



Program Specification for Ph Degree of Virology **2017-2018**

A-Basic information:

1-Program title: *PhD VSC Specialty:- Virology*

2- Program type: *Single*

3- Department offering program: *Virology*

4-Academic year: *2017-2018*

5-Approval date of Department Council:

6-Approval date of Faculty Council:

7-External evaluator:

B-Professional information:

1- Overall aims of the program:

The main purpose of this program is providing the postgraduates with the knowledge, skills and attitudes that allow them to master the animal viruses to be ready to engage in academic teaching. Also, providing them with the ability to interact with community problems and respect ethical values according to community cultures.

2-Intended learning outcomes of course (ILOs):

a- Knowledge and understanding:

On successful completion of this program the graduate should be able to :

a1-Restate advanced knowledge and understanding of the nature of viruses and basic criteria used in the classification/taxonomy of them.

a2-Explain the modes of transmission of pathogenic microorganisms.

a3-Describe the role of genetics in health and disease and the basic principles of gene therapy and genetic counseling, in relation to infections and immunity.

a4-Recognize research skills, including designing experiments, analysing results and troubleshooting and critically assessing the scientific literature.

a5-Enumerate the classical and modern approaches to the development of therapeutic agents and vaccines for the prevention of viral diseases.

b- Intellectual skills:

On successful completion of master program the graduate should be able to:

b1-Set up a range of advanced skills and laboratory techniques, including the purification of isolated microbial pathogens and analyses of their proteins and nucleic acids for downstream applications such as gene cloning and sequencing studies.

b2-Demonstrate basic sciences' practical skills in the area of sample selection, collection and transport, microscopic examination, culture techniques, and virus identification using biochemical reactions and serotyping. All relevant to the future practice..

b3-Employ research skills, including designing experiments, analyzing results and troubleshooting and critically assessing the scientific literature

b4-Edit scientific papers with high impact factor (reputable journals).



c- Professional and practical skills:

On successful completion of this program the graduate should be able to:

- c1-Apply the principles of good experimental design and analysis to their own research project .
- c2-Select and perform relevant statistical analysis on data obtained for their own research.
- c3- Write and evaluate the virological reports.
- c4-Use recent virological techniques for diagnosis of different viral diseases.
- c5-Evaluate the available and required material, tools and equipment in virological research projects.
- c6-Write efficiently scientific paper and dissertation.

d- General and transferable skills:

On successful completion of this program the graduate should be able to:

- d1-Communicate effectively and use of information technology in the development of veterinary professional practice.
- d2-Own Self-evaluation and need assessment.
- d3-Utilize different available resources for efficient obtaining of knowledge and information.
- d4-Issue the regulations and indicators for performance evaluation.
- d5-Mange time efficiently and work in research groups.

3-Academic standers:

- * The faculty mission, vision and strategic objective are confirmed to the academic standard. The learning outcomes are inline with the department and the faculty mission.
- * Postgraduates NARS (March 2009) Master degree chapter issued by national authority for quality assurance and accreditation of education (NAQAAE) and Veterinary medicine post graduate academic standards (ARS) for the faculty of veterinary medicine, Beni-Suef University, Beni-Suef, Egypt are selected to confirm the appropriateness of the academic standards.

4- Curriculum Structure and Contents

a-Program duration: 3 years at least

b- Curriculum duration : 48 weeks

c-Program structure: 3-5 preliminary courses

Hours/ week:

Theoretical	5-8	Practical	6-8	Total	11-16
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Preliminary courses

Code	Course title	Hours /week		Academic year	Teaching duration
		theoretical	practical		
According to selected courses	Selected (3-5) PhD courses from the various Faculty Departments programs depending on the thesis title.	5-8	6-8	Preliminary year	36 weeks

d- Courses contents: See courses specification

5- Program Admission Requirements

* According to the Faculty of Veterinary Medicine, Beni-Suef University Bylaws for Post Graduate Programs, applicants should have a master degree in the specialization subject he will register in one of the Egyptian Universities or an equivalent degree from any approved university or another recognized scientific institute.

* According to Beni-Suef University requirements, all applicants for postgraduate studies should fulfill preliminary courses on the following subjects:

1-English language (Toefl or equivalent degree)

* Admission to the program is open during March and September annually.

*The faculty council has the right to suspend the student enrolment for a certain period if he has acceptable excuse preventing him from continuing his study or research.

6. Regulations for Progression and Program Completion

After finishing the preliminary courses, the graduate student will be eligible to sit for the examination according to the following roles:

No. of course teaching hours/ week	Allowed written examined time	Degree	
		Theoretical	Practical and oral exam
≥ 3 hours	3 hours	50	50
≤ 3 hours	2 hours	25	25

-The faculty council has the right to deprive the applicant from entering the exams if his attendance courses is less than 75% .

-Failure or depriving from entering one or more course did not requires reexamination of successful passed courses.

