

Subject card

Subject name and code	Virology lab, PG_00153616						
Field of study	Biotechnology						
Date of commencement of studies	October 2025		Academic year of realisation of subject		2025/2026		
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		
Semester of study	1		ECTS credits		2.0		
Learning profile	academic		Assessment form		credit		
Conducting unit	Intercollegiate Faculty of Biotechnology UG-MUG -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr 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 possesses the skills necessary for laboratory work; is able to plan and conduct an experiment; documents activities and results; uses complex research techniques and tools in laboratory work under the supervision of a supervisor; has the ability to operate laboratory equipment; applies occupational health and safety principles; understands the risks associated with laboratory work.		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 possesses competences to collaborate in the implementation of research work and work in a team.		Actively collaborates with a team conducting experiments in the field of molecular virology		[SK8] observation of student's independent or team work		

Subject contents	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 using TCID50, microscopic observations of fluorescent viruses, immunohistochemical 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.		
Prerequisites and co-requisites	Knowledge of basic methods for working with animal cell cultures.		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Class activity, team work	51.0%	25.0%
	Report	51.0%	50.0%
	Class preparation	51.0%	25.0%
Recommended reading	Basic literature	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.	
	Supplementary literature	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.	
	eResources addresses		
Example issues/ example questions/ tasks being completed	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.		
Work placement	Not applicable		

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