afrelsheikh niversity
Faculty of Veterinary Medicine

COURSE SPECIFICATION

(2018-2019)

1- Basic Information

Course Title: Clinical Pathology (A , B)

Academic year: level 4th year

Total teaching hours: 90 h

- Lectures: 30 h

- Practical: 60 h

2- Overall aims of course

To provide student with basic knowledge and skills concerning clinical hematological assays for diagnosis of blood diseases in different animals, birds and fish.

Understanding the basic information about the chemical analysis of various body fluids and excretions, for the purposes of diagnosis and prognosis of a disease condition.

Knowing the principles of liver, muscle, kidney and pancreas functions and methods used for evaluations.

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

3- A: Knowledge and understanding:

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

A1- Identify principles of blood and its constituents as well as its examination

A2- Describe the laboratory method of bone marrow examination

A3- Recognize the fundamental aspect and diagnosis of anemia, polycythemia, leukogram disorders

A4- Identify the basic knowledge about body fluids and electrolytes homeostasis

A5- recognize liver, kidney and pancreas functions and its disorders

A6- Describe the aims of using molecular biology as a clinical pathology tool

3- B: Intellectual skills:

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

B1- Interpret the results obtained by different techniques used in clinical biochemistry

B2- interpret completes blood picture (CBC) report.

B3- distinquish the normal and abnormal blood and body fluid constituants.

B4- Analyze the given data and can reach to final conclusion for diagnosia.

B5- Summarize alternative approaches which can be used for diagnosis of different diseases

3- C: Professional and practical skills:

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

C1- Analyze the blood samples

C2- Prepare solutions for chemical tests

C3- Select different techniques of molecular biology

C4- Build a decision from clinical biochemical data

3- D: General and transferable skills:

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

D1- Coach and work in team

D2- Classify different duties

D3- Using computer skills.

D4- Develop ethical behavior between students and stuff member of the department and between students them self.

4- COURSE CONTENTS:

4- A: Contents of the first semester:

Topic	No. of hours	Lecture	Practical
1- General principles of hematology	**1**	**1**	
2- Hematopoiesis	**8**	**2**	**6**
3- Erythrocyte morphology and disorders	**5**	**1**	**4**
4- Evaluation of erythrocytes	**7**	**1**	**6**
5- Anemia	**4**	**2**	**2**
6- Polycythemia	**3**	**1**	**2**
7- Leukocyte morphology, function and kinetic	**5**	**2**	**3**
8- Evaluation of leukocytes	**5**	**2**	**3**

Topic	No. of hours	Lecture	Practical
9- Interpretation of leukogram	2	1	1
10- Hematopoietic neoplasia	2	1	2
11- Hemostatic disorders	2	1	1
Total	45	15	30

4- B: Contents of the second semester:

Topic	No. of hours	Lecture	Practical
1- General principles of clinical chemistry	2	-	2
2- Water and electrolytes balance	4	2	2
3- Acid base balance	2	2	-
4- Lipid, carbohydrates and proteins evaluation	3	1	2
5- Cytology	3	1	2
6- Liver and muscle function	10	4	6
7- Renal function and urinalysis	8	2	6
8- Gastrointestinal and pancreas functions	6	2	4
9- Antibiotic sensitivity test	2	-	2
10- Basics of molecular biology	2		2
11- Acute phase proteins	3	1	2
Total	45	15	30

5- Teaching tools and learning methods:

5.1- Lectures (using Data showand white bard)

5.2- Practical lessons and small group sections

5.3- Self learning

6. METHODS FOR STUDENTS With limited capabilities:

- **No disabled students until now, but if present the methods are-:**

  ***Activation of office hours .**

  ***Discussion with them during practical session.**

7. STUDENT ASSESSMENT:

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

8. LEARNING AND REFERENCE MATERIALS:

8- List of references:

8.1- Course notes

- Clinical pathology part 1 (hematology)
- Practical part 1 and laboratory notes
- Color atlas
- Clinical pathology part 2 (Clinical Chemistry)
- Practical part 2 and laboratory notes
- Color atlas

8.2- Essential books (text books)

- Veterinary Clinical Pathology. Coles. 4th Edition, (1986)
- Schalm Veterinary Hematology. Schalm.6th Edition, (2010)
- Animal Clinical Chemistry. G.O.Evans. 2nd Edition, (2009)

8.3- Recommended books

- Dacie and Lewis, Practical Hematology (2001)
- Veterinary laboratory medicine, Duncan, Prasse and Mahaffey (5th edition 2015)

8.4- Periodicals, Web Sites

- Journal of American Veterinary Medical Association.

9- Facilities required for teaching and learning

- Clinical pathology Laboratory
- Kits
- Lab animals
- Spectrophotometer
- Data show
- Computer
- Microscopes

Intended learning out comes of each topic

Topic	K.U (a)	I.S (b)	P.P.S (c)	G.T.S (d)
1st Semister				
1- General principles of hematology	A1	B1		
2- Hematopoiesis	A2	B3, B4	C3	D2
3- Erythrocyte morphology and disorders	A4	B4	C1 , C2, C3	D2
4- Evaluation of erythrocytes	A3,A4, A5	B3	C1, C3, C4	D1, D4
5- Anemia	A6, A5	B2, B3	C2, C4	D3
6- Polycythemia	A6,A5	B2, B5	C2, C4	D3
7- Leukocyte morphology, function and kinetic	A6,A4	B4	C1, C2 C3	D1, D4
8- Evaluation of leukocytes	A6, A4	B3, B4	C1 , C2, C3	D1, D4
9- Interpretation of leukogram	A3,A4, A5	B3, B4	C1 , C4	D1, D2, D3
10- Hematopoietic neoplasia				
11- Hemostatic disorders	A6	B4, B5	C1 , C2	D3
Topic	K.U (a)	I.S (b)	P.P.S (c)	G.T.S (d)
2nd Semister				
1- General principles of clinical chemistry	A1	B4	C1, C3	D1,D3

2- Water and electrolytes balance	A1			
3- Acid base balance		B1	C2, C3	D2
4- Lipid, carbohydrates and proteins evaluation	A2			
5- Cytology		B1	C2, C3,	D2
6- Liver and muscle function	A5,A6			
7- Renal function and urinalysis		B1	C2, C3, C4, C1	D2
8- Gastrointestinal and pancreas functions	A6			
9- Antibiotic sensitivity test		B5, B4, B2	C2, C3	D2
10- Basics of molecular biology	A1			
11- Acute phase proteins	A3, A4,A5	B1, B2, B3	C2, C3, C4	D2

Assessment-ILOS matrix

Assessment	ILOs			
	Knowledge and understanding	Intellectual	Professional and practical	General and transferable
2.Practical exam		B1, B3, B4	C1, C 2,C 3,C 4	D2
3. Oral exam	A1,A2,A3, A4, ,A5,A6	B1, B2 ,B3,B4,B5		D2
4. Final term exam	A1,A2,A3, A4, ,A5,A6	B1, B2 ,B3,B4,B5		
5.semister work		B1	C1	D1, D2, D3, D4

Course Coordinator — **Dr. Emad Wadeed**

Head of Department — **Prof. Dr. Abdallah Ahmed Mokhbatly**