University of Life Sciences "Ion Ionescu de la Brad" Iaşi
Faculty: Veterinary Medicine
Specialty: Veterinary Medicine

Dean,
Prof. dr. Mihai Mareș

SUBJECT OUTLINE

1. Information on the programme

1.1. Higher education institution	Iasi University of Life Sciences (IULS)
1.2. Faculty	Veterinary Medicine
1.3. Department	X – Public Health
1.4. Field of study	Veterinary Medicine
1.5.Cycle of study[1]	Bachelor and Master (unitary study programme)
1.6.Specialization/ Study programme	Veterinary Medicine
1.7. Form of education	Full time

2. Information on the discipline

2.1. Name of the discipline	**General Virology**							
2.2. Course coordinator				Assoc. Prof. DVM, PhD, Dip. Vet LAS Serban MOROSAN				
2.3. Seminar/ laboratory/ project coordinator				Asst. prof. DVM, PhD, Anca Mihaela DASCĂLU				
2.4. Year of study	**II**	2.5. Semester	**3**	2.6. Type of evaluation	Colloquy Exam	2.7. Discipline status	Content[2]	FD
							Compulsoriness[3]	CD

3. Total estimated time (teaching hours per semester)

3.1. Hours per week – full time programme	3	out of which: 3.2. lecture	2	3.3. seminar/ laboratory/ project	1
3.4.Total number of hours in the curriculum	42	Out of which: 3.5.lecture	28	3.6.seminar/laboratory	14
Distribution of the time allotted					hours
3.4.1. Study based on book, textbook, bibliography and notes					20
3.4.2. Additional documentation in the library, specialized electronic platforms and field					6
3.4.3. Preparing seminars/ laboratories/ projects, subjects, reports, portfolios and essays					3
3.4.4.Tutorials					2
3.4.5.Examinations					2
3.4.6. Other activities					2
3.7. Total hours of individual study	33				
3.8. Total hours per semester	75				
3.9. Number of credits[4]	3				

4. Prerequisites (is applicable)

4.1. curriculum-related	Biochemistry, Molecular Biology, Cell Biology
4.2. skills-related	The student must have knowledge regarding the basic concepts of Biochemistry, Molecular Biology and Cell Biology

5. Conditions (if applicable)

5.1. for the lecture	The course is interactive; students can ask questions regarding the content of the presentation. The use of mobile phones is strictly forbidden; Getting late, leaving the lecture or skipping classes is forbidden.
5.2. for the seminar/ laboratory/ project	The practical work is complementary to the course and provides information about the basic methods for viral isolation, methods for measuring infectious units and for detecting viral antigens. Students will be divided into small groups to perform the methods presented. All the activities will be done at the recommendation and under the supervision of the teaching staff.

6. Specific competences acquired

Professional competences	For students, the study of general virology provides information about the structure of a virus, the mechanisms of viral replication, vaccines, antiviral drugs, the evolution and emergence of viruses. Moreover, it provides information on methods of virus isolation and detection of viral antigens. Collect, preserve and transport samples, select appropriate diagnostic tests, interpret and understand the limitations of the test results. Work effectively as a member of a multi-disciplinary team in the delivery of services. Demonstrate that they recognise personal and professional limits, and know how to seek professional advice, assistance and support when necessary. Communicate clearly and collaborate with referral and diagnostic services, including providing an appropriate history. Apply principles of bio-security correctly. Advise on, and implement, preventive and eradication programmes appropriate to the species and in line with accepted animal health, welfare and public health standards.
Transversal competences	- Cognitive competences: analytical, critical, reflective and creative thinking; - Methodological competences: time management and digital competencies; - Social competences: interpersonal communication and collaborative work.