-The applicant should submit a seminar within 2years after registration about his research and specialization subject filed that accepted by a committee of professors and assistant professors(3 in number).

-the applicant should submit the thesis that accepted by the judging committee in an open discussion and the following polices should be met:

-pass all preliminary curriculums successfully.

-acceptance of the seminar presented by the applicant.

-The applicant should publish at least two scientific papers from the thesis in local or international journals



Qualification grades:

Excellent	≥ 90
Very good	From 80 to 89
Good	From 70 to 79
Pass	From 60 to 69
Failed	45 to less than 60 weak
	Less than 45 Very weak

After passing, the graduate starts research for Ph.D. Thesis at the beginning of the second year.

The candidate will receive his degree after evaluating and approving the thesis by a committee according to University regulations.

7-Graduate student assessment

A: Assessment Tools

According the Faculty of Veterinary Medicine, Beni-Suef University Bylaws for Post Graduate, students should be assessed at the end of preliminary year and the thesis should be evaluated and approved by a committee after at least three years from registration date according to University regulations.

Preliminary year

Assessments methods for each course	practical exam	Oral exam	Written exam
Time of Assessments	By the end of the year	By the end of the year	By the end of the year
Marks	25	25	50

Ph.D. Thesis:

The Ph.D. students should prepare a thesis in the field of virology. The department and the ethical committees must approve the protocol of the research. The thesis includes a review part with a practical part. The thesis is supervised by two or more staff members and may include other specialties according to the nature of the research. The thesis should be evaluated and approved by a committee according to University regulations.



B- Matrix alignment of the measured ILOs

Assessments methods	Matrix alignment of the measured ILOs			
	K&U (a)	I.S (b)	P&P. S (c)	G&T. S (d)
Written exam	1,2,3,4,5	1,2,3	2,3,4,6	-----
Practical exam		2,3,4	1,2,3,4,5	1,2,3,4,5
Oral exam	1,2,3,4,5	1,2	1,2,3,5	1,2,3,4,5

8- Evaluation of Program Intended Learning Outcomes

Evaluator	Tool	Sample
1. Post graduate Students	Questionnaire at the end of the program	All the PG students
4. External Evaluators	Review program and courses Attending the final exam	Once before implementation annual report
5. College Quality Assurance committee	Annual program reviewer	

Program coordinator

Head of Department

Dr./Ahmed Saad Hussein

Prof. Dr./Sabry Mohammed Tamam



Ph -degree Program Specification Matrix (Program Courses with ILOS)

Program ILOs		Courses
Knowledge and understanding	a1	Ph-90to Ph -94
	a2	Ph -90to Ph -94 +Thesis
	a3	Ph -90, Ph -92 + Thesis
	a4	Ph -90 to Ph -94
	a5	Ph -90to Ph -94 +Thesis
Intellectual skills	b1	Thesis
	b2	Ph -92 + Thesis
	b3	Thesis
	b4	Ph -92 + Thesis
Professional and practical skills	c1	Thesis
	c2	Ph -92 + Thesis
	c3	Thesis
	c4	Thesis
	c5	Ph -90, Ph -92 + Thesis
	C6	Thesis
General and transferable skills	d1	Ph -90to Ph -94 +Thesis
	d2	Ph -90to Ph -94+ Thesis
	d3	Ph -90to Ph -94+ Thesis
	d4	Ph -90to Ph -94+ Thesis
	d5	Thesis



Program aims – ILOS Matrix for the Ph -degree

مصفوفة اهداف البرنامج مع مخرجات التعلم المستهدفة

Program aim		1- Work continuously for increasing knowledge in virology professional practice.	2- Master the various methods of data collection and application of analytical and critical approach in the field of virology.	3- Develop the appropriate use of advanced techniques and applications for mastering a wide range of virology professional skills.	4- Develop the communication and IT skills effectively and leading the team.	5- Utilize efficiently the available resources and improving as well as offering new resources in the field of virology
Program ILOs						
Knowledge and understanding	a1	✓			✓	✓
	a2	✓				
	a3	✓		✓		
	a4		✓	✓	✓	
	a5	✓	✓			✓
Intellectual skills	b1		✓	✓		
	b2	✓		✓		
	b3	✓	✓		✓	✓
	b4				✓	✓
Professional and practical skills	c1			✓		
	c2		✓		✓	
	c3					✓
	c4			✓		
	c5	✓			✓	✓
	c6	✓	✓			✓
General and transferable skills	d1	✓	✓			✓
	d2			✓		✓
	d3	✓			✓	✓
	d4		✓	✓	✓	



Course specification (Virology 2017-2018)

1-Basic information	
Course Code:	Ph-90
Course title :	Virology (General)
Program title:	Ph degree in Veterinary Medical Sciences (Virology).
Contact hours/ week	Lecture: 2hrs/week Practical: 2hrs/week
Approval Date	2017-2018

2-Professional information

Overall aims of course:

The main purpose of this course is providing the postgraduates with the knowledge, skills and attitudes that allow them to master the animal viruses to be ready to engage in academic teaching. Also introducing the academic background and practical experience about virology science including virus structure, physico-chemical and biological properties of viruses and how to approach a problems caused by a viral agent.

