Beni-Suef University
Faculty of Veterinary Medicine
Department of Clinical pathology

Program Specification for Ph Degree
2017-2018

A-Basic information:
1- Course title: *PhD VSC.*   **Specialty:- Clinical pathology**
2- **Program type:** *Single*
3- **Department offering program:**
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:

1- Enable graduates to achieve competency in modern laboratory technology.
2- Develop the ability of graduate to engage critically with scientific literature and to critically review and present their own research data.
3- Describe the role of clinical pathology in diseases diagnosis.
4- Write the dissertation, scientific papers and apply for scientific projects.

2- Intended learning outcomes of course (ILOs):

a- Knowledge and understanding:
By the end of this PhD program the postgraduate should be able to:
al- Gain the advanced concepts in veterinary laboratory diagnostic procedures to identify pathologic states that develop in veterinary field.
a2- Recognize up to date the veterinary clinical pathology techniques .
a3- Realize advanced veterinary clinical pathology research principles and ethics.
a4- Sustain quality control in clinical laboratory practice.

b- Intellectual capacity:
By the end of this PhD program the postgraduate should be able to:

b1- Analyze the laboratory tests results to evaluate the function of body systems.

b2- Correlate the obtained history with the laboratory assays results to solve specialized veterinary problems.

b3-Asses the risk in veterinary clinical laboratory assays .

b4- Make a selection of diagnostic procedures to identify the pathological problems.

b5- Edit scientific papers related to veterinary clinical pathology with high impact factors.

b6- Discuss efficiently the obtained research results .

c- Professional and practical skills:

By the end of this PhD program the postgraduate should be able to:

c1-Write and asses the veterinary laboratory reports.

c2- Evaluate and improve the required and the available laboratory equipments and reagents in veterinary research projects.

c3- Perform the advanced technology applied in veterinary laboratory research practice.

d- General and transferable skills:

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

dl- Communicate effectively and utilize the advanced laboratory technology in the improvement of veterinary professional practice.

d2- Own self-evaluation and discipline with continuous learning.

d3- Utilize the resources to obtain knowledge and information.

d4- Work in research group and lead a team work in laboratory research practices.

Academic standers:

* The faculty mission, vision and strategic objectives are confirmed to the academic standard. The learning outcomes are inline with the department and the faculty mission.

* Postgraduate ARS (March 2009) 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**: 48 weeks.

b-**Program structure: 3-5 preliminary courses**

☒ **Hours/ week:**

| Theoretical | 5-8 | Practical | 6-8 | Total | 11-16 |

Preliminary courses

Code	Course title	Hours /week		Academic year	Teaching duration
		theoritical	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 prevent the applicant from entering the exams if his attendance in 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 present a seminar within 2years after registration about his research and specialization subject attended by a committee of professors and assistant professors (3 in number).

-The following polices should be met:

> -pass preliminary curriculum successfully.
> -acceptance of the seminar presented by the applicant.

Qualification grades:

Excellent	≥ 90
Very good	≥80
Good	≥70
Pass	≥60
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.

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

7-Graduate student assessment

A: Assessment Tools

According to the Faculty of Veterinary Medicine, Beni-Suef University Bylaws for Post Graduates, 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

Assessment methods for each course	practical exam	Oral exam	Written exam
Time of Assessment	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:
Ph.D. students should prepare a thesis in clinical pathology, the department and the ethical committees must approve the protocol of the research. The thesis includes a review part and 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

Assessment methods	Matrix alignment of the measured ILOs			
	K&U (a)	I.S (b)	P&P. S (c)	G&T. S (d)
Written exam	a1,a2, a3,a4	b1, b2, b3,b4, b5,b6	c1	
Practical exam		b1, b2, b3,b4, b5,b6	c1,c2,c3	d1,d2, d3, d4
Oral exam	a1,a3	b1,b3,b5		d1

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	

Course coordinator　　　　　　　　　　　　**Head of the Department**

Dr./ Walaa Mohamed Sayed　　　　　　　　　　Dr./ Hamdy Hemly Kamel

PhD Program Specification Matrix (Program Courses with ILOS)

Program ILOs		courses
Knowledge and understanding	**a1**	Ph-76,77,79 and thesis
	a2	Ph73, 74,75,76,77,78 and thesis
	a3	Ph73, 74,75,76,77,78 and thesis
	a4	Ph-80 and thesis
Intellectual skills	**b1**	Ph-76,77,79,80,81 and thesis
	b2	Ph73, 74,75,76,77,78 and thesis
	b3	Ph-80, 81 and thesis
	b4	Ph73, 74,75,76,77,78 and thesis
	b5	Ph76,77,78 and thesis
	b6	Ph73, 74,75,76,77,78 and thesis
Professional and practical skills	**c1**	Ph73, 74,75,76,77,78 and thesis
	c2	Ph73, 74,75 and thesis
	c3	Ph73, 74,75,76,77,78 and thesis
General and transferable skills	**d1**	Ph73, 74,75,76,77,78 and thesis
	d2	Ph73, 74,75,76,77,78 and thesis
	d3	Ph73, ,76,77,78 and thesis
	d4	Ph73, ,77,78 and thesis

PhD Program Specification Matrix (Program ILOS with Academic standers ARS)

Academic standers / Program ILOs		Knowledge and understanding						Intellectual skills									Professional and practical skills						General and transferable skills			
		a1	a2	a3	a4	a5	a6	b1	b2	b3	b4	b5	b6	b7	b8	b9	c1	c2	c3	c4	c5	c6	d1	d2	d3	d4
Knowledge and understanding	a1	X																								
	a2			x																						
	a3			x																						
	a4				x																					
Intellectual skills	b1							x																		
	b2								x																	
	b3										x															
	b4													x												
	b5											x														
	b6															x										
Professional and practical skills	c1																	x								
	c2																		x							
	c3																			x						
General and transferable skills	d1																						x			
	d2																							x		
	d3																								x	
	d4																									x
	d5																									

Program aims – ILOS Matrix for the PhD program

Program ILOS		1-Enable graduates to achieve competency in modern laboratory technology	2-Develop the ability of graduate to engage critically with scientific literature and to critically review and present their own research data	3- Describe the role of clinical pathology in diseases diagnosis	4- Write the dissertation, scientific papers and apply for scientific projects
Knowledge and understanding	a.1-Gain the advanced concepts in veterinary laboratory diagnostic procedures to identify pathologic states that develop in veterinary field.	√		√	
	a.2- Recognize up to date the veterinary clinical patholo techniques .	√			
	a.3-Realize advanced veterinary clinical pathology research principles and ethics.	√		√	
	a.4- Sustain quality control in clinical laboratory practice.	√			
Intellectual skills	b1- Analyze the laboratory tests results to evaluate the function of body systems.	√	√		√
	b2- Correlate the obtained history with the laboratory assays results to solve specialized veterinary problems.		√		√
	b3-Asses the risk in veterinary clinical laboratory assays .		√		√
	b4- Make a selection of diagnostic procedures to identi the pathological problems.		√		√
	b5- Edit scientific papers related to veterinary clinical pathology with high impact factors.		√		√
	b6- Discuss efficiently the obtained research results .		√		√
Practical and professiona l skills	C1- Write and asses the veterinary laboratory reports		√		√
	c2- Evaluate and improve the required and the available laboratory equipments and reagents in veterinary research projects.				√
	c3- Perform the advanced technology applied in veterinary laboratory research practice.		√		

Program ILOS		Program aims			
		1-Enable graduates to achieve competency in modern laboratory technology	2-Develop the ability of graduate to engage critically with scientific literature and to critically review and present their own research data	3- Describe the role of clinical pathology in diseases diagnosis	4- Write the dissertation, scientific papers and apply for scientific projects
General and transferable skills	d1- Communicate effectively and utilize the advanced laboratory technology in the improvement of veterinary professional practice.		√		√
	d2 Own self-evaluation and discipline with continuous learning.				√
	d3- Utilize the resources to obtain knowledge and information.				√
	d4- Work in research group and lead a team work in laboratory research practices.				√

Course specification of postgraduate

1-Basic information

Course Code:	Ph-73
Course title :	Clinical pathology of farm animals
Program title:	Doctoral degree
Contact hours/ week	Lecture: 2h/ week practical: 2h/week Total: 4 hr/ week
Approval Date	

2-Professional information

Overall aims of course:

By the end of this course the student should be able to use the laboratory assays in conjunction with other diagnostic methods to identify pathologic states and rule out a possible cause of the farm animal's illness.

This course aims to:

1- Familiarize with different laboratory operations.

2-Acquire skills for advanced laboratory technology and test procedures used in diagnosis of farm animal's diseases.

