



Course specification

1-Basic information

Course Code:	CPA:4149
Course title :	Clinical pathology
Academic year:	4 th year/ first term
Program title:	B.Sc. Veterinary medical sciences
Contact hours/ week	6hr/week - (Lecture 2hr/week- Practical 4 hr/week)
Approval Date	

2-Professional information

Overall aims of course:

This course aims to:

By the end of this course, the student should be aware with laboratory technology and test procedures used in veterinary labs to generate laboratory test results for hematology and clinical biochemistry that aid in diagnosis of a disease condition.

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. Familiarize the basic knowledge of blood constituents and body fluids.
- a.2. Describe different samples used for different biochemical assays.
- a.3. Describe the normal morphology of blood cells, means of the evaluation of blood and urine samples.
- a.4. Define the fundamental aspects of anemia, polycythemia, leukogram disorders.
- a.5. Describe coagulation of blood and its disorders.
- a.6. Illustrate the fundamental aspects and diagnosis of jaundice, renal failure and diabetes mellitus.
- a.7. Understand the different diagnosis in the biochemical tests abnormality.

b-Intellectual skills

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

- b.1. Relate the suitability of the samples for different assays.
- b.2. Differentiate the types of blood cells, anemia, leucocytes and thrombocytes disorders
- b.3. Interpret the results of complete blood picture.
- b.4. Interpret the results of enzymatic activities



Beni-Suef University
Faculty of Veterinary Medicine

Course specification

- b.5. Compare the types of jaundice , renal failure and diabetes mellitus.
- b.6. Interpret the results obtained by the different techniques used in clinical biochemistry

c-Professional and practical skills

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

- c.1. Perform the differentiation between different blood cells of different animals
- c.2. Collect and analyze the blood, serum and plasma samples.
- c.3. Prepare different blood stains
- c.4. Perform a good stained blood films
- c.5. Perform a complete hematological, chemical investigation.
- c.6. Implement manual CBC and differentiation of various disease hematological pictures.
- c.7. Obtain results of routine laboratory tests including CBC, liver, renal function tests and urine examination.
- c.8 write a report for the obtained hematological and biochemical data.

d- General and Transferable skills

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

- d.1. Work effectively as part of a team.
- d.2. Be reliable and responsible in fulfilling obligations.
- d.3. Manage time and use the most cheap, fast and accurate way for laboratory diagnosis.
- d.4. Efficiently make use of library facilities.
- d.5. Undertake written assignments and oral presentation.



Course specification

4-Topics and contents

Course	Topic	Week	No. of hours	Lectures	Practical
Clinical pathology (Lec. 2 h./week, Pract. 4h./week)	Hematopoiesis	1	6 hr.	2	4
	Erythropoiesis and hemoglobin synthesis	2	6 hr.	2	4
	Anemia and other erythrocytes disorders	3	6 hr.	2	4
	Leucogram	4	6 hr.	2	4
	Coagulopathies	5	6 hr.	2	4
	Enzymology	6	6 hr.	2	4
	Disturbance in liver function and serum Bilirubin	7	6 hr.	2	4
	Disturbance in renal function	8	6 hr.	2	4
	Disturbance in glucose metabolism	9	6 hr.	2	4
	Pancreatic function	10	6 hr.	2	4
	Muscular disorders	11	6 hr.	2	4
	Disturbance in Calcium, phosphorus & magnesium metabolism	12	6 hr.	2	4
	Disturbance in sodium, potassium and chloride metabolism	13	6 hr.	2	4
Total			78	26	52

5-Teaching and learning methods

- 5.1- Lectures (brain storming, discussion) using board, data shows,
- 5.2- Self learning by preparing essays and presentations (computer researches and faculty library)
- 5.3- Practical sections (samples of blood, serum and urine)

6-Teaching and learning methods for the students with disabilities

Not applicable

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
written Exam	a.1- a. 2- a.3-a.4-a.5-a.7	b.1-b.2- b.3-b.4-b.5-b.6		
Practical Exam			c.1-c.2-c.3-c.4-c.5-c.6-c.7-c.8	
Oral Exam	a.1-a.2- a.3- a.4-a.5-a.6	b.1-b.2-b.4-b.5-b.6		d.1-d.2-d.3-d.4.d.5



Beni-Suef University
Faculty of Veterinary Medicine

Course specification

7.2. Assessment schedules/semester:

Method	Week(s)
Practical exams	14 th week
Final exams	14 th week
Oral Exam	14 th week
Student activities	During the semester

7.3. Weight of assessments:

Assessment	Weight of assessment
Written exams	50%
Practical exams	20%
Oral Exam	20%
Student activities	10%
	100%

8- List of references

8.1. Notes and books

- Lecture hand out
- Veterinary Laboratory Medicine –Clinical Pathology, Duncan, J.R et al., 2nd edition, Ames IO:- Iowa state university press, 1994.

8.2. Essential books:

- Veterinary Hematology (By Felman, Zinkl and Jain, Publisher: Lippicott Williams and Wilkins press, 2000).
- Clinical Biochemistry of Domestic Animals (By Jerry Kaneko, Harvarry and Bruss 5th Edition 1997 Academic press).

These books are found in the library of Faculty of Veterinary Medicine, University of Beni- Suef.

8.3. Recommended texts

8.4. Journals, Websitesetc

Journals:

- International Journal of Molecular diagnostic and laboratory and medicine [http:// int.clichem.com](http://int.clichem.com).
- International Journal of veterinary medicine.

Websites

- http://www.clinicalpathology_bs@yahoo.com
- <http://www.ncbi.nlm.nih.gov/ICTVdb/>

Course Coordinators

Head of Department

Dr/ Walaa Mohamed Sayed

Dr/ Hamdy Helmy Kamel



Beni Suef University
Faculty of Veterinary Medicine

Course specification

Topic	Week	Intended learning outcomes of course (ILOs)			
		K&U (a)	I.S (b)	P.P. S (c)	G.T. S (d)
Hematopoiesis	1	1,2	1,2	1,4	4,5
Erythropoiesis and hemoglobin synthesis	2	1, 2	1,3	1, 2	1,2,3,4,5
Anemia and other erythrocytes disorders	3	3	1,2,3	4,5,6,7,8	1,2,3,4,5
Leucocytes disorders	4	2,3	3	6,7,8	1,2,3,4,5
Coagulopathies	5	2,4	3	7,8	1,2,3,4,5
Clinical enzymology	6	5,6	4	7,8	1,2,3,4,5
Disturbance in liver function and serum Bilirubin	7	5,6,7	4,5,6	7,8	1,2,3,4,5
Disturbance in renal function	8	5,6,7	4,5,6	7,8	1,2,3,4,5
Disturbance in glucose metabolism	9	5,6,7	5,6	7,8	1,2,3,4,5
Pancreatic function	10	5,6,	4,6	7,8	1,2,3,4,5
Muscular disorders	11	6,7	4,6	7,8	1,2,3,4,5
Disturbance in mineral metabolism	12	7	6	7,8	1,2,3,4,5
Disturbance in electrolytes metabolism	13	7	6	7,8	1,2,3,4,5



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