3- Intended learning outcomes of course (ILOs)

a- Knowledge and understanding:

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

- a1. Recognize the importance of study in the field of virology.
- a2. Describe the difference of virus from other in addition to its physical, chemical and biological properties
- a3. Mention the laboratory diagnosis methods that used in virology field.
- a4. Explain the molecular biology of viruses.
- a5. Identify virus structure.
- a6- Enumerate different types of virus vaccines
- a7- List different methods of viral diagnosis.

b- Intellectual skills

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

- b1- Interpret the results of serological and molecular techniques.
- b2- Arrange viruses according to standard taxonomy .
- b3- Illustrate the virus replication strategy and infectious cycle.
- b4- Formulate a systematic approach for laboratory diagnosis of virus diseases.
- b5- Demonstrate virus properties.
- b6- Use decisions regarding differential diagnosis between viral diseases

C- Professional and practical skill

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

- c1- Perform serological tests for virus identification.
- c2- Use molecular biology for virus diagnosis and vaccine preparation methods.
- c3- Apply treatment by different antiviral chemotherapy.
- c4- Employ all the gained knowledge in virological practice in skillful pattern.



- c5-Design and evaluate a diagnostic report.
c6-Carry out methods of sampling for viral diagnosis

d- General and transferable skills

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

- d1-Work in team and respect the legal ethical rules
d2-Classify different duties.
d3-Utilize information and communicating skills.
d4-Communicate effectively with public, colleagues and appropriate authorities.
d5- Enhance his/her effective presentation skills

4-Topics and contents

Course	Topic	No. of hours	Lectures	Practical
(Lec. 2 h./week, Pract.2 h./week)	-Virus morphology and symmetry -Viral infectivity	36	18	18
	-Immunity against virus infection. -Virus-virus interaction -Virus immunosuppression	36	18	18
	-Virus isolation and identification	36	18	18
	-Virus epidemiology -Molecular virology	36	18	18
	Total	144	72	72

5-Teaching and learning methods

- 5.1- Lectures (brain storm, discussion) using board, data shows.
5.2-Self learning by preparing essays and presentations (internet researches and faculty library)
5.3- Practical (application of laboratory diagnosis and data show).

7-Student assessment

7.1. Assessments methods:

Method	Matrix alignment of the measured ILOs/ Assessments methods			
	K&U	I.S	P&P.S	G.S
Final Exam	a1-a2-a3-a4-a5-a6-a7	b2-b3-b5	c3-c4	d3-d4
Practical Exam	a3-a4-a7	b1-b4-b6	c1-c2-c4-c5-c6	d1-d2
Oral Exam	a1-a2-a3-a4-a5-a6-a7	b1-b2-b3-b4-b5-b6	c1-c2-c3-c4-c5-c6	d2-d4-d5



7.2. Assessment schedules/semester:

Method	Week(s)
Practical exam	managed by the faculty
written exam	managed by the department
Oral Exam	managed by the department

7.3. Weight of assessments/semester

Assessment	Weight of assessment
Written exam	50%
Practical exam	25%
student activities	-----
Oral exam	25%
total	100%

8- List of references

8.1. Notes and books

-Bases in veterinary virology (staff members of virology department).

8.2. Essential books:

- Sharma,S.N. (2009): Veterinary Virology volume 4.

8.3. Recommended texts

-D. E. White, Frank J. Fenner (2007): Virology Principles and Applications

-D. E. White, Frank J. Fenner (2004): Medical Virology, Fourth Edition

-Arie J. Zuckerman , Jangu E. Banatvala , J. R. Pattison (2007): Principles and Practice of Clinical Virology, 4th Edition

-Alan J. Cann (2005): Principles of Molecular Virology (Standard Edition), Fourth Edition

Journals:

-www.Sciencedirect.com

-www.OIE.int.com

-www.pubmed.gov

-www.asmnews@asmusa.org

Course Coordinators

Head of Department

Dr. Ahmed Saad Hussein

Prof. Dr./ Sabry Mohammed Tamam



Matrix of Intended learning outcomes of course (ILOs)

	Topic	weeks	ILOs			
			K and U (a)	I.S (b)	P. P.S. (c)	G.T.S (d)
1-	-Virus morphology and symmetry -Viral infectivity	1 st -9 th	1,2,5	2,3	3,4	1,2,3,4,5
2-	-Immunity against virus infection. -Virus-virus interaction -Virus immunosuppression	10 th -18 th	1,2	3	3,4	1,2,3,4,5
3-	-Virus isolation and identification	19 th -27 th	1,3,7	1,2,4,5,6	1,4,5	1,2,3,4,5
4-	-Virus epidemiology -Molecular virology	28 th -36 th	1,4,6	1,4,5	1,2,5	1,2,3,4,5



Course specification (Virology 2017-2018)

1-Basic information

Course Code:	Ph-91
Course title :	Farm animals Virology
Program title:	Ph degree in Veterinary Medical Sciences (Virology).
Contact hours/ week	Lecture: 2hrs/week Practical: 3hrs/week
Approval Date	2017-2018

2-Professional information

Overall aims of course:

Providing the post graduate students the ability to mention the basics and concepts of the virology science knowledge and correlate these knowledge for solving field problems affecting farm animals. Also, enable them to acquire an experience in modern diagnostic tests and vaccinate the poultry infectious diseases.