3- Selecting appropriate diagnostic laboratory tests for estimation of different farm animals problems.

4- Utilizing new scientific knowledge to continuously update and improve practice.

5- Maintaining learning abilities necessary for continuous veterinary medical education.

3- Intended learning outcomes of course (ILOs)

a- Knowledge and understanding:

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

a.1. Recognize the laboratory data, diseases and case management decisions.

a.2. Discuss the different laboratory data of farm animals.

a.3. Summarize the common causes of dysfunction of each of the body's organ systems.

a.4. Choose the methodology appropriate to a clinical problem.

a.5. Differentiate between diagnostic laboratory analytical techniques for diagnosis and monitoring of pathologic states that develop in farm animals .

b-Intellectual skills

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

b.1. Predict pathophysiologic causes that should be considered when interpreting results of clinical laboratory assays.

b.2. Take decisions regarding differential diagnosis between diseases of farm animals.

b.3. Assemble the pathologic and non-pathologic (physiologic, procedural) processes that result in abnormal laboratory data.

b.4. Integrate different research designs.

b.5. Integrate different methodology and how to assess their performance.

C- Professional and practical skills

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

Course specification of postgraduate

c.1. Implement the safety procedures and quality control in clinical laboratories.
c.2. Control the using of chemical kits and reagents safely.
c.3. Write and evaluate a clinical laboratory report.
c.4. Manage different laboratory procedures for evaluation of different pathologic conditions. in farm animals

d- General and transferable skills

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

d.1. Use the computer and internet to gather scientific information.
d.2. Use data analysis and communication skills.
d.3. Work coherently and successfully as a part of a team and team's leadership.
d.4. Be reliable and responsible in fulfilling obligations.

4-Topics and contents

Course	Topic	No. of hours	Lectures	Practical
(Lec. 2 h./week, Pract 2 h./week)	Biology of erythropoiesis	12	6	6
	Red cell enzymopathies and hemoglobin formation	12	6	6
	Anemias of chronic diseases	12	6	6
	Immune and non-immune anemia	8	4	4
	Leucogram and its abnormalities	12	6	6
	Disorders of platelets	12	6	6
	Advances in Enzymology	12	6	6
	Hepatobiliary diseases	12	6	6
	Pancreatic diseases	12	6	6
	Metabolic disorders in farm animals	12	6	6
	Renal diseases and failure in farm animals	8	4	4
	Endocrinopathies in farm animals	12	6	6
	Blood analytes: alteration by diseases	8	4	4
	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 (computer researches and library)

5.3- Practical (models, samples and data show).

7-Student assessment

7.1. Assessments methods:

Course specification of postgraduate

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	b1- b2- b3-b4	c3-c4	
Practical Exam	a1-a4-a5	b1- b2- b3 -b5	c1- c2- c3-c4	
Oral Exam	a1- a2- a3	b1- b2		d1-d2-d3-d4

7.2. Assessment schedule

Method	Week(s)
Writing exam	During the 45th week- 48th week
Practical exam	During the 45th week- 48th week
Oral exam	During the 45th week- 48th week

7.3. Weight of assessments

Assessment	Weight of assessment
Writing exam.	50%
Practical exam.	25%
Oral exam.	25%
Total	100%

8- List of references

8.1. Department Notes

8.2. Essential books:
- Veterinary Hematology (By Felman, Zinlkl and Jain, Publisher: Lippicott Williams and Wilkins Press, 2000).
- Clinical Biochemistry of Demostic Animals (By Jerry Kaneko, Harvarry and Bruss 5th Edition 1997 Academic press).
- Veterinary Laboratory Medicine –Clinical Pathology, Duncan, J.R et al., 2nd edition, Ames IO:- Iowa state university press, 1994.
- Veterinary Clinical Pathology (Coles 2000).

8.3. Recommended texts

-Basic concepts in biochemistry, a student survival guide, Second Edition HIRAM F. GILBERT, Ph.D. Houston, Texas.
- Introduction to clinical biochemistry, interpreting blood results, Dr. Graham Basten.
- Veterinary laboratory medicine, clinical biochemistry and hematology, 2nd edition. Morag G. Kerr.

Journals:

-International Journal of Molecular diagnostic and laboratory medicine htt:// int. clichem.
-International Journal of veterinary medicine.

Websites:

Course specification of postgraduate

http://www.sciencedirect.com
https://scholar.google.com
https://openlibrary.org/publishers/a.welly_interscience

Course Coordinator   **Head of Department**

Dr./ Walaa Mohamed Sayed   Dr./ Hamdy Hemly Kamel

Course specification

	Topics	week	Intended learning outcomes of course (ILOs)			
			K and U (a)	I.S (b)	P. P.S. (c)	G.T.S (d)
1	Biology of erythropoiesis	1st-3rd w	1, 2 , 3, 4,5	1, 2 , 3, 4,5	1, 2 , 3, 4	1, 2 , 3, 4
2	Red cell enzymopathies and hemoglobin formation	4th -6th w	1, 2 , 3, 4,5	1, 2 , 3, 4,5	1, 2 , 3, 4	1, 2 , 3, 4
3	Anemias of chronic diseases	7th –9th w	1, 2 , 3, 4,5	1, 2 , 3, 4,5	1, 2 , 3, 4	1, 2 , 3, 4
4	Immune and non-immune anemia	10th -11th w	1, 2 , 3, 4,5	1, 2 , 3, 4,5	1, 2 , 3, 4	1, 2 , 3, 4
5	Leucogram and its abnormalities	12th - 14th w	1, 2 , 3, 4,5	1, 2 , 3, 4,5	1, 2 , 3, 4	1, 2 , 3, 4
6	Disorders of platelets	15th – 17th w	1, 2 , 3, 4,5	1, 2 , 3, 4,5	1, 2 , 3, 4	1, 2 , 3, 4
7	Advances in Enzymology	18th- 20th w	1, 2 , 3, 4,5	1, 2 , 3, 4,5	1, 2 , 3, 4	1, 2 , 3, 4
8	Hepatobiliary diseases	21th - 23rd w	1, 2 , 3, 4,5	1, 2 , 3, 4,5	1, 2 , 3, 4	1, 2 , 3, 4
9	Pancreatic diseases	24th – 26th w	1, 2 , 3, 4,5	1, 2 , 3, 4,5	1, 2 , 3, 4	1, 2 , 3, 4
10	Metabolic disorders in farm animals	27th- 29th w	1, 2 , 3, 4,5	1, 2 , 3, 4,5	1, 2 , 3, 4	1, 2 , 3, 4
11	Renal diseases and failure in farm animals	30th – 31w	1, 2 , 3, 4,5	1, 2 , 3, 4,5	1, 2 , 3, 4	1, 2 , 3, 4
12	Endocrinopathies in farm animals	32nd – 34th w	1, 2 , 3, 4,5	1, 2 , 3, 4,5	1, 2 , 3, 4	1, 2 , 3, 4
13	Blood analytes: alteration by diseases	35th-36th w	1, 2 , 3, 4,5	1, 2 , 3, 4,5	1, 2 , 3, 4	1, 2 , 3, 4

Beni-Suef University
Faculty of Veterinary Medicine

Course specification of postgraduate

1-Basic information

Course Code:	Ph-74
Course title :	Avian Clinical Pathology
Program title:	Doctoral degree
Contact hours/ week	Lecture: 1h/ week practical: 2h/week Total: 3 hr/ week
Approval Date	

2-Professional information

Overall aims of the course:

This course aims to:

1- Familiarize with different laboratory operations in avian.

2-Acquire skills for advanced laboratory technology and test procedures used in diagnosis of avian diseases.

3- Selecting appropriate diagnostic laboratory tests for estimation of different avian problems.

4- Utilizing new scientific knowledge to continuously update and improve practice.

3- Intended learning outcomes of course (ILOs)

a- Knowledge and understanding:

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

a.1. Describe appropriate parameters for diagnosis, prognosis and monitoring of common poultry diseases.

a.2. Understanding the function and clinicopathological changes in organs caused by different diseases in avian species

a.3. Illustrate the different laboratory data of avian species.

a.4. Discuss the mechanism by which the abnormal parameters arise.

a.5. Choose the methodology appropriate to a clinical problem in avian field.

b-Intellectual skills

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

b.1. Predict pathophysiologic conditions that should be considered when interpreting results of abnormal clinical laboratory assays.

b.2. Take decisions regarding differential diagnosis between diseases of avian species.

b.3. Differentiate between pathologic and non-pathologic (physiologic, procedural) processes that result in abnormal laboratory data.

b.4. Illustrate recent advances in laboratory technology and clinical practice.

