KAPITAŁ LUDZKI
NARODOWA STRATEGIA SPÓJNOŚCI
Projekt współfinansowany przez Unię Europejską w ramach Europejskiego Funduszu Społecznego
UNIA EUROPEJSKA
EUROPEJSKI FUNDUSZ SPOŁECZNY

Course title	ECTS code
Virology lab	13.4.0104

Name of unit administrating study

null

Studies

faculty	field of study		
Intercollegiate Faculty of Biotechnology UG-MUG	Biotechnology	type	second tier studies (MA)
		form	full-time
		specialty	all
		specialization	all

Teaching staff

dr Andrea Lipińska; dr Alicja Chmielewska

Forms of classes, the realization and number of hours

Forms of classes

Laboratory classes

The realization of activities

classroom instruction

Number of hours

Laboratory classes: 30 hours

ECTS credits

2

The academic cycle

2021/2022 winter semester

Type of course

an elective course

Language of instruction

polish

Teaching methods

- conducting experiments
- discussion
- multimedia-based lecture

Form and method of assessment and basic criteria for eveluation or examination requirements

Final evaluation

Graded credit

Assessment methods

graded course credit based on individual grades obtained during the semester

The basic criteria for evaluation

Final grade for laboratory classes is established on the basis of constituent grades according to the chart of evaluation and written reports.

Method of verifying required learning outcomes

Required courses and introductory requirements

A. Formal requirements

None

B. Prerequisites

None

Aims of education

This laboratory is an extension of Virology lecture, teaching the practical aspects of virology. Its aim is to teach students basic and advanced techniques which are most common for a virology laboratory. Przedmiot ten jest rozszerzeniem wykładów z wirusologii nadającym im praktyczny wymiar. The students will also gain knowledge on the perspectives and limitation of the modern virological reasearch methods. The techniques are also used for construction of viral vectors applied as tools in biotechnology or therapeutics in medicine. This course will allow the students to understand the mechanisms of viral infections, pathogenesis of viral diseases and methods of prevention of viral infections.
Students will acquire basic skills necessary in laboratory work and documentation of activities and results; in laboratory work they will learn to use, under supervision of the tutor, the basic techniques and research tools indispensable in molecular virology, particularly the methods of cell culture, virus propagation and quantification (titration), isolation of viral genetic material and its analysis; will acquire the ability to use basic laboratory

equipment (flow cabinet, automatic pipettes, incubators, microscope, spectrophotometer) (K_U01).
Students will learn teamwork during mutual realization of laboratory work in the field of virology (K_K02).
Students will acquire knowledge of the safety rules while working in a lab and responsibility for their own safety and the safety of others; they will learn to use the safety rules at work and proper conduct in hazardous situations (K_K05).

Course contents

The content of this laboratory course covers basic 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, isolation of viral genetic material and its analysis (observation of cytopathic effect. virus titration usind TCID50, microscopic observations of fluorescent viruses, immunochistochemic staining of infected cells (IPMA). There will also be presented health and safety rules in a virology laboratory, including hazards of working with pathogenic organisms and GMOs.

Bibliography of literature

Grzyb K, Krol E, Lipinska A: "Laboratorium z wirusologii" (2017) - laboratory training materials
Piekarowicz A (2004) Podstawy Wirusologii Molekularnej PWN
Flint et al. (2009) Principles of Virology, ASM Press
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.

http://viralzone.expasy.org/
Additional literature provided by the teacher during classes.

The learning outcomes (for the field of study and specialization)

K_U01
K_K02
K_K05

Knowledge

Skills

K_U01 - Has the skills indispensable for lab work; is able to plan conducting an experiment and carry it out, is able to document on his own operations and results; in lab work, under the supervision of the tutor, uses complex techniques and research tools, is able to use lab equipment.

Social competence

K_K02 - Has an ability to work in a team, in particular, while performing laboratory work or preparing theoretical reviews within the field of biotechnology and related scientific areas and disciplines K_K05 - Is aware of the significance of rules of safety at work, particularly in a laboratory; applies the rules of safety at work; is responsible for his/her own safety and the safety of others; can react properly in hazardous situations

Contact

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