3- Intended learning outcomes of course (ILOs)

a- Knowledge and understanding:

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

- a1-Identify the general and specific epidemiological patterns of farm animals viral diseases and the most effective immunization protocols.
- a2- Mention the methods of symptomatic and clinical laboratory diagnosis by using advanced techniques for different viral diseases affecting farm animals.
- a3-Explain the mechanisms of farm animals virus pathogenesis and the outcomes of infections, including chronic viral infections.
- a4-Describe the nature of farm animals viruses and basic criteria used in the classification / taxonomy of them.
- a5-Familiarize advanced skills and laboratory techniques, including the purification of isolated microbial pathogens and analyses of their proteins and nucleic acids for downstream applications such as gene cloning and sequencing studies.
- a6-Enumerate different types of farm animals virus vaccines.

b-Intellectual skills

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

- b1- Operate the aquaculture projects in addition to diagnose and treat the farm animals problems.
- b2- Analyze the problems and their causes to reach the appropriate solution for them on scientific bases.
- b3-Compare the effects of viruses on different systems and tissues to reach differential diagnosis, control and epidemiology of farm animals diseases.
- b4- Demonstrate good sampling and minimize technical errors and apply virological techniques to achieve a definite diagnosis in farm animals farms.
- b5- Analyze the hygienic problems in the farm animals farms to provide suitable control measures.

C- Professional and practical skill

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

- c1- Evaluate the immune response by using recent specific and sensitive assays.



- c2-Carry out suitable measures for safety and infection control.
- c3-Perform recent virological techniques for diagnosis of different farm animals viral diseases.
- c4-Use the data to reach sound conclusions and recommendations as well as criticize and evaluate other works scientifically
- c5- Design a therapy program, preventive and control agenda for farm animals farms.

d- General and transferable skills

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

- d1- Acquire personal characteristics communication and computer skills.
- d2- Have creative thinking skills through analyzing of problems.
- d3- Give appropriate decision under contradictory and stressed conditions.
- d4- Have the motivation to work independently and in team work.
- d5-Continuous self- learning skills

4-Topics and contents

Course	Topic	No. of hours	Lectures	Practical
(Lec. 2 h./week, Pract.1h./week)	Structures and properties of poultry viruses.	36	18	27
	- Poultry viruses epidemiology -Viral diseases affecting poultry	36	18	27
	- Immunity against poultry virus infection - Poultry viruses immunosuppression - Laboratory diagnosis of poultry viruses	36	18	27
	Molecular virology in poultry field	36	18	27
	Total	180	72	108

5-Teaching and learning methods

- 5.1- Lectures (brain storm, discussion) using board, data shows.
- 5.2-Self learning by preparing essays and presentations (internet researches and faculty library)
- 5.3- Practical (application of laboratory diagnosis and data show).

7-Student assessment

7.1. Assessments methods:

Method	Matrix alignment of the measured ILOs/ Assessments methods			
	K&U	I.S	P&P.S	G.S
Final Exam	a1-a2-a3-a4-a6	b3-b5	c1-c4-c5	d2-d3-d5
Practical Exam	a5	b1-b2-b3-b4-b5	c3-c4-c5	d1-d4-d5
Oral Exam	a1-a2-a3-a4-a5-a6	b1-b2-b3-b4-b5	c1-c2-c3-c4-c5	d2-d3-d5

7.2. Assessment schedules/semester:



Method	Week(s)
Practical exam	managed by the faculty
written exam	managed by the department
Oral Exam	managed by the department

7.3. Weight of assessments/semester

Assessment	Weight of assessment
Written exam	50%
Practical exam	25%
student activities	-----
Oral exam	25%
total	100%

8- List of references

8.1. Notes and books

-Bases in veterinary virology (staff members of virology department).

8.2. Essential books:

- Poultry Diseases, 6th Edition,(2007) Mark Pattison Paul McMullin Janet Bradbury Dennis Alexander

- Sharma,S.N. (2009): Veterinary Virology volume 4.

