	2024/2025
Education level	Master's studies	Subject group	Optional subject group
Mode of study	full-time studies	Mode of delivery	at the university
Year of study	1	Language of instruction	Polish In case of attendance of non Polish-speaking students, classes will be held in English
Semester of study	1	ECTS credits	2.0
Learning profile	academic	Assessment form	
Conducting unit	Intercollegiate Faculty of Biotechnology UG-MUG -> Rector		
Name and surname of lecturer (lecturers)	Subject supervisor	dr Alicja Chmielewska	
	Teachers	dr Alicja Chmielewska	

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	0.0	0.0	30.0	0.0	0.0	30

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	30	5.0	15.0	50

Subject objectives

The aim of the course is to learn the basic and advanced techniques used in molecular virology laboratory. The student will learn methods of animal cell culture, methods of virus propagation, detection, and quantification, use of genetically modified viruses encoding fluorescent proteins. The student will acquire the skills to operate equipment used in a virology laboratory. The student will gain competencies for teamwork during experimental work and will learn the principles of work safety and the hazards in a virology laboratory.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[BIOTECHMU2_U01] The graduate is able to do laboratory work; plan and carry out an experiment; document activities and results; use complex techniques and research tools under the supervision of a tutor in laboratory work; operate laboratory equipment; apply the principles of occupational health and safety; understand the dangers of working in a laboratory	Possesses the necessary skills to work in a molecular virology laboratory; can plan and perform experiments based on transduction, viral infection, or detection of viral infection; documents activities and results; uses molecular virology tools under the supervision of a mentor in laboratory work; has the ability to operate equipment used in a virology laboratory (laminar flow hood, inverted microscope, fluorescence microscope, multichannel pipettes, automatic pipettors); uses safety and rules; understands the risks associated with working in a virology laboratory	[SU2] presentation/project/paper/ report [SU3] text preparation/written work [SU8] observation of student's independent or team work
[BIOTECHMU2_K02] The graduate is willing to work in a team, in particular, to jointly carry out laboratory work	Actively collaborates with a team conducting experiments in the field of molecular virology	[SK8] observation of student's independent or team work

<table>
<tr><td>Subject contents</td><td>The content of this laboratory course covers techniques used in the work with viruses and viral vectors. The tasks will encompass sterile and safe work with cell cultures and model viruses (bovine herpesvirus, baculovirus - nonpathogenic to humans). Students will learn in vitro cell culture, virus propagation and quantification (observation of cytopathic effect, virus titration usind TCID50, microscopic observations of fluorescent viruses, immunohistochemic staining of infected cells. There will also be presented health and safety rules in a virology laboratory, including hazards of working with pathogenic organisms and GMOs.</td></tr>
<tr><td>Prerequisites and co-requisites</td><td>Knowledge of basic methods for working with animal cell cultures.</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>Class preparation</td><td>51.0%</td><td>25.0%</td></tr>
<tr><td>Report</td><td>51.0%</td><td>50.0%</td></tr>
<tr><td>Class activity, team work</td><td>51.0%</td><td>25.0%</td></tr>
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<tr><td>Recommended reading</td><td>
<table>
<tr><td>Basic literature</td><td>Grzyb K, Krol E, Lipinska A, Chmielewska A: "Virology Laboratory" (2017) - laboratory manual

Piekarowicz A (2004) Podstawy Wirusologii Molekularnej PWN

Flint et al. (2009) Principles of Virology, ASM Press

Additional literature provided by the teacher during classes.</td></tr>
<tr><td>Supplementary literature</td><td>Rychlowska M, Gromadzka B, Bienkowska-Szewczyk K, Szewczyk B (2011): Application of baculovirus-insect expression system for human therapy. Curr Pharm Biotechnol 12(11):1840-9.</td></tr>
<tr><td>eResources addresses</td><td>Adresy na platformie eNauczanie:</td></tr>
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<tr><td>Example issues/ example questions/ tasks being completed</td><td>Providing the aim and preparation of a graphical diagram presenting the experiment.
Preparation of a report from the classes in the form of a scientific publication, including: abstract, theoretical introduction, aim, methods and materials, results, and discussion.</td></tr>
<tr><td>Work placement</td><td>Not applicable</td></tr>
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