7. Course objectives (based on the list of competences acquired)

7.1. Overall course objective	The objective of this curricular unit is to study: - viruses as individual biological entities; - the structure of a virus; - the mechanisms of viral replication; - intrinsic and innate defenses/Adaptative immunity; - the mechanisms of pathogenesis/Acute and persistent infections ; - the transformations and oncogenesis ; -vaccines, Antivirals, the evolution and emergence viruses; -unusual infectious agents and the therapeutic viruses; -methods of virus isolation and detection of viral antigens.
7.2. Specific objectives	Recognition of a virus structure and mechanisms of viral replication

8. Content semester I

8.1 Lectures – 28 hrs	**Teaching methods**	**Observations**
History of Virology/What is a virus? /The infectious cycle	Ppt. presentations, Q&A	1 lecture (2hrs)
Genomes and genetics		1 lecture (2hrs)
Structure of viruses		1 lecture (2hrs)
Attachment and entry		1 lecture (2hrs)
RNA directed RNA synthesis		1 lecture (2hrs)
Transcription and RNA processing		1 lecture (2hrs)
Viral DNA replication		1 lecture (2hrs)
Reverse transcription and integration		1 lecture (2hrs)
Assembly		1 lecture (2hrs)
The infected cell and Infection basics/Intrinsic and innate defenses/ Adaptative immunity		1 lecture (2hrs)
Mechanisms of pathogenesis/Acute and persistent infections		1 lecture (2hrs)
Transformations and oncogenesis		1 lecture (2hrs)
Vaccines, Antivirals, Evolution and emerging viruses		1 lecture (2hrs)
Unusual infectious agents and Therapeutic viruses.		1 lecture (2hrs)

8.1 Lectures – 14 hrs	**Teaching methods**	**Observations**
Laboratory safety and presentation of virology laboratory (materials and equipments). Sampling, packaging, preservation and delivery of specimens for viral diagnosis.	Theoretical presentation of the practical work (Ppt. Presentations), followed by interactive discussions based on the approached theme and execution of the work	2 Practical works (2 hrs)
Host for Virus Cultivation: Laboratory Animal and Cell culture.		4 Practical works (4hrs)
Evidence of Viral Growth in Culture Cells: Cytopathic effects of viruses.		2 Practical works (2hrs)
Measurement of Infectious Units (Biological and		2 Practical works (2hrs)

Physical assays): Plaque Assay, The Endpoint Method, Hemagglutination. Multiplicity of infection (MOI)		
Detection of Viral Antigens: Immunofluorescence Staining, Immunohistochemical staining, Enzyme-Linked Immunosorbent Assay		4 Practical works (4hrs)
Compulsory bibliography: 1.Electronic course and practical work support – Ppt. presentations		
Optional bibliography: Veterinary Virology (Fenner's Fifth edition)		

9. Coroborating the course content with the expectations of the epistemic community representatives, of the professional associations and of the relevant employers in the corresponding field

The course structure is related to the educational program of the preclinical disciplines department, constituting a transitional link between preclinical, paraclinical and clinical learning. The discipline content is developed in correlation with necessary requirements for "day one skills" and "year one skills"

10. Assessment

Type of activity	10.1. Assessment criteria	10.2. Assessment methods	10.3. Percentage of the final grade
10.4. Lecture	The notions assimilated during the lectures will be evaluated writing in the colloquy exam session.	MCQ test	80 %
10.5. Seminar/Laboratory	Laboratory work assessment must highlight the assimilation degree (theoretical and practical) obtained by the student.	The laboratory assessment is organized in 2 theoretical examinations by a MCQ test. The final grade for the practical work is their average.	20 %
10.6. Minimum performance standards			
Knowing the concepts of general virology, knowing the virus structure, the mechanisms of viral replication, methods of viruses isolation and detection of viral antigens.			

[1] Cycle of studies- choose of the three options: Bachelor/Master/Ph.D.

[2] Discipline status (content)- for the undergraduate level, choose one of the options:- **FD** (fundamental discipline), **BD** (basic discipline), **CS** (specific disciplines-clinical sciences), **AP** (specific disciplines-animal production), **FH** (specific disciplines-food hygiene), **UO** (disciplines based on the university's options).

[3] Discipline status (compulsoriness)- choose one of the options – **CD** (compulsory discipline) **OD** (optional discipline) **ED** (elective discipline).

[4] One credit is equivalent to 25-30 hours of study (teaching activities and individual study).

Date
14/09/2021

Course coordinator
Assoc. Prof. DVM, PhD, Dip. Vet LAS Șerban MOROSAN

Laboratory work/seminar coordinator
Asist. DVM, PhD, Anca Mihaela DASCĂLU

Department Approval Date
14.09.2021

Head of the Department
Assoc. Prof. DVM, PhD Viorel Cezar FLORIȘTEAN

Approved by Faculty Council on 17.09.2021