8.3. Recommended texts

- David E. Swayne Laboratory (2017), Director Diseases of Poultry, 13th Edition

D. E. White, Frank J. Fenner (2007): Virology Principles and Applications

-D. E. White, Frank J. Fenner (2004): Medical Virology, Fourth Edition

-Arie J. Zuckerman , Jangu E. Banatvala , J. R. Pattison (2007): Principles and Practice of Clinical Virology, 4th Edition

-Alan J. Cann (2005): Principles of Molecular Virology (Standard Edition), Fourth Edition

Journals:

-http://www.thepoultrysite.com/publications/6/Diseases_Of_Poultry/

-www.Sciencedirect.com

-www.OIE.int.com

-www.pubmed.gov

-www.asmnews@asmusa.org

Course Coordinators

Head of Department

Dr. Ahmed Saad Hussein

Prof. Dr./ Sabry Mohammed Tamam



Matrix of Intended learning outcomes of course (ILOs)

	Topic	weeks	ILOs			
			K and U (a)	I.S (b)	P. P.S. (c)	G.T.S (d)
1-	Structures and properties of farm animals' viruses.	1 st -9 th	3,4	2	1,5	1,2,3,4,5
2-	-Farm animal viruses epidemiology -Viral diseases affecting farm animals.	10 th -18 th	1,2,3,4,6	1,3,5	2,3,4,5	1,2,3,4,5
3-	- Immunity against farm animal virus infection - farm animal viruses immunosuppression - Laboratory diagnosis of farm animal viruses	19 th -27 th	3,4,5	1,2,3,4	1,2,3,5	1,2,3,4,5
4-	Molecular virology in farm animals field	28 th -36 th	3,4,5	3,4	1,2,3,4	1,2,3,4,5



Course specification (Virology 2017-2018)

1-Basic information

Course Code:	Ph-92
Course title :	Diagnostic Virology
Program title:	Ph degree in Veterinary Medical Sciences (Virology).
Contact hours/ week	Lecture: 2hrs/week Practical: 2hrs/week
Approval Date	2017-2018

2-Professional information

Overall aims of course:

Provide the postgraduates with the knowledge, skills and attitudes that allows them to deal with different laboratory techniques that used in the field of virology. Also, provide them the ability to interact with community problems and respect ethical values according to community cultures

3- Intended learning outcomes of course (ILOs)

a- Knowledge and understanding:

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

- a1-Identify different laboratory diagnostic techniques.
- a2-Describe the virus CPE.
- a3-List different methods of sampling the field of virology.
- a4-Explain the molecular biology techniques for viral diagnosis.
- a5-Mention the laboratory diagnosis methods that used in virology field.

b-Intellectual skills

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

- b1-Formulate a systematic approach for laboratory diagnosis of virus diseases.
- b2-Take decisions regarding differential diagnosis between viral diseases
- b3-Demonstrate good sampling and minimize technical errors.
- b4-Interpret the results of serological and molecular techniques
- b5-Integrate with different virologist.

C- Professional and practical skill

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

- c1-Carry out basic sciences' practical skills in the area of sample selection, collection and transport, microscopic examination, culture techniques, and virus identification using biochemical reactions and serotyping. All relevant to the future practice.
- c2-Evaluate suitable measures for safety and infection control.
- c3-Use molecular biology for virus diagnosis and vaccine preparation methods.
- c4-Employ all the gained knowledge in virological practice in skillful pattern.
- c5-Design and evaluate a diagnostic report.



d- General and transferable skills

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

- d1-Gain knowledge from different resources.
- d2-Use modern techniques for presentation.
- d3-Manage their time.
- d4-Give appropriate decision under contradictory and stressed conditions.
- d5- Have the motivation to work independently and in team work.

4-Topics and contents

Course	Topic	No. of hours	Lectures	Practical
(Lec. 2 h./week, Pract.2 h./week)	- Bio-safety and Good Laboratory Practices. - Aseptic sampling, transport, laboratory sample preparation and preservation. -Virus damage to tissues	36	18	18
	-Virus detection and identification by different serological tests.	36	18	18
	-Isolation of viruses by different methods.	36	18	18
	-Diagnostic molecular virology -Virus purification and concentration	36	18	18
	Total	144	72	72

5-Teaching and learning methods

- 5.1- Lectures (brain storm, discussion) using board, data shows.
- 5.2-Self learning by preparing essays and presentations (internet researches and faculty library)
- 5.3- Practical (application of laboratory diagnosis and data show).

7-Student assessment

7.1. Assessments methods:

Method	Matrix alignment of the measured ILOs/ Assessments methods			
	K&U	I.S	P&P.S	G.S
Final Exam	a1-a2-a3-a4-a5	b2-b3-b4	c4-c5	d3-d4
Practical Exam	a3-a4-a5	b1-b2-b3-b4-b5	c1-c2-c3-c4-c5	d1-d2
Oral Exam	a1-a2-a3-a4-a5	b1-b2-b3-b4-b5	c1-c2-c3-c4-c5	d2-d4



7.2. Assessment schedules/semester:

Method	Week(s)
Practical exam	managed by the faculty
written exam	managed by the department
Oral Exam	managed by the department

7.3. Weight of assessments/semester

Assessment	Weight of assessment
Written exam	50%
Practical exam	25%
student activities	-----
Oral exam	25%
total	100%

8- List of references

8.1. Notes and books

-Bases in veterinary virology (staff members of virology department).

