

Specification for Virology course 2019/2020

A-Affiliation

1.	Relevant program	Bachelor of Veterinary Medical Science (BVMSc)
2.	Department offering the course	Virology

Date of specification approval: ministerial decree No. 1727 on 26/4/2017
(Approved in this template by the department council on 1/10/2019)

B-Basic information

1.	Course title	Virology
2.	Course code	310 (B) II
3.	Level	3rd year
4.	Semester	Second semester
5.	Total hours	4
6.	Lecture hours	2
7.	Practical hours	2

C-Professional Information

1- Course learning objectives

- Provide the students with different patterns for classification of viruses.
- Provide the opportunity for the students to gain the necessary information about some Riboviruses (RNA-viruses) of veterinary medical importance.
- Apply the required knowledge about some Deoxyriboviruses (DNA- viruses) of veterinary medical importance.
- Experimental description and application of techniques used in viral identification

2- Intended learning outcomes of the course (ILOs):

a- Knowledge and understanding

After successful completion of the course the students should be able to:

- a.1-Classify viruses based on epidemiological and physico-chemical criteria.
- a.2-List viral families of medical veterinary importance belong to Riboviruses & Deoxyriboviruses..
- a.3- Realize the basic of viral families classification & tell the viruses included in genera within the families know.
- a.4-Define and illustrate diagrams for different viruses of veterinary importance.
- a.5- Mention the type of host affected by different members of viral families belong to either Riboviruses or Deoxyriboviruses.
- a.6-Describe the physico-chemical, biological and antigenic properties for

- different viral members related to Riboviruses & Deoxyriboviruses families.
- a.7-Mention the serological and non-serological methods used for identification of suspected viral samples.
 - a.8- Trace the strategies to protect and combat each viral infection by vaccines.
 - a.9- Explain the basic of Lab. Diagnosis for each member of viruses having veterinary importance.
 - a.10- Describe the method used in molecular virology for viral detection and identification.
 - a.11- Describe the aim and methods for viral purification

b- Intellectual skills

After successful completion of the course the students should be able to:

- b.1- Plan and apply classification for different viruses.
- b.2- Distinguish the natural & susceptible host affected by different viruses.
- b.3- Evaluate the general properties of viruses families & their members.
- b.4- Create a diagram for viruses structures & schemes for viruses classification.
- b.5- Differentiate between biological properties of different viruses.
- b.6- Choose the test method for virus control.
- b.7- Develop Lab. diagnosis for each viral infection.
- b.8- Link between the antigenic properties, viruses types and their control.
- b.9- Diagnosis and give prognosis for different viral infections.
- b.10- Compare between viruses belonging to same family or related to each other.
- b.11- Choose suitable techniques for viral identification.
- b.12- Interpret the results of different techniques used for viral identification

c- Professional and practical skills

After successful completion of the course the students should be able to gain the followings:

- c.1- Apply aseptic conditions during techniques of virus identification.
- c.2- Prepare and make serial dilutions from either antigen or antibody.
- c.3- Prepare several working solutions like physiological & phosphate buffer saline.
- c.4- Prepare purified serum preserve and treat the collected sera to get rid of inhibitory substances & media.
- c.5-Prepare washed R.B.Cs with certain concentration for Haemagglutination and Haemagglutination inhibition tests.
- c.6- Prepare of different hyper immune sera using known reference antigens.
- c.7- Prepare the agrose to be used in AGPT and gel electrophoresis.
- c.8-Perform Haemagglutination, Haemagglutination inhibition, Haemadsorption and Haemadsorption test and interpret the results.
- c.9- Perform infectivity titration and plaque count formation test for measurement of viruses infectivity.
- c.10- Perform neutralization test using tissue culture & low fertile egg and discuss the results.
- c.11- Perform both single radial & double immunodiffusion test & interpret

the result.

c.12- fluorescent antibody technique for detect in of viral Ag in sequential tracing of viral protein Ag at different internal times .

c.13- Perform different types of for detection of either viral Age its Ags ELISA techniques with its modification.

c.14- Make nucleic acid extraction & identification

d- General and transferable skills

After successful completion of the course the students should have the following skills

d.1- Cooperate and work in a team

d.2- Searching skill.

d.3-Communication skill

d.4- Mural and culture of virologist

d.5- problem solving skill

3- Course contribution in the program ILOs:

Course ILOS	Program ILOS
A Knowledge and understanding	a ⁷
B Intellectual skills	b ^{6,7}
C Professional and practical skills	c ¹³
D General and transferable skills	d ^{1,5,6}

3.1- Course contents:

Topic	Lecture hours	Practical hours
Classification of viruses	4	
Riboviruses (RNA-viruses)	18	
Deoxyriboviruses (DNA-viruses)	8	
Purification and concentration of viruses		4
Non serological techniques for viruses		8
Serological techniques for viruses		10
Molecular techniques for viruses		8
total	30	30

The midterm and practical exams are included during the semester

3.2- ILOs matrix:

Topic	A) Knowledge and understanding	B) Intellectual skills	C) Professional and practical skills	D) General and transferable skills
Classification of viruses	a1	b1		d2, d4
Riboviruses (RNA-viruses)	a2,3,4,5,6	b2,3,4,5,6,7,8		,d1, d2, d4,