C- Professional and practical skills

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

c.1. Apply carefully safety and infection control measures during practice.

c.2. Consider the cost effective manner when follow up a given problem or laboratory abnormality.

c.3. Operate the clinical laboratory assays that are used to detect, define, or evaluate pathologic states in avian species.

d- General and transferable skills

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

Course specification of postgraduate

d.1. Demonstrate problem solving.
d.2. Utilize group working.
d.3. Use the computer and internet to gather scientific information.
d.4. Use data analysis and communication skills.

4-Topics and contents

Course	Topic	No. of hours	Lectures	Practical
(Lec. 1 h/week, Pract 2 h/week)	Erythrocytosis in avian species	9	3	6
	Anemia disorders in avian species	9	3	6
	Laboratory diagnosis of anemias	9	3	6
	Leucopenia of avian species	6	2	4
	Leukocytosis and leukemia of avian species	9	3	6
	Liver diseases in avian species	9	3	6
	Kidney diseases in avian species	9	3	6
	Electrolytes disorders in avian species	9	3	6
	Cholesterol disorders in avian species	9	3	6
	Metabolic disorders in avian species	9	3	6
	Exocrine pancreatic diseases in avian species	12	4	8
	Insulin and glucose disorders in avian species	9	3	6
	Total	108	36	72

5-Teaching and learning methods

5.1- Lectures using board and data show, brain storming discussions.

5.2- Self learning by preparing essays and presentations (computer researches and library).

5.3- Practical (models, samples 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	c3	
Practical Exam.	a3- a5	b1- b2-b4	c1- c2- c3	
Oral Exam.	a1- a2- a4	b1- b3		d1-d2-d3-d4

7.2. Assessment schedule

Course specification of postgraduate

Method	Week(s)
Writing exam.	During the 45th week- 48th week
Practical exam.	During the 45th week- 48th week
Oral exam.	During the 45th week- 48th week

7.3. Weight of assessments

Assessment	Weight of assessment
Writing exam.	50%
Practical exam.	25%
Oral exam.	25%
Total	100%

8- List of references

8.1. Department Notes

8.2. Essential books:
- Veterinary Hematology (By Felman, Zinlkl and Jain, Publisher: Lippicott Williams and Wilkins press, 2000).
- Veterinary hematology and clinical chemistry / edited by Mary Anna Thrall [et al.]. – 2nd ed.
- Veterinary Laboratory Medicine –Clinical Pathology, Duncan, J.R et al., 2nd edition, Ames IO:- Iowa state university press, 1994.
- Veterinary clinical pathology (Coles 2000).

8.3. Recommended texts

-Basic concepts in biochemistry, a student survival guide,Second Edition HIRAM F. GILBERT, Ph.D. Houston, Texas.
- Introduction to clinical biochemistry, interpreting blood results, Dr. Graham Basten.
- Veterinary laboratory medicine, clinical biochemistry and hematology, 2nd edition. Morag G. Kerr.

Journals:

-International Journal of Molecular diagnostic and laboratory and medicine htt:// int. clichem.
-International Journal of veterinary medicine.

Websites:

http://www.sciencedirect.com

https://scholar.google.com

https://openlibrary.org/publishers/a.welly_interscience

Course Coordinator

Dr./ Walaa Mohamed Sayed

Head of Department

Dr./ Hamdy Hemly Kamel

Course specification

	Topics	week	Intended learning outcomes of course (ILOs)			
			K and U (a)	I.S (b)	P. P.S. (c)	G.T.S (d)
1	Erythrocytosis in avian species	1st-3rd w	3,4	1, 2, 3, 4	3	1,2,3,4
2	Anemia disorders in avian species	4th -6th w	2,3,4	1, 2, 3, 4	1, 2, 3	1,2,3,4
3	Laboratory diagnosis of anemias	7th –9th w	3,5	1, 2, 3, 4	1, 2, 3	1,2,3,4
4	Leucopenia of avian species	10th -11th w	1,2,3,4,5	1, 2, 3, 4	1, 2, 3	1,2,3,4
5	Leukocytosis and leukemia of avian species	12th - 14th w	1,2,3,4,5	1, 2, 3, 4	1, 2, 3	1,2,3,4
6	Liver diseases in avian species	15th – 17th w	1,2,3,4,5	1, 2, 3, 4	1, 2, 3	1,2,3,4
7	Kidney diseases in avian species	18th- 20th w	1,2,3,4,5	1, 2, 3, 4	1, 2, 3	1,2,3,4
8	Electrolytes disorders in avian species	21th - 23rd w	1,2,3,4,5	1, 2, 3, 4	1, 2, 3	1,2,3,4
9	Cholesterol disorders in avian species	24th – 26th w	1,2,3,4,5	1, 2, 3, 4	1, 2, 3	1,2,3,4
10	Metabolic disorders in avian species	27th- 29th w	1,2,3,4,5	1, 2, 3, 4	1, 2, 3	1,2,3,4
11	Exocrine pancreatic diseases in avian species	30th – 33th w	1,2,3,4,5	1, 2, 3, 4	1, 2, 3	1,2,3,4
12	Insulin and glucose disorders in avian species	34th – 36th w	1,2,3,4,5	1, 2, 3, 4	1, 2, 3	1,2,3,4

Beni-Suef University
Faculty of Veterinary Medicine

Course specification of postgraduate

1-Basic information

Course Code:	Ph-75
Course title :	Clinical pathology of laboratory animals
Program title:	Doctoral degree
Contact hours/ week	Lecture: 1h/ week practical: 2h/week Total: 3 hr/ week
Approval Date	

2-Professional information

Overall aims of course:

This course aims to:

1-Distinguish between different laboratory diagnostic techniques in laboratory animals.

2- Perform the advanced technology applied in veterinary laboratory research practice

3- Utilizing the new scientific knowledge to continuously update and improve practice.

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 up to date the clinical pathology in laboratory animals.

a.2. familiarize with diagnostic laboratory tests and techniques for diagnosis and monitoring of blood and biochemical disorders in laboratory animals.

a.3. Discuss briefly the laboratory data results.

a.4. Review the reason for each test and the significance of the obtained results.

b-Intellectual skills

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

b.1. Utilize recent advances in laboratory technology and clinical practice.

b.2. Correlate the obtained history with the laboratory assays results to solves specialized problems in laboratory animals.

b.3. Interpret the clinical and laboratory findings in order to reach a clinical diagnosis.

C- Professional and practical skills

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

c.1. Apply accurately safety and infection control measures during practice.

c.2. Consider the cost effective manner when follow up a given problem or laboratory abnormality.

c.3. Describe the clinical laboratory assays that are used to detect, define, or evaluate pathologies in laboratory animals animals.

c4.Write and assess the laboratory reports.

d- General and transferable skills

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

d.1. Demonstrate problem solving.

d.2. Use the computer and internet to gather scientific information.

d.3. Use data analysis and communication skills.

Course specification of postgraduate

4-Topics and contents

Course	Topic	No. of hours	Lectures	Practical
(Lecture 1 h./week, Practical 2 h/week)	Biology of erythropoiesis in laboratory animals	9	3	6
	Red cell enzymopathies and hemoglobin formation	9	3	6
	Anemias of chronic diseases in laboratory animals	9	3	6
	Immune and non-immune anemia in laboratory animals	6	2	4
	Leucogram and its abnormalities in laboratory animals	9	3	6
	Disorders of platelets in laboratory animals	12	4	8
	Advances in Enzymology in laboratory animals	9	3	6
	Hepatobiliary diseases in laboratory animals	9	3	6
	Pancreatic diseases in laboratory animals	9	3	6
	Metabolic disorders in laboratory animals	12	4	8
	Renal diseases and failure in laboratory animals	9	3	6
	Total	102	34	68

5-Teaching and learning methods

5.1- Lectures using board & data shows, brain storming discussions.

5.2- Self learning by preparing essays and presentations (computer researches and library).

5.3- Practical (models, samples 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- a3- a4	b2- b3	c3	
Practical Exam.	a2- a3, a4	b1- b2	c1- c2- c3-c4	
Oral Exam.	a3- a4	b2- b3		d1-d2-d3-d4

7.2. Assessment schedules

Method	Week(s)
Writing exam.	During the 45th week- 48th week
Practical exam.	During the 45th week- 48th week
Oral exam.	During the 45th week- 48th week

7.3. Weight of assessments

Course specification of postgraduate

Assessment	Weight of assessment
Writing exam.	50%
Practical exam.	25%
Oral exam.	25%
Total	100%

8- List of references

8.1. Department Notes

8.2. Essential books:
- Clinical Biochemistry of Demostic Animals (By Jerry Kaneko, Harvarry and Bruss 5th Edition 1997 Academic press).
- Veterinary Laboratory Medicine –Clinical Pathology, Duncan, J.R et al., 2nd edition, Ames IO:- Iowa State University Press, 1994.
- Veterinary Clinical Pathology (Coles 2000).