8.2. Essential books:

- Fenner and White's Medical Virology (2016)5th Edition: Christopher Burrell Colin Howard Frederick Murphy
- Jane Flint, Vincent R. Racaniello, Glenn F. Rall, Anna Marie Skalka (2015):Principles of Virology, 4th Edition (2-Volume Set)
- Sharma,S.N. (2009): Veterinary Virology volume 4.

8.3. Recommended texts

- Estela Quiroz-Castañeda (2018):Farm Animals Diseases: Recent Omic Trends and New Strategies of Treatment
- Alan Cann (2015), Principles of Molecular Virology, 6th Edition
- D. E. White, Frank J. Fenner (2007): Virology Principles and Applications
- D. E. White, Frank J. Fenner (2004): Medical Virology, Fourth Edition
- Arie J. Zuckerman , Jangu E. Banatvala , J. R. Pattison (2007): Principles and Practice of Clinical Virology, 4th Edition
- Alan J. Cann (2005): Principles of Molecular Virology (Standard Edition), Fourth Edition

Journals:

- <https://www.fli.de/en/home/>
- <https://www.futurelearn.com/courses/animal-viruses>
- www.Sciencedirect.com
- www.OIE.int.com
- www.pubmed.gov
- www.asmnews@asmusa.org

Course Coordinators

Head of Department



Matrix of Intended learning outcomes of course (ILOs)

	Topic	weeks	ILOs			
			K and U (a)	I.S (b)	P. P.S. (c)	G.T.S (d)
1-	- Bio-safety and Good Laboratory Practices. - Aseptic sampling, transport, laboratory sample preparation and preservation. -Virus damage to tissues	1st -9th	1,2	1,2,3,4,5	1,2,4	1,2,3,4,5
2-	-Virus detection and identification by different serological tests.	10th-18th	1,3,4,5	1,3,4	1,3,4,5	1,2,3,4,5
3-	-Isolation of viruses by different methods.	19th-27th	1,3,4,5	1,3,4	1,3,4,5	1,2,3,4,5
4-	-Diagnostic molecular virology -Virus purification and concentration	28th-36th	1,3,4,5	1,3,4	1,3,4,5	1,2,3,4,5



Course specification (Virology 2017-2018)

1-Basic information

Course Code:	Ph-93
Course title :	Poultry Virology
Program title:	Ph degree in Veterinary Medical Sciences (Virology).
Contact hours/ week	Lecture: 2hrs/week Practical: 2hrs/week
Approval Date	2017-2018

2-Professional information

Overall aims of course:

Providing the post graduate students the ability to mention the basics and concepts of the virology science knowledge and correlate these knowledge for solving field problems affecting poultry. Also, enable them to acquire an experience in modern diagnostic tests and vaccinate the poultry infectious diseases.

3- Intended learning outcomes of course (ILOs)

a- Knowledge and understanding:

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

- a1-Identify the general and specific epidemiological patterns of poultry viral diseases and the most effective immunization protocols.
- a2- Mention the methods of symptomatic and clinical laboratory diagnosis by using advanced techniques for different viral diseases affecting poultry.
- a3-Explain the mechanisms of poultry virus pathogenesis and the outcomes of infections, including chronic viral infections.
- a4-Describe the nature of poultry viruses and basic criteria used in the classification / taxonomy of them.
- a5-Familiarize advanced skills and laboratory techniques, including the purification of isolated microbial pathogens and analyses of their proteins and nucleic acids for downstream applications such as gene cloning and sequencing studies.
- a6-Enumerate different types of poultry virus vaccines.

b-Intellectual skills

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

- b1- Operate the aquaculture projects in addition to diagnose and treat the poultry problems.
- b2- Analyze the problems and their causes to reach the appropriate solution for them on scientific bases.
- b3-Compare the effects of viruses on different systems and tissues to reach differential diagnosis, control and epidemiology of poultry diseases.
- b4- Demonstrate good sampling and minimize technical errors and apply virological techniques to achieve a definite diagnosis in poultry farms.
- b5- Analyze the hygienic problems in the poultry farms to provide suitable control measures.

C- Professional and practical skill

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

- c1- Evaluate the immune response by using recent specific and sensitive assays.
- c2-Carry out suitable measures for safety and infection control.