Deoxyriboviruses (DNA-viruses)	a2,3,4,5,6	b2,3,4,5,6,7,8		,d1, d2, d4,
Purification and concentration of viruses	a6,8	b9,10	c1,2,3,	,d1, d3, d4,d5
Non serological techniques for viruses	a7,9	b9,10,11,12	c5,9,14	,d1, d3, d4,d5
Serological techniques for viruses	a7,8,9	b9,10,11,12	c6,7,8,10,11,12,13	,d1, d3, d4,d5
Molecular techniques for viruses	a10	b9,10,11,12	c1,2,3,14	,d1, d3, d4,d5

4- Teaching, learning and assessment methods:

ILOs	Teaching and Learning methods							assessment method					
	L	P&M	D&S	P	Ps	Bs	Gt	semester	midterm	oral	practical	written	
Knowledge and understanding	a1	x	x	x	0	0	x	0	x	x	x	0	x
	a2	x	x	x	0	0	x	0	x	x	x	0	x
	a3	x	x	x	0	0	x	0	x	x	x	0	x
	a4	x	x	x	0	0	x	0	x	x	x	0	x
	a5	x	x	x	0	0	x	0	x	x	x	0	x
	a6	x	x	x	0	0	x	0	x	x	x	0	x
	a7	x	x	x	0	0	x	0	x	0	x	0	x
	a8	x	x	x	0	0	x	0	x	0	x	0	x
	a9	x	x	x	0	0	x	0	x	0	x	0	x
	a10	x	x	x	0	0	x	0	x	0	x	0	x
Intellectual skills	b1	x	x	x	0	x	x	0	x	x	x	0	x
	b2	x	x	x	0	x	x	0	x	x	x	0	x
	b3	x	x	x	0	x	x	0	x	x	x	0	x
	b4	x	x	x	0	x	x	0	x	x	x	0	x
	b5	x	x	x	0	x	x	0	x	x	x	0	x
	b6	x	x	x	0	x	x	0	x	x	x	0	x
	b7	x	x	x	0	x	x	0	x	0	x	0	x
	b8	x	x	x	0	x	x	0	x	0	x	0	x
	b9	x	x	x	0	x	x	0	x	0	x	0	x
	b10	x	x	x	0	x	x	0	x	0	x	0	x
	b11	x	x	x	0	x	x	0	x	0	x	0	x
	b12	x	x	x	x	x	x	0	x	0	x	x	x
Professional and practical skills	c1	0	x	x	x	x	0	x	x	0	x	x	0
	c2	0	x	x	x	x	0	x	x	0	x	x	0
	c3	0	x	x	x	x	0	x	x	0	x	x	0
	c4	0	x	x	x	x	0	x	x	0	x	x	0
	c5	0	x	x	x	x	0	x	x	0	x	x	0
	c6	0	x	x	x	x	0	x	x	0	x	x	0

General skills	,c7	0	x	x	x	x	0	x	x	0	x	x	0
	,c8	0	x	x	x	x	0	x	x	0	x	x	0
	,c9	0	x	x	x	x	0	x	x	0	x	x	0
	,c10	0	x	x	x	x	0	x	x	0	x	x	0
	,c11	0	x	x	x	x	0	x	x	0	x	x	0
	,c12	0	x	x	x	x	0	x	x	0	x	x	0
	,c13	0	x	x	x	x	0	x	x	0	x	x	0
	,c14	0	x	x	x	x	0	x	x	0	x	x	0
	d1	x	0	x	x	0	0	x	x	0	x	0	0
	d2	x	x	x	0	0	x	0	x	0	x	0	x
	d3	0	0	x	0	0	x	x	x	0	x	0	0
	d4	x	0	0	x	0	0	0	x	0	x	0	0
	,d5	0	0	x	x	x	x	x	x	0	x	x	0

L :Lecture, P&M: Presentations & Movies, D&S: Discussions & Seminars P: Practical training,
Ps: Problem solving, Bs: Brain storming, Gt: group teaching

5- Assessment timing and grading:

Assessment method	timing	grade
Mid-term exam and semester work	6 th week	15
Practical exam	14 th week	20
oral exam	End of semester	15
Written exam	End of semester	50
total		100

6- List of references

6.1- Course notes: None

6.2- Essential books (text books)

- Alan J. Cann (2016) Principles of Molecular Virology.
- Jane Flint (2015) Principles of Virology
- John Carter (2007) Virology Principles And Applications
- Dilip K. Sarma (2006) a text book of veterinary virology and viral diseases
- J. Versteeg (1985) A colour atlas of virology

6.3- Recommended books

- Alan J. Cann (2016) Principles of Molecular Virology.
- Jane Flint (2015) Principles of Virology
- Dilip K. Sarma (2006) a text book of veterinary virology and viral diseases
- J. Versteeg (1985) A colour atlas of virology.

6.4- Periodicals, Web sites, . . . etc

- Veterinary bulletin.
- www.wsvma.org
- www.ekb.eg

7- Facilities required for teaching and learning

- Teaching hall
- Virology laboratory.

