



Cairo University

Department of Virology



Course Specifications (2020-2021)

1- Basic information:		
Code No.: VIR-322	Course title: Virology (B)	Academic Level: Three
Teaching Hours: Lectures: 24 Practical: 12 Total: 36		Specialization: Virology

B- Professional information

2- Overall aims of the Course:

This systematic veterinary virology course aims to provide undergraduate students with in-depth information on select viruses of economic and public health importance using State-of-the-Art lectures, tutorials, and practical sessions. The specific aspects of pathogenesis, immune response to infection, viral evolution, and epidemiology will be discussed together with the general properties of the family to which each virus belongs. Detailed information about available diagnostic tools and vaccines will be provided. The overall environmental, public health, and economic impact of each virus will be mentioned.

3- Intended Learning Outcomes:

a- Knowledge and Understanding	<p>By successful completion of the course, the student should be able to:</p> <p>a1. List the general properties of the different virus families discussed.</p> <p>a2. Discuss specific aspects of pathogenesis, immune response to infection, evolution, and epidemiology of each virus discussed.</p> <p>a3. Understand the use of each tool available for the control of animal and zoonotic viruses.</p> <p>a4. Describe the basic principles and uses of laboratory diagnostic techniques.</p>
b. Intellectual Skills:	<p>By successful completion of the course, the student should be able to:</p> <p>b1. Assess virus control strategies.</p>

	<p>b2. Compile test combinations that are most suitable for the diagnosis of a given animal virus.</p> <p>b3. Estimate the socio-economic, public health, and environmental impact of endemic, exotic, emerging, re-emerging, and transboundary viral diseases.</p>
c. Professional and Practical Skills:	<p>By successful completion of the course, the student should be able to:</p> <p>c1. Adhere strictly to the standard biosafety regulations and good laboratory practices required in virology laboratories.</p> <p>c2. Perform different serological techniques for detection and typing of different animal viruses.</p> <p>c3. Monitor antibody responses to virus infections by serological assays.</p> <p>c4. Perform different nucleic acid-based assays used in detection and typing of animal viruses.</p> <p>c5. Assemble and execute vaccine quality control protocols.</p>
d. General and Transferable Skills:	<p>By successful completion of the course, the student should be able to:</p> <p>d1. Work effectively as part of a team; demonstrating decision making and time management skills.</p> <p>d2. Make effective use of library facilities and IT tools.</p> <p>d3. Demonstrate proper computer skills, including the use of word processing, spreadsheets, presentation and graph plotting packages.</p> <p>d4. Demonstrate essential data presentation skills in the form of written reports, essays, and presentations.</p>

4- Course Contents and Matrix with its intended learning outcomes ILOs

Time/ Week	Topics	Credit Hours		Skills (ILOs)			
		T	P	A	B	C	d
1	Family <i>Poxviridae</i>	2	----	a1, a2, a3, a4	b1, b2, b3	c1, c2, c3	d1, d2, d3, d4
	Introduction to Serological Assays	----	1				
2	Family <i>Herpesviridae</i>	2	----	a1, a2, a3, a4	b1, b2, b3	c1, c2	d1, d2, d3, d4
	Hemagglutination Assay	----	1				
3	Family <i>Picornaviridae</i>	2	----	a1, a2, a3, a4	b1, b2, b3	c1, c2, c3	d1, d2, d3, d4
	Hemagglutination Inhibition Test	----	1				
4	Family <i>Orthomyxoviridae</i>	2	----	a1, a2, a3, a4	b1, b2, b3	c1, c2, c3	d1, d2, d3, d4
	Serum Neutralization Test	----	1				
5	Family <i>Paramyxoviridae</i>	2	----	a1, a2, a3, a4	b1, b2, b3	c1, c2, c3	d1, d2, d3, d4
	Agar Gel Precipitation Test	----	1				
6	Family <i>Coronaviridae</i>	2	----	a1, a2, a3, a4	b1, b2, b3	c2, c3	d1, d2, d3, d4
	Enzyme Linked Immunosorbent Assay (ELISA): Principles and Applications	----	1				
7	Family <i>Rhabdoviridae</i>	2	----	a1, a2, a3, a4	b1, b2, b3	c1, c2, c3	d1, d2, d3, d4
	ELISA: Procedures and Interpretation	----	1				
8	Family <i>Flaviviridae</i>	2	----	a1, a2, a3, a4	b1, b2, b3	c1, c2, c3	d1, d2, d3, d4
	Fluorescent Antibody Technique	----	1				
9	Family <i>Reoviridae</i>	2	----	a1, a2, a3, a4	b1, b2, b3	c4	d1, d2, d3, d4
	Genome Profiling Methods	----	1				
10	Family <i>Retroviridae</i>	2	----	a1, a2, a3, a4	b1, b2, b3	c4	d1, d2, d3, d4
	Molecular Hybridization	----	1				
11	Families <i>Phenuiviridae</i> and <i>Birnaviridae</i>	2	----	a1, a2, a3, a4	b1, b2, b3	c1, c4	d1, d2, d3, d4
	Polymerase Chain Reaction	----	1				
12	<i>Nodaviridae</i>	2	----	-----	-----	c1, c5	d1, d2, d3, d4
	Quality control of Viral Vaccines	----	1				

5- Teaching and Learning Methods:	<p>5.1- Lectures using PowerPoint presentations.</p> <p>5.2- Online discussion and tutorials on Blackboard.</p> <p>5.3- Self learning by answering assignments, reading textbooks and research papers, and designing experiments to provide answers to relevant problems.</p> <p>5.4- Laboratory practice and demonstrations.</p>
-----------------------------------	---

6- Teaching and Learning Methods for Handicapped:	Not applicable
---	----------------

7- Students' assessment:

a- Methods of assessments:	Written: a1, a2, a3, a4, b1, b2, b3, d4 Oral: a2, a3, a4, b1, b2, b3, d1, c5 Practical: a3, b2, c1, c2, c3, c4, c5, d1 Midterm Assignments: a4, b3, d1, d2, d3, d4			
b- Schedule:	Midterm Assignments Weeks 4, 8	Final Term Exam	Oral Exam	Practical Exam
c- Relative weight	20%	50%	10%	20%

8- List of References:

a- Course notes:	a. Virology Lecture Notes. A publication of the Department of Virology, Faculty of Veterinary Medicine, Cairo University. b. Virology: A Laboratory Manual. A publication of the Department of Virology, Faculty of Veterinary Medicine, Cairo University.
b- Essential books:	Fenner's Veterinary Virology. 5 th Edition, 2016, MacLachlan NJ, et al. Academic Press.
c- Recommended Books	1- Fields Virology, 6 th edition, 2013, Knipe and Howley, Lippincott Williams and Wilkins.
d- Periodicals, websites, ... etc	http://www.virology.net/ https://talk.ictvonline.org/

Course coordinator



Prof. Dr. Ausama A. Yousif

Head of Department

Prof. Dr. Haitham M. Amer