- c3-Perform recent virological techniques for diagnosis of different poultry viral diseases.
- c4-Use the data to reach sound conclusions and recommendations as well as criticize and evaluate other works scientifically
- c5- Design a therapy program, preventive and control agenda for poultry farms.

d- General and transferable skills

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

- d1- Acquire personal characteristics communication and computer skills.
- d2- Have creative thinking skills through analyzing of problems.
- d3- Give appropriate decision under contradictory and stressed conditions.
- d4- Have the motivation to work independently and in team work.
- d5-Continuous self- learning skills

4-Topics and contents

Course	Topic	No. of hours	Lectures	Practical
(Lec. 2 h./week, Pract.1h./week)	Structures and properties of poultry viruses.	36	18	18
	- Poultry viruses epidemiology -Viral diseases affecting poultry	36	18	18
	- Immunity against poultry virus infection - Poultry viruses immunosuppression - Laboratory diagnosis of poultry viruses	36	18	18
	Molecular virology in poultry field	36	18	18
	Total	144	72	72

5-Teaching and learning methods

- 5.1- Lectures (brain storm, discussion) using board, data shows.
- 5.2-Self learning by preparing essays and presentations (internet researches and faculty library)
- 5.3- Practical (application of laboratory diagnosis and data show).

7-Student assessment

7.1. Assessments methods:

Method	Matrix alignment of the measured ILOs/ Assessments methods			
	K&U	I.S	P&P.S	G.S
Final Exam	a1-a2-a3-a4-a6	b3-b5	c1-c4-c5	d2-d3-d5
Practical Exam	a5	b1-b2-b3-b4-b5	c3-c4-c5	d1-d4-d5
Oral Exam	a1-a2-a3-a4-a5-a6	b1-b2-b3-b4-b5	c1-c2-c3-c4-c5	d2-d3-d5

7.2. Assessment schedules/semester:

Method	Week(s)
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Practical exam	managed by the faculty
written exam	managed by the department
Oral Exam	managed by the department

7.3. Weight of assessments/semester

Assessment	Weight of assessment
Written exam	50%
Practical exam	25%
student activities	-----
Oral exam	25%
total	100%

8- List of references

8.1. Notes and books

-Bases in veterinary virology (staff members of virology department).

8.2. Essential books:

- Poultry Diseases, 6th Edition,(2007) Mark Pattison Paul McMullin Janet Bradbury Dennis Alexander

- Sharma,S.N. (2009): Veterinary Virology volume 4.

8.3. Recommended texts

- David E. Swayne Laboratory (2017), Director Diseases of Poultry, 13th Edition

D. E. White, Frank J. Fenner (2007): Virology Principles and Applications

-D. E. White, Frank J. Fenner (2004): Medical Virology, Fourth Edition

-Arie J. Zuckerman , Jangu E. Banatvala , J. R. Pattison (2007): Principles and Practice of Clinical Virology, 4th Edition

-Alan J. Cann (2005): Principles of Molecular Virology (Standard Edition), Fourth Edition

Journals:

-http://www.thepoultrysite.com/publications/6/Diseases_Of_Poultry/

-www.Sciencedirect.com

-www.OIE.int.com

-www.pubmed.gov

-www.asmnews@asmusa.org

Course Coordinators

Head of Department

Dr. Ahmed Saad Hussein

Prof. Dr./ Sabry Mohammed Tamam



Matrix of Intended learning outcomes of course (ILOs)

	Topic	weeks	ILOs			
			K and U (a)	I.S (b)	P. P.S. (c)	G.T.S (d)
1-	Structures and properties of poultry viruses.	1 st -9 th	3,4	2	1,5	1,2,3,4,5
2-	- Poultry viruses epidemiology -Viral diseases affecting poultry	10 th -18 th	1,2,3,4,6	1,3,5	2,3,4,5	1,2,3,4,5
3-	- Immunity against poultry virus infection - Poultry viruses immunosuppression - Laboratory diagnosis of poultry viruses	19 th -27 th	3,4,5	1,2,3,4	1,2,3,5	1,2,3,4,5
4-	Molecular virology in poultry field	28 th -36 th	3,4,5	3,4	1,2,3,4	1,2,3,4,5



Course specification (Virology 2017-2018)

1-Basic information	
Course Code:	Ph-94
Course title :	Fish Virology
Program title:	Ph degree in Veterinary Medical Sciences (Virology).
Contact hours/ week	Lecture: 2hrs/week Practical: 1hrs/week
Approval Date	2017-2018

2-Professional information

Overall aims of course:

Providing the post graduate students the ability to mention the basics and concepts of the virology science knowledge and correlate these knowledge for solving field problems affecting fish. Also, enable them to acquire an experience in modern diagnostic tests and vaccinate the fish infectious diseases.

