

COURSE SPECIFICATION

(2016 / 2017)

1- Basic Information:

Code number.....

Course title: Virology(A&B)

Academic Year: *third* year of *B. V. Sc. Program*

Total teaching hours: 90. hrs

- Lectures: 60 hrs

- Practical: 30 hrs

2- OVERALL AIMS OF THE COURSE:

- To provide student with basic knowledge about the principles of virology as well as the systematic virology ,the immune response to viral infection with special emphasis on the viral immune evasion strategies
- To familiarize students with the common infectious diseases of viral origin and their etiological viruses, to practice the principles of viral cultivation and isolation.
- To familiarize the students with basic principles of serological diagnosis of viral infections. Molecular virology and biotechnology.

3- INTENDED LEARNING OUTCOMES (I. L. Os.):

3-A: KNOWLEDGE and UNDERSTANDING:

By the end of the course, students should be able to:

- A1- state the general viral morphology, genome organization and genetics , Describe the host viral relationship and viral pathogenesis
- A2- Illustrate the virus host interaction and immune evasion strategies , Describe the virus structures, their antigenic structures as well as the viral virulence factors
- A3- Recognize the most important infectious clinical conditions and outline the diagnosis of viruses that causing such diseases, Identify the most important methods of decontamination and principles of infection
- A4- memorize the basics of viral vaccine strategies , define the impact of molecular technology in virology

3-B: INTELLECTUAL SKILLS:

By the end of the course, students should be able to:

- B1-** Distinguish the virology laboratory according to the biological hazard of the viruses (Biosafety level, I, II, III) laboratory), Appreciate the danger of handling and use of infectious viruses on community and environment as a part of their ethical heritage
- B2-** relate the virus according to international taxonomy and nomenclature of viruses, Report and appraise a concise scientific activity according to standard scientific thinking and integrity
- B3-** Summarize a systematic approach for laboratory diagnosis of common infectious clinical conditions and select the most appropriate and cost-effective tool leading to the identification of the causative viral agents. Evaluate according to evidence the causal relationship of microbes and diseases
- B4-** Assess the results of virological, serological and molecular tests

3- C: PRACTICAL AND PROFESSIONAL SKILLS:

By the end of the course, students should be able to

- C1 -** Choose the good laboratory practices and bio-safety precautions .
- C2-** Model basic principles for virus isolation via embryonated chicken egg inoculation and cell culture , apply the general protocol of viral laboratory diagnosis .
- C3-** Analyze the different strategies of viral titration, Prepare Serological identification of viruses using different serological tests and modern molecular techniques .

3- D: GENERAL AND TRANSFERABLE SKILLS:

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

- D1-** Experience in team work and critical analyses of diseases cases , develop the ethical behaviors between students and staff members as well as among the students themselves.
- D2-** Use the different computer skills ,classify different duties,how to make a research or power point .
- D3-** Work under stress and can solve large number of virological problems.



4- COURSE CONTENTS:

4- A: First semester topics:

TOPIC	Total hours (Semester)	Hours for lecture	Hours for practical
Science of virology	6	3	3
Molecular biology of viruses	8	6	2
Virus replication	8	4	4
Virus pathogenesis and oncogenesis	8	4	4
Virus host interaction	4	3	1
Virus control and vaccination	6	6	-
Antiviral chemotherapy	4	3	1
Virus evolution and emergence	1	1	-
Total	45	30	15

4.B:- Second semester topics:

TOPIC	Total hours (Semester)	Hours for lecture	Hours for practical
Classification of viruses	2	2	-
- RNA viruses, Paramyxoviridae Rhabdoviridae- Filoviridae Orthomyxoviridae Coronaviridae, Picornaviridae, Bunyaviridae Togaviridae ,Retroviridae Astroviridae, Reoviridae Flaviviridae	24	16	8
DNA families Herpesviridae, Adenoviridae Poxviridae Circoviridae ,	17	10	7
Subviral agents	2	2	-
Total	45	30	15

5- TEACHING & LEARNING METHODS:

*Lectures

- (using data show and white board)

*Practical:

- Practical training. (Practical demonstrations, practice of skills, and discussions)

* Self learning

- **Computer researches and faculty library visits to prepare essays and presentations.**
 - Library researches.
 - Internet researches.
 - Discussion in the researches.
 - Virological drawing.