8.3. Recommended texts
-Handbook of laboratory animal science / edited by Jann Hau, Gerald L. Van Hoosier, Jr. 2nd ed.
- Introduction to clinical biochemistry, interpreting blood results, Dr. Graham Basten.
- Veterinary laboratory medicine, clinical biochemistry and hematology, 2nd edition. Morag G. Kerr.

Journals:
-International Journal of Molecular diagnostic and laboratory medicine htt:// int. clichem.
-International Journal of veterinary medicine.

Websites:
http://www.sciencedirect.com

https://scholar.google.com

https://openlibrary.org/publishers/a.welly_interscience

Course Coordinator	Head of Department
Dr./ Walaa Mohamed Sayed	Dr./ Hamdy Hemly Kamel

Beni Suef University
Faculty of Veterinary Medicine

Course specification

	Topics	week	Intended learning outcomes of course (ILOs)			
			K and U (a)	I.S (b)	P. P.S. (c)	G.T.S (d)
1	Biology of erythropoiesis in laboratory animals	1st-3rd w	1, 2 , 3, 4	1, 2, 3	1,2, 3, 4	1,2,3
2	Red cell enzymopathies and hemoglobin formation	4th -6th w	1, 2 , 3, 4	1, 2, 3	1,2, 3, 4	1, 2, 3
3	Anemias of chronic diseases in laboratory animals	7th –9th w	1, 2 , 3, 4	1, 2, 3	1,2, 3, 4	1, 2, 3
4	Immune and non-immune anemia in laboratory animals	10th -11th w	1, 2 , 3, 4	1, 2, 3	1,2, 3, 4	1, 2, 3
5	Leucogram and its abnormalities in laboratory animals	12th - 14th w	1, 2 , 3, 4	1, 2, 3	1,2, 3, 4	1, 2, 3
6	Disorders of platelets in laboratory animals	15th – 18th w	1, 2 , 3, 4	1, 2, 3	1,2, 3, 4	1, 2, 3
7	Advances in Enzymology in laboratory animals	19th- 21th w	1, 2 , 3, 4	1, 2, 3	1,2, 3, 4	1, 2, 3
8	Hepatobiliary diseases in laboratory animals	22th – 24th w	1, 2 , 3, 4	1, 2, 3	1,2, 3, 4	1, 2, 3
9	Pancreatic diseases in laboratory animals	25th – 28th w	1, 2 , 3, 4	1, 2, 3	1,2, 3, 4	1, 2, 3
10	Metabolic disorders in laboratory animals	29th- 31th w	1, 2 , 3, 4	1, 2, 3	1,2, 3, 4	1, 2, 3
11	Renal diseases and failure in laboratory animals	32th – 34th w	1, 2 , 3, 4	1, 2, 3	1,2, 3, 4	1, 2, 3

Beni-Suef University
Faculty of Veterinary Medicine

Course specification of postgraduate

1-Basic information	

Course Code:	Ph-76
Course title :	Organ function tests, acid-base balance, examination of body fluids and urinalysis
Program title:	Doctoral degree
Contact hours/ week	Lecture: 2h/ week practical: 2h/week Total: 4 hr/ week
Approval Date	

2-Professional information

Overall aims of course:

This course aims to:

1-Identifying up to date different laboratory diagnostic techniques used for diagnosis of body systems'dysfunction.

2-Interpretation of laboratory results for proper diagnosis and management of problems of body systems' dysfunction.

3- Differential laboratory diagnosis.

4- Utilizing the new scientific knowledge to continuously update and improve practice.

3- Intended learning outcomes of course (ILOs)

a- Knowledge and understanding:

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

a.1. Discuss the different laboratory data of different body systems.

a.2. Illustrate the mechanisms by which the abnormal parameters arise.

a.3. Discuss the common causes of dysfunction of the body organs/ systems.

a.4. Understand the scientific basis of different methodology and how to avoid variables that affect the method with the ability to choose the methodology appropriate to a clinical problem.

b-Intellectual skills

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

b.1. Interpret the laboratory results and its correlation with clinical history of the animal

b.2. Take decisions regarding differential diagnosis of diseases of body systems.

b.3. Evaluate the pathologic and non-pathologic processes that result in abnormal laboratory data.

b.4. Illustrate recent advances in laboratory technology and clinical practice.

C- Professional and practical skills

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

c.1.Perform adequately advanced techniques of the field of laboratory medicine

c.2. Analyze experimental and diagnostic results and critically evaluate their strength and validity

c.3. Describe the clinical laboratory assays that are used to detect, define, or evaluate pathologic states in body fluids.

c.5. Perform complete investigations of blood, serum and urine.

C.6. Prepare and present technical reports.

Course specification of postgraduate

d- General and transferable skills

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

d.1. Demonstrate problem solving.

d.2. Utilize group working.

d.3. Use the computer and internet to gather scientific information.

d.4. Use data analysis and communication skills.

4-Topics and contents

Course	Topic	No. of hours	Lectures	Practical
(Lec. 2 h./week, Pract 2 h./week)	Body fluids collections and analysis	16	8	8
	Enzymology	12	6	6
	Acid-base balance	16	8	8
	Hepatic diseases	12	6	6
	Renal diseases	12	6	6
	Metabolic disorders	16	8	8
	Gastrointestinal and pancreatic tests	16	8	8
	Endocrine function tests	16	8	8
	urinalysis	16	8	8
	Total	132	66	66

5-Teaching and learning methods

5.1- Lectures using board & data show, brain storming discussions.

5.2- Self learning by preparing essays and presentations (computer researches and library).

5.3- Practical (models, samples 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	b1- b2- b3-b4	c1- c2- c3-c4-c5	
Practical Exam.	a1- a2- a3- a4-a5-a6-a7	b1- b2- b3-b4	c1- c2- c3-c4-c5	
Oral Exam.	a1- a2- a3- a4-a5-a6-a7	b1- b2- b3-b4		d1-d2-d3-d4

7.2. Assessment schedules

Method	Week(s)
Writing exam.	During the 45th week- 48th week
Practical exam.	During the 45th week- 48th week

Course specification of postgraduate

Oral exam.	During the 45th week- 48th week

7.3. Weight of assessments

Assessment	Weight of assessment
Writing exam.	50%
Practical exam.	25%
Oral exam.	25%
Total	100%

8- List of references

8.1. Notes and books

8.2. Essential books:
- Veterinary Hematology (By Felman, Zinlkl and Jain, Publisher: Lippicott Williams and Wilkins press, 2000).
- Veterinary Laboratory Medicine –Clinical Pathology, Duncan, J.R et al., 2nd edition, Ames IO:- Iowa state university press, 1994.
- Veterinary clinical pathology (Coles 2000).

8.3. Recommended texts
-Basic concepts in biochemistry a student survival guide,Second Edition HIRAM F. GILBERT, Ph.D. Houston, Texas
- Introduction to clinical biochemistry, interpreting blood results, Dr. Graham Basten.
- Veterinary laboratory medicine, clinical biochemistry and hematology, 2nd edition. Morag G. Kerr.

Journals:
-International Journal of Molecular diagnostic and laboratory and medicine htt:// int. clichem.
-International Journal of veterinary medicine.

Websites:
http://www.sciencedirect.com

https://scholar.google.com

https://openlibrary.org/publishers/a.welly_interscience

Course Coordinator	**Head of Department**
Dr./ Walaa Mohamed Sayed	Dr./ Hamdy Hemly Kamel

Course specification

	Topics	week	Intended learning outcomes of course (ILOs)			
			K and U (a)	I.S (b)	P. P.S. (c)	G.T.S (d)
1	Hematology	1st-4th w	1, 5 , 7	1, 3, 4	1, 2, 3, 4, 5	1,2,3,4
2	Hemostasis	5th -7th w	1, 5 , 7	1, 3, 4	1, 2, 3, 4, 5	1,2,3,4
3	Advanced enzymology	8th –11th w	1, 2 , 3, 4	1, 2, 3, 4	1, 2, 3, 4, 5	1,2,3,4
4	Acid-base balance	12th -14th w	2 , 3, 4	1, 2 , 3, 4	1, 2, 3, 4, 5	1,2,3,4
5	Hepatic function tests	15th - 17th w	3, 4, 5, 6, 7	1, 2 , 3, 4	1, 2, 3, 4, 5	1,2,3,4
6	Renal function tests	18th- 21th w	1, 2 , 3, 4	1, 2 , 3, 4	1, 2, 3, 4, 5	1,2,3,4
7	Metabolic disorders	22th – 25th w	1,4,8	1, 2 , 3, 4	1, 2, 3, 4, 5	1,2,3,4
8	Gastrointestinal and pancreatic tests	26th – 29th w	3, 4, 5, 6, 7	1, 2 , 3, 4	1, 2, 3, 4, 5	1,2,3,4
9	Endocrine function tests	30th – 33th w	1, 2 , 3, 4	1, 2 , 3, 4	1, 2, 3, 4, 5	1,2,3,4

Course specification of postgraduate

1-Basic information

Course Code:	Ph-77
Course title :	Diagnosis of blood diseases and bone marrow examination
Program title:	Doctoral degree
Contact hours/ week	Lecture: 1h/ week practical: 2h/week Total: 3 hr/ week
Approval Date	

2-Professional information

Overall aims of course:

This course aims to:

1- Efficiently able to have advanced knowledge of the blood diseases that affect different animal species.

