Virology

DIPLOMA COURSE SPECIFICATION

A. BASIC INFORMATION

University:	**Sadat City**
Faculty:	**Veterinary Medicine**
Program on which the course is given:	**Diploma of Microbiology**
Department offering the Course:	**Virology**
Course code:	**955**
Course title:	**Virology**
Lecture (hr/week):	**2**
Practical (hr/week):	**2**
Course coordinator:	**Dr. Mohammed A. AboElkhair**

B. PROFESSIONAL INFORMATION

١) Overall aims of course

❖ By the end of this course, the students will have the scientific background about virus structure and replication, their pathogenesis, host immune response against them, and their control. The students, also, will know how to deal with samples containing viral particles. And the methods used for virus isolation. Also, they will be able to deal with the common viral diseases that affect animal and poultry flocks regarding laboratory diagnosis, prevention and control..

❖ Intended learning outcomes of course (ILOs)

a) KNOWLEDGE AND UNDERSTANDING

By the end of this course, the graduate should be able to:

a.1. Describe the nature of viruses, viral taxonomy and nomenclature, viral replication and viral genetics and evolution.
a.2. Clarify the basis of virus-cell interactions, viral pathogenesis, and viral oncogenesis.
a.3. Recognize the basis of immune response to viral infection and realize methods for preparation of vaccines.
a.4. Explain the theories of how antiviral chemotherapy could work.
a.5. Identify the epidemiology of viral infections.
a.6. Recognize the precautions for dealing with viral samples.
a.7. Recognize the major problems related to viral infection control.
a.8. Express advanced knowledge about specific properties of different DNA and RNA virus families, diseases caused by them in animals and birds and their laboratory diagnosis and method of vaccination.

b) INTELLECTUAL SKILLS

By the end of this course, the student should be able to:

b.1. Plan to select the suitable sample at proper time for viral diagnosis
b.2. Evaluate the severity of viral infections based on the knowledge of virus structure and their pathogenesis
b.3. Analyze the difference among various virus families based on their structure and strategy of replication.
b.4. Evaluate the suitable method for virus diagnosis
b.5. Assess the required measurements for prevention and control of viral diseases.

c) PROFESSIONAL AND PRACTICAL SKILLS

By the end of this course, the student should be able to:

c.1. Practice processing clinical sample on arrival to laboratory for viral diagnosis and isolation.
c.2. Employ different methods used for virus isolation in a clinical sample
c.3. Apply some of serological tests used for detection of viral antigens or antibodies in clinical samples and analyze results
c.4. Carry out some molecular techniques used for identification of viruses.

d) GENERAL AND TRANSFERABLE SKILL

By the end of this course, the student should be able to:

d.1. Work effectively as part of a team.
d.2. Efficiently make use of library facilities and IT tools.

d.3. Explore appropriate computer / keyboard skills including word
d.4. Processing, spreadsheets, presentation packages and graph plotting.

❖ Topics and contents

Topic	Total Hours	Lecture	Practical
Virus structure	**4**	**4**	**0**
Virus classification	**2**	**2**	**0**
Virus pathogenesis	**6**	**6**	**0**
Viral oncogenesis	**2**	**2**	**0**
Virus multiplication	**4**	**4**	**0**
Immune response to viral infections	**2**	**2**	**0**
Viral vaccines and vaccination	**4**	**4**	**0**
Epidemiology of viral diseases	**4**	**0**	**4**
Antiviral therapy	**2**	**2**	**0**
Surveillance, prevention, control and eradication of viral diseases	**2**	**2**	**0**
Special virology	**48**	**48**	**0**
Guidelines of sample submissions for viral diagnosis, laboratory biosafety, and containment facilities	**10**	**0**	**10**
Biological properties of the virus	**24**	**0**	**24**
Serological diagnosis of viral infection	**20**	**0**	**20**
Molecular diagnosis of viral infections	**20**	**0**	**20**
Virus isolation	**10**	**0**	**10**
Articles discussion and criticism	**8**	**8**	**0**
Presentations performed by participants	**4**	**4**	**0**
Total	**176**	**88**	**88**

❖ Teaching and learning methods

a. Lectures
b. Practical and lab sessions
c. Self-learning activities.

