SZKOŁA GŁÓWNA GOSPODARSTWA WIEJSKIEGO

Veterinary virology

Educational subject description sheet

Basic information

Field of study Biotechnology **Speciality** - **Organizational unit** Faculty of Biology and Biotechnology **Study level** first cycle (engineering degree) **Study form** full-time studies **Education profile** General academic	**Didactic cycle** 2024/25 **Subject code** BBTBTjS_D.310.01610.24 **Lecture languages** english **Mandatory** Elective subjects **Block** Major subjects **Disciplines** Biological sciences

Coordinator	Marcin Bańbura
Teacher	Marcin Bańbura, Joanna Cymerys-Bulenda, Anna Słońska-Zielonka

Period	**Examination**	**Number of ECTS points**
Semester 5	Pass with grade **Activities and hours** Lecture: 15 Laboratory exercises: 15	2

Goals

Code	Goal
C1	The aim is to provide knowledge about the specifics of viral genome replication depending on their properties and genome structure, in particular characteristic phenomena accompanying nucleic acid replication, methods of encoding information as well as transcription and translation in the course of cell infection. The practical part is aimed at familiarizing students with the basic techniques of molecular biology used in virological research, such as virus identification, nucleic acid extraction and the elements of creating restriction libraries. Students are expected to perform some activities on their own.

Entry requirements

General virology, basics of virology

Subject's learning outcomes

Code	Outcomes in terms of	Effects	Examination methods
Knowledge – Student knows and understands:			
W1	the concepts describing the replication of viral genomes and the most important features distinguishing the molecular mechanisms of replication of viral genomes belonging to different classes	BTj_K3_W08	Written credit
Skills – Student can:			
U1	explain the differences in the functioning of viral genomes depending on the type and class of nucleic acid	BTj_K3_U17	Written credit
U2	use basic virological laboratory techniques	BTj_K3_U01_inz	Written credit
Social competences – Student is ready to:			
K1	work safely in a virology laboratory	BTj_K3_K03	Written credit

Study content

No.	Course content	Subject's learning outcomes	Activities
1.	Types and classes of nucleic acids that form genomes of different families of viruses; DNA-virus genome replication strategies; Replication strategies of RNA-virus genomes	W1, U1	Lecture
2.	Basic virological techniques used in the laboratory: Isolation of leukocytes from horse peripheral blood; the use of immunofluorescence for the diagnosis of viral infection; visualization of infected cells in a confocal microscope; quantification of viruses - titration in cell culture; titration of the virus, (continued), isolation of eukaryotic DNA from leukocytes obtained in exercise 1; isolation of plasmid DNA with cloned restriction fragments of the EHV-2 genome	U2, K1	Laboratory exercises

Course advanced

Activities	Methods of conducting classes
Lecture	Lecture
Laboratory exercises	Individual work

Activities	Examination method	Percentage
Lecture	Written credit	80%

Activities	Examination method	Percentage
Laboratory exercises	Written credit	20%

Activities	Credit conditions
Lecture	6 open questions, max. 12 points to score, 7 points necessary to pass
Laboratory exercises	open question(s) within written credit

Literature

Obligatory

1. Murphy F.A., Gibbs E.P.J., Horzinek M.C., Studdert M.J. Veterinary Virology, Academic Press, Third Edition

Optional

1. Selected scientific articles
2. Additional interent sources indicated by the trainer

Calculation of ECTS points

Activity form	Activity hours*
Lecture	15
Laboratory exercises	15
Preparation for the exam	20
Student workload	**Hours** 50
Number of ECTS points	**ECTS** 2

* hour means 45 minutes

Effects

Code	Content
BTj_K3_K03	The graduate is ready to for safe work via the selection and application of a proper technique of handling, storing and disposing of laboratory materials (e.g. using proper techniques in terms of handling, storing and disposing of bacteria, chemical substances and dangerous bio-waste);
BTj_K3_U01_inz	The graduate can utilise proper techniques and knowledge related to biotechnology in practice, under the care of a supervisor;
BTj_K3_U17	The graduate can analyse topics from genetics and molecular biology, provide and explain certain detailed examples;
BTj_K3_W08	The graduate knows and understands the features of cellular metabolism and its control, including the knowledge of certain experimental techniques;