2- Use the knowledge gained from applied hematology to better understand the pathophysiology, clinical symptoms and the laboratory tests needed for diagnosis of blood disease

3- Understanding the basis for differential laboratory diagnosis of blood diseases.

4- Utilizing the new scientific knowledge to continuously update and improve practice.

3- Intended learning outcomes of course (ILOs)

a- Knowledge and understanding:

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

a.1. List the blood diseases affecting different animal species.

a.2. Describe information about various blood cell types and their abnormalities.

a.3. Identify the laboratory hematological tests needed for diagnosis of blood diseases.

a.4. Describe results of hematological tests that aid diagnosis of diseases.

a.5. Correlate the hematological data with the clinical basis of disease.

a.6. Recognize basic biomedical statistics and how to apply in the field of hematology.

b-Intellectual skills

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

b.1. Distinguish between different blood diseases.

b.2. Differentiate various types of anemia and their etiology.

b.3. Evaluate various types of polycythemia.

b.4. Interpret qualitative and quantitative changes in leukocytes.

b.5. Interpret various types of hematological tests and correlate it with clinical data.

C- Professional and practical skills

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

 c.1. Follow safety measures in dealing with laboratory instruments.

c.2. Practice sample collection and processing according to standard procedures.

c.3. Perform complete hematological investigations.

c.4. Recognize blood diseases on morphological bases of blood and bone marrow films' examination.

c.5. Apply different methods of staining blood and bone marrow smears.

d- General and transferable skills

Course specification of postgraduate

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

d.1. Use the computer and internet to gather scientific information.

d.2. Use data analysis and communication skills.

d.3. Work coherently and successfully as a part of a team and team's leadership.

d.4. Be reliable and responsible in fulfilling obligations.

4-Topics and contents

Course	Topic	No. of hours	Lectures	Practical
(Lec. 1 h./week, Pract 2 h./week)	Hematopoiesis	24	4	8
	Erythrokinetics	18	3	6
	Anemia	24	4	8
	Polycythemia	18	3	6
	Disorders of erythrocytes' morphology	18	3	6
	Leucocytic disorders	24	4	8
	Leukemias	24	4	8
	Hemostasis	18	3	6
	Immunohematology	18	3	6
	Laboratory procedures in hematology	18	3	6
	Total	102	34	68

5-Teaching and learning methods

5.1- Lectures using board & data show, brain storming discussions.

5.2- Self learning by preparing essays and presentations (computer researches and library).

5.3- Practical (models, samples 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	b1- b2- b3-b4-b5	c1- c2- c3-c4-c5	
Practical Exam.	a1- a2- a3- a4-a5-a6	b1- b2- b3-b4-b5	c1- c2- c3-c4-c5	
Oral Exam.	a1- a2- a3- a4-a5-a6	b1- b2- b3-b4-b5		d1-d2-d3-d4

7.2. Assessment schedules

Course specification of postgraduate

Method	Week(s)
Writing exam.	During the 45th week- 48th week
Practical exam.	During the 45th week- 48th week
Oral exam.	During the 45th week- 48th week

7.3. Weight of assessments

Assessment	Weight of assessment
Writing exam.	50%
Practical exam.	25%
Oral exam.	25%
Total	100%

8- List of references

8.1. Department Notes

8.2. Essential books:
- Veterinary Hematology (By Felman, Zinlkl and Jain, Publisher: Lippicott Williams and Wilkins press, 2000).
- Veterinary Laboratory Medicine –Clinical Pathology, Duncan, J.R et al., 2nd edition, Ames IO:- Iowa state university press, 1994.
- Veterinary clinical pathology (Coles 2000).

8.3. Recommended texts

Postgraduate haematology / edited by A. Victor Hoffbrand, [et al.] – 5th ed.

Journals:

-International Journal of Molecular diagnostic and laboratory and medicine htt:// int. clichem.

-International Journal of veterinary medicine.

Websites:

http://www.sciencedirect.com

https://scholar.google.com

https://openlibrary.org/publishers/a.welly_interscience

Course Coordinator	Head of Department
Dr./ Walaa Mohamed Sayed	Dr./ Hamdy Hemly Kamel

Beni Suef University
Faculty of Veterinary Medicine

Course specification

	Topics	week	Intended learning outcomes of course (ILOs)			
			K and U (a)	I.S (b)	P. P.S. (c)	G.T.S (d)
1	Haematopoiesis	1st-4th w	2 , 3, 4, 5, 6	1, 3, 4, 5	1, 2, 3, 4, 5	1,2,3,4
2	Erythrokinetics	5th -7th w	2 , 3, 4, 5, 6	1, 2, 3, 4	1, 2, 3, 4, 5	1,2,3,4
3	Anemias	8th −11th w	1, 2 , 3, 4, 5, 6	1, 2, 3, 4	1, 2, 3, 4, 5	1,2,3,4
4	Aplastic anemia	12th -14th w	1, 2 , 3, 4, 5, 6	1, 2, 3, 4	1, 2, 3, 4, 5	1,2,3,4
5	Other erythrocytes disorders	15th - 17th w	1, 2 , 3, 4, 5, 6	1, 2, 3, 4	1, 2, 3, 4, 5	1,2,3,4
6	Leucocytic disorders	18th- 21th w	1, 2 , 3, 4, 5, 6	1, 2, 3, 4	1, 2, 3, 4, 5	1,2,3,4
7	Leukemias	22th − 25th w	1, 2 , 3, 4, 5, 6	1, 2, 3, 4	1, 2, 3, 4, 5	1,2,3,4
8	Haemostasis	26th − 28th w	1, 2 , 3, 4, 5, 6	1, 2, 3, 4	1, 2, 3, 4, 5	1,2,3,4
9	Immunohematology	29th − 31th w	1, 2 , 3, 4, 5, 6	1, 2, 3, 4	1, 2, 3, 4, 5	1,2,3,4
10	Clinical laboratory haematology	32th-34th w	1, 2 , 3, 4, 5, 6	1, 2, 3, 4	1, 2, 3, 4, 5	1,2,3,4

Course specification of postgraduate

1-Basic information

Course Code:	Ph-78
Course title :	Immune system disorders
Program title:	Doctoral degree
Contact hours/ week	Lecture: 2h/ week practical: 2h/week Total: 4 hr/ week
Approval Date	

2-Professional information

Overall aims of the course:

This course aims to:

1-Understanding body defense mechanisms in combating microbial, autoimmune and immune-mediated diseases.

2- Understanding how disordered immunity, inflammation and regulatory mechanisms can contribute to animal diseases.

3- Applying knowledge gained through this course in understanding various types of immune diseases.

4- Maintaining research interest and abilities.

3- Intended learning outcomes of course (ILOs)

a- Knowledge and understanding:

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

a.1. Describe cells, immune receptors and other molecules that mediate inflammation and immune responses.

a.2. Explain how the immune system mediate host defense against different types of infections.

a.3. Recognize immune defects and predisposition to infection.

a.4. State different immunological laboratory tests used in clinical pathology.

a.5. Describe molecular and cellular interactions required to initiate, maintain and elicit an immune response to infection

a.6. Identify different laboratory techniques and instrumentation.

b-Intellectual skills

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

b.1. Predict pathophysiologic conditions that should be considered when results of clinical laboratory assays are abnormal.

b.2. Take decisions regarding differential diagnosis between immunological diseases.

b.3.Assemble the pathologic and non-pathologic processes that result in abnormal laboratory data.

b.4. Integrate different research designs.

b.5. Integrate different methodology and how to assess their performance.