❖ Student assessment

a. METHODS:

1- Written examination	For assessment of knowledge, back calling and Intellectual skills

2- Practical examination	For assessment of practical and professional skill.
3- Oral examination	For assessment of knowledge and Intellectual skills
4- Student activities	For assessment of knowledge and general and transferable skills

b. MATRIX ALIGNMENT OF THE MEASURED ILOS/ ASSESSMENTS METHODS:

	K.U (a)	I.S (b)	P.P.S (c)	G.S (d)
Written exam	1, 2, 3, 4, 5, 7, 8	2, 3, 5		-
Practical exam		3,4	1,2,3,4	-
Oral exam	1,2,3,4,5	1, 4		-
Student activities (assay, seminar, etc.)	1,2,3	1,2		**1-4**

c. WEIGHT OF ASSESSMENTS:

Assessment	Allocated Mark	Evidence
Final written exam	**50%**	Marked and signed written paper
Practical exam	**20%**	Marked and signed practical exam paper
Oral exam	**20%**	Signed list of oral exam marks
Student assignments	**10%**	Representative samples of presented materials

❖ List of references

6.1. Essential textbooks

- Handouts of the PowerPoint of each lectures is presented to students
- Virology laboratory manual
- Veterinary Virology. Murphy FA, et al. 1999 3rd eds.
- Veterinary virology. Fenner F, et al. 1993
- Principles of virology: molecular biology, pathogenesis and control of animal viruses. 2nd eds. Flint et al. 2004
- Veterinary Immunology An introduction. Tizard, IR 2009 8th eds

6.2. Recommended books

- Fields Virology. Fields BN, et al. 2004.

6.3. Periodicals

- American Society of Microbiology
- Journal of Veterinary Microbiology
- Journal of Archives of Virology

- Journal of Virological Methods
- Journal of Virology
- Journal of General Virology
- Virus research Journal

	Course coordinators	Head of department
Name	**Dr. Mohammed A. AboElkhair**	**Prof. Dr. Shabaan Gadalla**
Signature		

Matrix alignment of course topics and ILOs

Topic	No. of hours /week		Total hours /semester	Hours for lect.	Hours for pract.	ILOs				T&L.methods				
	Lect.	Pract.				K&U (a)	I.S (b)	P.P.S (c)	G.T.S (d)	Lect.	Pract.	Self& active leaning	Audiovisual	Case study
Virus structure	2	-	4	4	0	a1	b2, b3	-	-	√	-	√	√	
Virus classification	2	-	2	2	0	a1	b2, b3	-	-	√	-	√	√	
Virus pathogenesis	2	-	6	6	0	a2	b3	-	-	√	-	√	√	
Viral oncogenesis	2	-	2	2	0	a2	-	-	-	√	-	√	√	
Virus multiplication	2	-	4	4	0	a2	b2, b3	-	-	√	-	√	√	
Immune response to virus infections	2	-	2	2	0	a3	-	-	-	√	-	√	√	
Viral vaccines and vaccination	2	-	4	4	0	a2	-	-	-	√	-	√	√	
Epidemiology of viral diseases	2	-	4	0	4	a4, a7	b5	-	d2	√	-	√	√	
Antiviral therapy	2	-	2	2	0	a5	-	-	-	√	-	√	√	
Surveillance, prevention, control and eradication of viral diseases	2	-	2	2	0	a7	b5	-	d2, d3,d4	√	-	√	√	
Special virology	-	2	48	48	0	a6	-	c1	-	√	-	√	√	
Guidelines of sample submissions for viral diagnosis, laboratory biosafety, and containment facilities	-	2	10	0	10	-	b4	-	-	-	√	√	√	
Biological properties of viruses	-	2	24	0	24	a6	b1	c1	-	-	√	√	√	√

Serological diagnosis of viral infection	**-**	**2**	**20**	**0**	**20**	**-**	**-**	**c2**	**-**	**-**	√	√	√	√
Molecular diagnosis of viral infections	**-**	**2**	**20**	**0**	**20**	**-**	**-**	**c2**	**-**	**-**	√	√	√	√
Virus isolation	**-**	**2**	**10**	**0**	**10**	**-**	**-**	**c1**	**-**	**-**	√	√	√	√
Articles discussion and criticism			**8**	**8**	**0**									
Presentation performed by participants			**4**	**4**	**0**									
			176	**88**	**88**									