3- Intended learning outcomes of course (ILOs)

a- Knowledge and understanding:

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

- a1-Identify the general and specific epidemiological patterns of fish viral diseases and the most effective immunization protocols.
- a2- Mention the methods of symptomatic and clinical laboratory diagnosis by using advanced techniques for different viral diseases affecting fish.
- a3-Explain the mechanisms of fish virus pathogenesis and the outcomes of infections, including chronic viral infections.
- a4-Describe the nature of fish viruses and basic criteria used in the classification / taxonomy of them.
- a5-Familiarize advanced skills and laboratory techniques, including the purification of isolated microbial pathogens and analyses of their proteins and nucleic acids for downstream applications such as gene cloning and sequencing studies
- a6-Enumerate different types of fish virus vaccines.

b-Intellectual skills

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

- b1- Operate the aquaculture projects in addition to diagnose and treat the aquatic animal problems
- b2- Analyze the problems and their causes to reach the appropriate solution for them on scientific bases.
- b3-Compare the effects of viruses on different systems and tissues to reach differential diagnosis, control and epidemiology of fish diseases.
- b4- Demonstrate good sampling and minimize technical errors and apply virological techniques to achieve a definite diagnosis in fish farms.
- b5- Analyze the hygienic problems in the fish farms to provide suitable control measures

C- Professional and practical skill

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

- c1- Evaluate the immune response by using recent specific and sensitive assays.
- c2-Carry out suitable measures for safety and infection control.



- c3-Perform recent virological techniques for diagnosis of different fish viral diseases.
- c4-Use the data to reach sound conclusions and recommendations as well as criticize and evaluate other works scientifically
- c5- Design a therapy program, preventive and control agenda for fish farms.

d- General and transferable skills

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

- d1- Acquire personal characteristics communication and computer skills.
- d2- Have creative thinking skills through analyzing of problems.
- d3- Give appropriate decision under contradictory and stressed conditions.
- d4- Have the motivation to work independently and in team work.
- d5-Continuous self- learning skills

4-Topics and contents

Course	Topic	No. of hours	Lectures	Practical
(Lec. 2 h./week, Pract.1h./week)	Structures and properties of fish viruses.	36	18	9
	-Fish viruses epidemiology -Viral diseases affecting fish	36	18	9
	- Immunity against fish virus infection - Fish viruses immunosuppression - Laboratory diagnosis of fish viruses	36	18	9
	Molecular virology in fish field	36	18	9
	Total	108	72	36

5-Teaching and learning methods

- 5.1- Lectures (brain storm, discussion) using board, data shows.
- 5.2-Self learning by preparing essays and presentations (internet researches and faculty library)
- 5.3- Practical (application of laboratory diagnosis and data show).

7-Student assessment

7.1. Assessments methods:

Method	Matrix alignment of the measured ILOs/ Assessments methods			
	K&U	I.S	P&P.S	G.S
Final Exam	a1-a2-a3-a4-a6	b3-b5	c1-c4-c5	d2-d3-d5
Practical Exam	a5	b1-b2-b3-b4-b5	c3-c4-c5	d1-d4-d5
Oral Exam	a1-a2-a3-a4-a5-a6	b1-b2-b3-b4-b5	c1-c2-c3-c4-c5	d2-d3-d5

7.2. Assessment schedules/semester:

Method	Week(s)
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Practical exam	managed by the faculty
written exam	managed by the department
Oral Exam	managed by the department

7.3. Weight of assessments/semester

Assessment	Weight of assessment
Written exam	50%
Practical exam	25%
student activities	-----
Oral exam	25%
total	100%

8- List of references

8.1. Notes and books

-Bases in veterinary virology (staff members of virology department).

8.2. Essential books:

-Fish Diseases and Disorders 2nd Edition by Patrick T. K. Woo (Editor), David W. Bruno (Editor)

- Sharma,S.N. (2009): Veterinary Virology volume 4.

8.3. Recommended texts

-Aquaculture Virology 1st Edition (2016), <https://www.elsevier.com/books/aquaculture-virology/kibenge/978-0-12-801573-5>

D. E. White, Frank J. Fenner (2007): Virology Principles and Applications

-D. E. White, Frank J. Fenner (2004): Medical Virology, Fourth Edition

-Arie J. Zuckerman , Jangu E. Banatvala , J. R. Pattison (2007): Principles and Practice of Clinical Virology, 4th Edition

-Alan J. Cann (2005): Principles of Molecular Virology (Standard Edition), Fourth Edition

Journals:

-<http://www.els.net/WileyCDA/ElsArticle/refId-a0020713.html>

-www.Sciencedirect.com

-www.OIE.int.com

-www.pubmed.gov

-www.asmnews@asmusa.org

Course Coordinators

Head of Department

Dr. Ahmed Saad Hussein

Prof. Dr./ Sabry Mohammed Tamam



Matrix of Intended learning outcomes of course (ILOs)

	Topic	weeks	ILOs			
			K and U (a)	I.S (b)	P. P.S. (c)	G.T.S (d)
1-	Structures and properties of fish viruses.	1 st -9 th	3,4	2	1,5	1,2,3,4,5
2-	-Fish viruses epidemiology -Viral diseases affecting fish	10 th -18 th	1,2,3,4,6	1,3,5	2,3,4,5	1,2,3,4,5
3-	- Immunity against fish virus infection - Fish viruses immunosuppression - Laboratory diagnosis of fish viruses	19 th -27 th	3,4,5	1,2,3,4	1,2,3,5	1,2,3,4,5
4-	Molecular virology in fish field	28 th -36 th	3,4,5	3,4	1,2,3,4	1,2,3,4,5