C- Professional and practical skills

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

 c.1. Apply the safety procedures that should be available to clinical laboratory workers.

c.2. Operate guidelines to protect against injury when using chemicals and reagents to minimize

Course specification of postgraduate

the risk to health and safety.

c.3. Perform immunodiagnostic investigations.

c.4. Consider the cost effective manner when follow up a given problem or laboratory abnormality.

c.5. Illustrate the clinical laboratory assays that are used to detect, define, or evaluate pathologic states.

c.6. Write and evaluate clinical laboratory reports.

d- General and transferable skills

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

d.1. Use the computer and internet to gather scientific information.

d.2. Use data analysis and communication skills.

d.3. Work coherently and successfully as a part of a team and team's leadership.

d.4. Be reliable and responsible in fulfilling obligations.

4-Topics and contents

Course	Topic	No. of hours	Lectures	Practical
(Lec. 2 h./week, Pract 2 h./week)	The defense of the body	12	6	6
	Proinflammatory and antimicrobial mediators	12	6	6
	Neutrophils and phagocytosis	12	6	6
	Lymphocytes and regulation of its function	8	4	4
	Systemic responses to inflammation	12	6	6
	Organs of the immune system	12	6	6
	Regulation of adaptive immunity	12	6	6
	Autoimmunity: general principles	12	6	6
	Primary immunodeficiencies	12	6	6
	Secondary immunological defects	12	6	6
	Immunodiagnostic techniques	8	4	4
	Protein assays	12	6	6
	Complement assays	8	4	4
	Total	144	72	72

5-Teaching and learning methods

5.1- Lectures using board & data show, brain storming discussion.

5.2- Self learning by preparing essays and presentations (computer researches and library).

5.3- Practical (models, samples and data show).

7-Student assessment

7.1. Assessment methods:

Course specification of postgraduate

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	b1- b2- b3-b4-b5	c1- c2- c3-c4- c5-c6	
Practical Exam.	a1- a2- a3- a4-a5-a6	b1- b2- b3-b4-b5	c1- c2- c3-c4-c5-c6	
Oral Exam.	a1- a2- a3- a4-a5-a6	b1- b2- b3-b4-b5		d1-d2-d3-d4

7.2. Assessment schedules

Method	Week(s)
Writing exam.	During the 45th week- 48th week
Practical exam.	During the 45th week- 48th week
Oral exam.	During the 45th week- 48th week

7.3. Weight of assessments

Assessment	Weight of assessment
Writing exam.	50%
Practical exam.	25%
Oral exam.	25%
Total	100%

8- List of references

8.1. Department Notes

8.2. Essential books:
- Veterinary Hematology (By Felman, Zinlkl and Jain, Publisher: Lippicott Williams and Wilkins press, 2000).
- Veterinary clinical pathology (Coles 2000).
- Veterinary Immunology (by IAN R. TIZARD, 2013, 9th Edition)

8.3. Recommended texts
-Basic concepts in biochemistry a student survival guide,Second Edition HIRAM F. GILBERT, Ph.D. Houston, Texas
- Introduction to clinical biochemistry, interpreting blood results, Dr. Graham Basten.
- Veterinary laboratory medicine, clinical biochemistry and hematology, 2nd edition. Morag G. Kerr.

Journals:
-International Journal of Molecular diagnostic and laboratory and medicine htt:// int. clichem.
-International Journal of veterinary medicine.

Course specification of postgraduate

Websites:

http://www.sciencedirect.com

https://scholar.google.com

https://openlibrary.org/publishers/a.welly_interscience

Course Coordinator	**Head of Department**
Dr./ Walaa Mohamed Sayed	Dr./ Hamdy Hemly Kamel

Course specification

	Topics	week	Intended learning outcomes of course (ILOs)			
			K and U (a)	I.S (b)	P. P.S. (c)	G.T.S (d)
1	The defense of the body	1st-3rd w	1, 2	1, 2, 3	1, 3, 4, 5, 6	1,2,3,4
2	Proinflammatory and antimicrobial mediators	4th -6th w	1, 2, 4	1, 2, 3	1, 3, 4, 5, 6	1,2,3,4
3	Neutrophils and phagocytosis	7th –9th w	2, 4, 5	1, 2, 3	1, 3, 4, 5, 6	1,2,3,4
4	Lymphocytes and regulation of its function	10th -11th w	2, 4, 5	1, 2, 3	3, 5, 6	1,2,3,4
5	Systemic responses to inflammation	12th - 14th w	2, 4, 5	1, 2, 3, 4	1, 4, 5, 6	1,2,3,4
6	Organs of the immune system	15th – 17th w	1, 2, 4, 5	4, 5	2, 4, 5, 6	1,2,3,4
7	Regulation of adaptive immunity	18th- 20th w	1, 2, 4, 5	4, 5	5, 6	1,2,3,4
8	Autoimmunity: general principles	21th - 23rd w	2, 4, 5	1, 2, 3, 5	2, 4, 5, 6	1,2,3,4
9	Primary immunodeficiencies	24th – 26th w	3, 4	1, 2, 3, 5	2, 4, 5, 6	1,2,3,4
10	Secondary immunological defects	27th- 29th w	3, 4	1, 2, 3, 5	2, 4, 5,6	1,2,3,4
11	Immunodiagnostic techniques	30th – 31w	4, 6	1, 2, 3, 4, 5	2, 4, 5, 6	1,2,3,4
12	Protein assays	32nd – 34th w	2, 4, 6	1, 2, 3, 5	2, 4, 5, 6	1,2,3,4
13	Complement assays	35th-36th w	2, 4, 6	2, 5	4, 5, 6	1,2,3,4

Beni-Suef University
Faculty of Veterinary Medicine

Course specification of postgraduate

1-Basic information

Course Code:	Ph-79
Course title :	Laboratory equipments and techniques
Program title:	Doctoral degree
Contact hours/ week	Lecture: 1h/ week practical: 2h/week Total: 3 hr/ week
Approval Date	

2-Professional information

Overall aims of course:

This course aims to:

1- Evaluate whether a test is able to provide results with acceptable quality for clinical decision -making

2- Ensure that the laboratory test has an ongoing ability to detect pathological variation in a clinical useful manner.

3- Use quality improvement and quality planning as tools to implement and plan changes outside the laboratory to correct or prevent quality problems, respectively

4- Utilizing the new scientific knowledge to continuously update and improve practice.

3- Intended learning outcomes of course (ILOs)

a- Knowledge and understanding:

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

a.1. Recognize the laboratory data, diseases and case management decisions.

a.2. Differentiate between different laboratory analytical techniques.

a.3. Discuss the different laboratory data.

a.4. State the mechanism by which the abnormal parameters arise.

a.5. know the scientific basis of different methodology and how to avoid variables that
affect the method with ability to choose the methodology appropriate to a clinical problem.

b-Intellectual skills

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

b.1. Predict pathophysiologic conditions that should be considered when results of clinical laboratory assays are abnormal.

b.2. Take decisions regarding differential diagnosis between diseases.

b.3. Comprehend the potential risks and complications of diagnostic protocols, interfering factors and follow-up testing.

C- Professional and practical skills

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

c.1. Apply the safety measures that should be adopted when using clinical laboratory equipment.

c.2. Operate guidelines to protect against injury when using chemicals and reagents to minimize the risk to health and safety.

c.3. Perform complete hematological and clinical biochemistry investigations.

d- General and transferable skills

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

Course specification of postgraduate

d.1. Use the computer and internet to gather scientific information.
d.2. Use data analysis and communication skills.
d.3. Work coherently and successfully as a part of a team and team's leadership.
d.4. Be reliable and responsible in fulfilling obligations.

4-Topics and contents

Course	Topic	No. of hours	Lectures	Practical
(Lec. 1 h./week, Pract 2 h./week)	Equipment and Supplies, Specimens and Procedures	9	3	6
	Collection and transportation of specimens	9	3	6
	Testing Environments and Avoiding Errors	9	3	6
	Infection Prevention, Risk Management	6	2	4
	Testing Protocols	9	3	6
	Test Results	9	3	6
	Abnormal Test Results	9	3	6
	Administration of Drugs and Solutions, Management of Environment	9	3	6
	Laboratory Reports	9	3	6
	Diagnostic Test Validation	9	3	6
	Diagnostic immunological techniques	6	2	4
	Reference Intervals	6	2	4
	Analytical Quality Speci cations	9	3	6
	Total	108	36	72

5-Teaching and learning methods

5.1- Lectures using board and data show, brain storm, discussion.
5.2- Self learning by preparing essays and presentations (computer researches and library).
5.3- Practical (models, samples and data show).