6. METHODS FOR STUDENTS With limited capabilities:

- **No disabled students until now, but if present the methods are:-**
 - Activation of office hours.
 - Discussion with them during practical session.

7. STUDENT ASSESSMENT:

<u>7.a Used methods</u>	Written examination	Oral examination	Practical examination	Activities
<u>7.b time</u>	At the end of each term	At the end of each term	14 th week of each term	After the 5 th and 10 th week of each term
<u>7.c grads</u>	50	20	20	10

8. LEARNING AND REFERENCE MATERIALS:

8-1: BASIC MATERIALS:

- **Department notes:** available for students to purchase from the department.

8-2: Recmonded books:

- Principles of Virology (2 volumes)
- Fields Virology book (2 volumes)
- Veterinary Virology (1 volume)
- Virology a laboratory Manual

8.3: web sites and jouranlsand so on

- Intrnational of veterinary information services (IVIS)
- <http://www.virology.net/>
- <http://www.virology.net/garryfavweb2.html>
- <http://www.virology.net/courseware.html>
- asmnews@asmusa.org
- <http://www.phage.org/black09.htm>
- http://www.microbe.org/microbes/virus_or_bacterium.asp
- <http://www.bact.wisc.edu/Bact330/330Lecturetopics>
- http://whyfiles.org/012mad_cow/7.html
- <http://www.microbelibrary.org/>
- <http://www.hepnet.com/hepb.htm>
- http://www.tulane.edu/~dmsander/Big_Virology/BVHomePage.html
- <http://www.mic.ki.se/Diseases/c2.html>
- <http://www.med.sc.edu:85/book/welcome.htm>
- http://www.biology.arizona.edu/immunology/microbiology_immunology.

Intended learning out comes of each topic

TOPIC	K.U (a)	I.S (b)	P.P.S (c)	G.T.S (d)
1st Semister				
Science of virology	A1-A2	B1-B3-	C1-C2	D1-D2
Molecular biology of viruses	A1-A2	B1-B3	C1-C2-C3	D1-D2-D3
Virus replication	A1-A2-A3-A4	B3B4-	C1-C2	D1-D2- -D3
Virus host interaction	A2-A4	1B-B3	C3-C1	D1-D2
Virus pathogenesisand oncogenesis	A2-A3-A4-A1-	B3-B4	C2-C3	D1- -D3
Virus control ad vaccination	A3-A4	B3-B4-B2-	C1-C2-C3-	D2-D3
Antiviral chemotherapy	A1-A4	B1-B2	C1-C2-	D2-D3



TOPIC	K.U (a)	I.S (b)	P.P.S (c)	G.T.S (d)
Virus evolution and emergence	A1-A2-A4-	B3-B4	C1-C2-C3-	D1-D2-D3
2nd Semster				
Classification of viruses	A2-A3	B3-B4 B1	C1-C2-C3	D1- -D3
-Paramyxovirida- Rhabdoviridae Filoviridae - Orthomyxoviridae Bunyaviridae -Coronaviridae Picornavirudae - Togaviridae Astroviridae -Flaviviridae	A2-A3-A4	B3-B4 B1	C1-C2-C3	D1-D2-D3
DNA families Herpesviridae, Adenoviridae,Poxviridae Circoviridae ,	A2-A3-A4- A1	B1-B2-B3- B4	C1-C2-C3-	D1-D2-D3
Subviral agents	A2-A3-	B2-B3	C2-C3	-D2-D3

Intended learning out comes Evaluation

Assessment	ILOs				Marks
	Knowledge and understanding	Intellectual	Professional and practical	General and transferable	
Activities, assignments		B1-B2-B4		D1-D2-D3	10
Practical exam		-B3-	C1-C2-C3-		20
Oral exam	A1-A2-A3-A4-	B2-B3		D1- D2	20
Written exam	A1-A2-A3-A4-	B1-B2-B3-B4	-	-	50

Course Coordinator

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