7-Student assessment

7.1. Assessment methods:

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

7.2. Assessment schedules

Course specification of postgraduate

Method	Week(s)
Writing exam.	During the 45th week- 48th week
Practical exam.	During the 45th week- 48th week
Oral exam.	During the 45th week- 48th week

7.3. Weight of assessments

Assessment	Weight of assessment
Writing exam.	50%
Practical exam.	25%
Oral exam.	25%
Total	100%

8- List of references

8.1. Department Notes

8.2. Essential books:
- Veterinary Hematology (By Felman, Zinlkl and Jain, Publisher: Lippicott Williams and Wilkins press, 2000).
- Clinical Biochemistry of Demostic Animals (By Jerry Kaneko, Harvarry and Bruss 5th Edition 1997 Academic press).
- Veterinary Laboratory Medicine –Clinical Pathology, Duncan, J.R et al., 2nd edition, Ames IO:- Iowa state university press, 1994.

8.3. Recommended texts
-Basic concepts in biochemistry a student survival guide,Second Edition HIRAM F. GILBERT, Ph.D. Houston, Texas
- Introduction to clinical biochemistry, interpreting blood results, Dr. Graham Basten.
- Veterinary laboratory medicine, clinical biochemistry and hematology, 2nd edition. Morag G. Kerr.
-A-Z of hematology, Barbara J. Bain and Rajeev Gupta.)

Journals:
-International Journal of Molecular diagnostic and laboratory and medicine htt:// int. clichem.
-International Journal of veterinary medicine.

Websites:
http://www.sciencedirect.com
https://scholar.google.com
https://openlibrary.org/publishers/a.welly_interscience

      Course Coordinator   **Head of Department**

Course specification of postgraduate

Dr./ Walaa Mohamed Sayed   Dr./ Hamdy Hemly Kamel

Course specification

	Topics	week	Intended learning outcomes of course (ILOs)			
			K and U (a)	I.S (b)	P. P.S. (c)	G.T.S (d)
1	Equipment and Supplies, Specimens and Procedures	1st-2nd w	1, 2 , 3, 4,5	1, 2, 3	1, 2, 3	1,2,3,4
2	Collection and transportation of specimens	3rd -5th w	1, 2 , 3, 4,5	1, 2, 3	1, 2, 3	1,2,3,4
3	Testing Environments and Avoiding Errors	6th –8th w	1, 2 , 3, 4,5	1, 2, 3	1, 2, 3	1,2,3,4
4	Infection Prevention, Risk Management	9th -10th w	1, 2 , 3, 4,5	1, 2, 3	1, 2, 3	1,2,3,4
5	Testing Protocols	11th - 13th w	1, 2 , 3, 4,5	1, 2, 3	1, 2, 3	1,2,3,4
6	Test Results	14th – 16th w	1, 2 , 3, 4,5	1, 2, 3	1, 2, 3	1,2,3,4
7	Abnormal Test Results	17th- 19th w	1, 2 , 3, 4,5	1, 2, 3	1, 2, 3	1,2,3,4
8	Administration of drugs and solutions, Management of Environment	20th – 22nd w	1, 2 , 3, 4,5	1, 2, 3	1, 2, 3	1,2,3,4
9	Laboratory Reports	23rd – 25th w	1, 2 , 3, 4,5	1, 2, 3	1, 2, 3	1,2,3,4
10	Diagnostic Test Validation	26th- 28th w	1, 2 , 3, 4,5	1, 2, 3	1, 2, 3	1,2,3,4
11	Diagnostic immunological techniques	29th – 30rd w	1, 2 , 3, 4,5	1, 2, 3	1, 2, 3	1,2,3,4
12	Reference Intervals	31th – 32nd w	1, 2 , 3, 4,5	1, 2, 3	1, 2, 3	1,2,3,4
13	Analytical Quality Speci cations	33th-35th w	1, 2 , 3, 4,5	1, 2, 3	1, 2, 3	1,2,3,4

Beni-Suef University
Faculty of Veterinary Medicine

Course specification of postgraduate

1-Basic information	

Course Code:	Ph-80
Course title :	Quality procedures for laboratory analysis
Program title:	Doctoral degree
Contact hours/ week	Lecture: 1h/ week practical: 2 h/week Total: 3 hr/ week
Approval Date	

2-Professional information

Overall aims of course:

This course aims to:

1-Identify different laboratory diagnostic techniques.

2-Acquire skills for proper diagnosis and management of problems of animals in the field of clinical Pathology.

3- Understanding the basis for differential laboratory diagnosis.

4- Utilizing the new scientific knowledge to continuously update and improve practice.

5- Maintenance of research interest and abilities.

6- Maintenance of learning abilities necessary for continuous veterinary medical education.

3- Intended learning outcomes of course (ILOs)

a- Knowledge and understanding:

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

a.1. Recognize the standard operating procedures for hematology and biochemical work with appropriate quality assurance procedures.

a.2. Describe the procedures for internal quality control in accordance with the manufacturer's instruction and standard method.

a.3.Explain how to solve problems when results fail to meet the expected quality standards.

a.4. State the standard operating procedures related to specimen collection and storage.

a.5. Summarize the criteria for rejection of a specimen.

a.6. knowledge how to handle "high risk" blood samples.

a.7. Identify and differentiate between different laboratory analytical techniques.

b-Intellectual skills

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

b.1. Integrate different methodology and how to assess their performance.

b.2. Take decisions regarding safety precautions.

b.3.Assemble the pathologic and non-pathologic (physiologic, procedural) processes that result in abnormal laboratory data.

C- Professional and practical skills

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

 c.1. Apply the safety items or protective equipment that available to clinical laboratory workers.

c.2. Operate guidelines to protect against injury when using chemicals and reagents to minimize the risk to health and safety.

Course specification of postgraduate

c.3. Perform complete hematological and clinical biochemistry investigations.

c.4. Considered the sources of errors (e.g. inherent counting error; effect of interfering subances), how to recognize them and what steps to take to avoid/ correct them.

c.5. Illustrate the clinical laboratory assays that are used to detect, define, or evaluate pathologic states

c.6. Write and evaluate a clinical laboratory reports.

d- General and transferable skills

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

d.1. Use the computer and internet to gather scientific information.

d.2. Use data analysis and communication skills.

d.3. Work coherently and successfully as a part of a team and team's leadership.

d.4. Be reliable and responsible in fulfilling obligations.

4-Topics and contents

Course	Topic	No. of hours	Lectures	Practical
(Lec. 1 h./week, Pract 2 h./week)	Standard operating procedures	9	3	6
	Specimen requirements	9	3	6
	Samples reception	6	2	4
	Safety precautions	9	3	6
	Quality control procedures	9	3	6
	Reporting results	9	3	6
	Test validity	9	3	6
	Clinical significant of results	9	3	6
	Reference intervals	9	3	6
	Sources of test error	12	4	8
	Specimen post- test	9	3	6
	Total	99	33	66

5-Teaching and learning methods

5.1- Lectures (brain storm, discussion) using board, data shows

5.2- Self learning by preparing essays and presentations (computer researches and library)

5.3- Practical (models, samples 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	b1- b2- b3	c1- c2- c3-c4-c5-c6	

Course specification of postgraduate

Practical Exam	a1- a2- a3- a4-a5-a6-a7	b1- b2- b3	c1- c2- c3-c4-c5-c6	
Oral Exam.	a1- a2- a3- a4-a5-a6-a7	b1- b2- b3		d1-d2-d3-d4

7.2. Assessment schedules

Method	Week(s)
Writing exam	During the 45th week- 48th week
Practical exam	During the 45th week- 48th week
Oral exam	During the 45th week- 48th week

7.3. Weight of assessments

Assessment	Weight of assessment
Writing exam.	50%
Practical exam.	25%
Oral exam.	25%
Total	100%

8- List of references

8.1. Notes and books

8.2. Essential books:
- Veterinary Laboratory Medicine –Clinical Pathology, Duncan, J.R et al., 2nd edition, Ames IO:- Iowa state university press, 1994.
- Veterinary clinical pathology (Coles 2000).

8.3. Recommended texts
-Basic concepts in biochemistry a student survival guide,Second Edition HIRAM F. GILBERT, Ph.D. Houston, Texas
- Introduction to clinical biochemistry, interpreting blood results, Dr. Graham Basten.
- Veterinary laboratory medicine, clinical biochemistry and hematology, 2nd edition. Morag G. Kerr.

Journals:
-International Journal of Molecular diagnostic and laboratory and medicine htt:// int. clichem.
-International Journal of veterinary medicine.

Websites:
http://www.sciencedirect.com

https://scholar.google.com

https://openlibrary.org/publishers/a.welly_interscience

Course Coordinator	Head of Department
Dr./ Walaa Mohamed Sayed	Dr./ Hamdy Hemly Kamel

Beni Suef University
Faculty of Veterinary Medicine

Course specification

	Topics	week	Intended learning outcomes of course (ILOs)			
			K and U (a)	I.S (b)	P. P.S. (c)	G.T.S (d)
1	Standard operating procedures	1st-3rd w	1, 2 , 3	2, 3, 4	1, 3, 4, 5, 6	1,2,3,4
2	Specimen requirements	4th -6th w	1, 4, 6	2, 3,	1, 3, 4, 5, 6	1,2,3,4
3	Samples reception	7th –8th w	1, 4, 6	2, 3,	1, 3, 4, 5, 6	1,2,3,4
4	Safety precautions	9th -11th w	1, 2 , 3, 4, 6	2, 3,	3, 5, 6	1,2,3,4
5	Quality control procedures	12th - 14th w	1, 2	2, 3,	1, 4, 5, 6	1,2,3,4
6	Reporting results	15th – 17th w	1, 2, 3,7	1, 2, 3	2, 4, 5, 6	1,2,3,4
7	Test validity	18th- 20th w	3, 7	1, 2, 3	5, 6	1,2,3,4
8	Clinical significant of results	21th - 23rd w	7	1, 2, 3	2, 4, 5, 6	1,2,3,4
9	Reference intervals	24th – 26th w	7	1, 2, 3	2, 4, 5, 6	1,2,3,4
10	Sources of test error	27th- 30th w	4,5,7	1, 2, 3	2, 4, 5,6	1,2,3,4
11	Specimen post- test	31th – 33th w	4,5,6	1, 2, 3	2, 4, 5, 6	1,2,3,4

Beni-Suef University

Faculty of Veterinary Medicine

Course specification of postgraduate

1-Basic information	

Course Code:	Ph-81
Course title :	Safety tests of biological products
Program title:	Doctoral degree
Contact hours/ week	Lecture: 1h/ week practical: 2 h/week Total: 3 hr/ week
Approval Date	

2-Professional information

Overall aims of course:

This course aims to:

1-Identify different laboratory diagnostic techniques.

2-Acquire skills for proper diagnosis and management of problems of animals in the field of clinical Pathology.

3- Understanding the basis for differential laboratory diagnosis.

4- Utilizing the new scientific knowledge to continuously update and improve practice.

5- Maintenance of research interest and abilities.

6- Maintenance of learning abilities necessary for continuous veterinary medical education.

3- Intended learning outcomes of course (ILOs)

a- Knowledge and understanding:

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

a.1. Recognize the standard operating procedures for hematology and biochemical work with appropriate quality assurance procedures.

a.2. Describe the procedures for internal quality control in accordance with the manufacturer's instruction and standard method.

a.3.Explain how to solve problems when results fail to meet the expected quality standards.

a.4. State the standard operating procedures related to specimen collection and storage.

a.5. Summarize the criteria for rejection of a specimen.

a.6. knowledge how to handle "high risk" blood samples.

a.7. Identify and differentiate between different laboratory analytical techniques.

b-Intellectual skills

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

b.1. Integrate different methodology and how to assess their performance.

b.2. Take decisions regarding safety precautions.

b.3.Assemble the pathologic and non-pathologic (physiologic, procedural) processes that result in abnormal laboratory data.

C- Professional and practical skills

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

 c.1. Apply the safety items or protective equipment that should be available to clinical laboratory workers.

c.2. Operate guidelines to protect against injury when using chemicals and reagents to minimize

Course specification of postgraduate

the risk to health and safety.

c.3. Perform complete hematological and clinical biochemistry investigations.

c.4. Considered the sources of errors (e.g. inherent counting error; effect of interfering subances), how to recognize them and what steps to take to avoid/ correct them.

c.5. Illustrate the clinical laboratory assays that are used to detect, define, or evaluate pathologic states

c.6. Write and evaluate a clinical laboratory reports.

d- General and transferable skills

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

d.1. Use the computer and internet to gather scientific information.

d.2. Use data analysis and communication skills.

d.3. Work coherently and successfully as a part of a team and team's leadership.

d.4. Be reliable and responsible in fulfilling obligations.

4-Topics and contents

Course	Topic	No. of hours	Lectures	Practical
(Lec. 1 h./week, Pract 2 h./week)	General consideration	9	3	6
	Manufacturing practices	9	3	6
	Premises and equipment	6	2	4
	Animal cell substrate for biological products	9	3	6
	Phenotypic characteristics of cells in vitro	9	3	6
	Animal quarters and care	9	3	6
	Preservatives for biological products	9	3	6
	Quality of biotechnological products	9	3	6
	Legal basis for approval biologics	9	3	6
	Sources of test error	12	4	8
	Specimen post- test	9	3	6
	Total	99	33	66

5-Teaching and learning methods

5.1- Lectures (brain storm, discussion) using board, data shows

5.2- Self learning by preparing essays and presentations (computer researches and library)

5.3- Practical (models, samples and data show).

7-Student assessment

7.1. Assessments methods:

Course specification of postgraduate

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	b1- b2- b3	c1- c2- c3-c4-c-c6	
Practical Exam	a1- a2- a3- a4-a5-a6-a7	b1- b2- b3	c1- c2- c3-c4-c-c6	
Oral Exam	a1- a2- a3- a4-a5-a6-a7	b1- b2- b3		d1-d2-d3-d4

7.2. Assessment schedules

Method	Week(s)
Writing exam.	During the 45th week- 48th week
Practical exam.	During the 45th week- 48th week
Oral exam.	During the 45th week- 48th week

7.3. Weight of assessments

Assessment	Weight of assessment
Writing exam.	50%
Practical exam.	25%
Oral exam.	25%
Total	100%

8- List of references

8.1. Notes and books

8.2. Essential books:

- Veterinary Hematology (By Felman, Zinlkl and Jain, Publisher: Lippicott Williams and Wilkins press, 2000).
- Clinical Biochemistry of Demostic Animals (By Jerry Kaneko, Harvarry and Bruss 5th Edition 1997 Academic press).
- Veterinary Laboratory Medicine –Clinical Pathology, Duncan, J.R et al., 2nd edition, Ames IO:- Iowa state university press, 1994.
- Veterinary clinical pathology (Coles 2000).

8.3. Recommended texts

-Basic concepts in biochemistry a student survival guide,Second Edition HIRAM F. GILBERT, Ph.D. Houston, Texas
- Introduction to clinical biochemistry, interpreting blood results, Dr. Graham Basten.
- Veterinary laboratory medicine, clinical biochemistry and hematology, 2nd edition. Morag G. Kerr.

Journals:

-International Journal of Molecular diagnostic and laboratory and medicine htt:// int. clichem.
-International Journal of veterinary medicine.

Websites:

http://www.sciencedirect.com

Course specification of postgraduate

https://scholar.google.com
https://openlibrary.org/publishers/a.welly_interscience

Course Coordinator	**Head of Department**
Dr./ Walaa Mohamed Sayed	Dr./ Hamdy Hemly Kamel

Beni Suef University
Faculty of Veterinary Medicine

Course specification

	Topics	week	Intended learning outcomes of course (ILOs)			
			K and U (a)	I.S (b)	P. P.S. (c)	G.T.S (d)
1	General consideration	1st-3rd w	1, 2 , 3	2, 3, 4	1, 3, 4, 5, 6	1,2,3,4
2	Manufacturing practices	4th -6th w	1, 4, 6	2, 3,	1, 3, 4, 5, 6	1,2,3,4
3	Premises and equipment	7th –8th w	1, 4, 6	2, 3,	1, 3, 4, 5, 6	1,2,3,4
4	Animal cell substrate for biological products	9th -11th w	1, 2 , 3, 4, 6	2, 3,	3, 5, 6	1,2,3,4
5	Phenotypic characteristics of cells in vitro	12th - 14th w	1, 2	2, 3,	1, 4, 5, 6	1,2,3,4
6	Animal quarters and care	15th – 17th w	1, 2, 3,7	1, 2, 3	2, 4, 5, 6	1,2,3,4
7	Preservatives for biological products	18th- 20th w	3, 7	1, 2, 3	5, 6	1,2,3,4
8	Quality of biotechnological products	21th - 23rd w	7	1, 2, 3	2, 4, 5, 6	1,2,3,4
9	Legal basis for approval biologics	24th – 26th w	7	1, 2, 3	2, 4, 5, 6	1,2,3,4
10	Sources of test error	27th- 30th w	4,5,7	1, 2, 3	2, 4, 5,6	1,2,3,4
11	Specimen post- test	31th – 33th w	4,5,6	1, 2, 3	2, 4, 5, 6	1,2,3,4