Course Specifications

Clinical Pathology

Clinical Chemistry and Organs Functions

Benha University **Faculty of veterinary medicine**

Programme(s) on which the course is given **Bachelor of veterinary medical science**

Department offering the course **Department of clinical pathology**

Academic year / level **4th year, 2nd semester**

Date of specification approval minstrel decree No 921, on

(Then approved in this template by department council on 17 / 1 / 2011)

A- Basic Information

Title: clinical chemistry and organs functions **Code: Vet 00647b**

Lecture: 1 hour **Practical: 3 hours**

Total: 4 hours

B- Professional Information

1- Overall aims of course

Provide the basic information about the chemical analysis of the body fluids and excretions, for the purposes of diagnosis of a disease condition. Understanding the principles of liver, muscle, kidney and pancreas functions and methods used for evaluations

2- Intended learning outcomes of the course (ILOs)

A- Knowledge and understanding

A1- Identify the basic knowledge about body fluids

A2- List the Principles of electrolytes homeostasis

A3- Understand liver, kidney and pancreas functions

A4- Approach the evaluation of organ function tests

A5- Describe the fundamental aspect and diagnosis of jaundice, renal failure, and diabetes mellitus

A6- Recognize the metabolic disorders of lipid, carbohydrates and proteins

A7- Understand the cytology of effusions

A8- Know the different samples used for different biochemical assays

A9- Understand the aims of using molecular biology as a clinical pathology tool

A10- Recognize the different techniques of molecular biology used for diagnostic purposes.

A11- Familiarize with different apparatuses used in clinical biochemical assays

A12- Interpret the results obtained by different techniques used in clinical biochemistry

B- Intellectual skills

B1- Comment the serum chemistry profile

B2- Judge the type of jaundice and renal failure

B3- Analyze the organ functions tests reports

B4- Solve the unexpected problems happened during assay.

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

B6- Judge the suitability of the samples for different assay.

B7- Criticize the common artifacts and problems render the samples unsuitable for assay.

B8- determine the ideal antibiotic suitable for treatment of different bacterial diseases

C- Professional and practical skills

C1- practice the adjusting and operating spectrophotometer

C2- Collection and analysis of the serum and plasma samples

C3- Prepare solutions for chemical tests

C4- Use clinical data to help in diagnosis of metabolic diseases

C5- Conduct different techniques of molecular biology

C6- Implement and establish the best laboratory conditions for different techniques

C7- Write a decision from clinical biochemical data.

D- General and transferable skills

D1- Present information and express data using information technology (IT) facilities

D2- Consult with veterinarian to advise the treatment

D3- Manage time and use the most cheap, fast, and accurate way for laboratory diagnosis

3- Contents

Topic	No. of hours	Lecture	Practical
1- General principles of clinical chemistry	3	-	3
2- Water and electrolytes balance	5	2	3
3- Acid base balance	2	2	-
4- Lipid, carbohydrates and proteins evaluation	4	1	3
5- Cytology	4	1	3
6- Liver and muscle function	9	3	6
7- Renal function and urinalysis	11	2	9
8- Gastrointestinal and pancreas functions	8	2	6
9- Antibiotic sensitivity test	3	-	3
10- Basics of molecular biology	3		3
11- Acute phase proteins	1	1	-
Total	**53**	**14**	**39**

4- content-ILOs matrix

Content	ILOs			
	Knowledge and understanding	**Intellectual**	**Professional and practical**	**General and transferable**
1- General principles of clinical chemistry	**A1, a8, a11**	**B4**	**C1, C3**	**D1,D3**
2- Water and electrolytes balance	**A1**	**B1**	**C2, C3**	**D2**
3- Acid base balance	**A2**	**B1**	**C2, C3, C6**	**D2**
4- Lipid, carbohydrates and proteins evaluation	**A5,a6**	**B1**	**C2, C3, C4, C7**	**D2**
5- Cytology	**A7**	**B5, B6, B7**	**C2, C3**	**D2**
6- Liver and muscle function	**A3, a4,a5**	**B1, B2, B3**	**C2, C3, C7**	**D2**
7- Renal function and urinalysis	**A3, a4, a5**	**B1, B2, B3**	**C2, C3, C7**	**D2**
8- Gastrointestinal and pancreas functions	**A3, a4**	**B1, B3**	**C2, C3, C7**	**D2**

9- Antibiotic sensitivity test	**A12**	**B6, B7, B8**	**C3, C6**	**D2**
10- Basics of molecular biology	**A9,a10**	**B5,**	**C3, C5, C6**	**D2**
11- acute phase proteins	**A6**	**B1**	**C2, C3, C7**	**D2**

5- Assessment-ILOS matrix

Assessment	**ILOs**			
	Knowledge and understanding	**Intellectual**	**Professional and practical**	**General and transferable**
1.Mid – Term exam	**A1, A2, A5,a6, A7 , a8, a11**	**B1,B4, B5, B6, B7**	**C1, C2, C3**	
2.Practical exam	**A8, A9, A10, A11**	**B6, B7, B8**	**C1, C2, C3, C4, C5, C6, C7**	**D2, D3**
3. Oral exam	**A2,A3,A4,A5,A 6,A7**	**B1, B2, B3**		
4. Final term exam	**A2,A3,A4,A5,A 6,A7, A12**	**B1, B2, B3**		
5.semister work	**A1, A7, A10**	**B2, B3**	**C4**	**D1**

6- Teaching and learning methods

6.1- Color plates

6.2- PowerPoint (Data show) presentations

6.3- Slide projector

6.4- group teaching

7- Student assessment methods

7.1- Midterm examination

7.2- Practical examination

7.3- Oral examination

7.4- Written examination

7.5- semester work

Assessment schedule

Assessment 1 Midterm examination week 7

Assessment 2 Practical examination week 13

Assessment 3	Written examination	week 15
Assessment 2	Oral examination	week 15
Assessment 2	Semester work	received at week 14

Weighting of assessments

Midterm examination	5%
Final term examination	50%
Oral examination	20%
Practical work	20%
Semester work	5%
Total	100%

8. List of references

8.1- Course notes

- 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)

8.3- Recommended books

- Veterinary laboratory medicine, Duncan, Prasse and Mahaffey (2003)

8.4- Periodicals, Web Sites

- Journal of American Veterinary Medical Association.

9- Facilities required for teaching and learning

1. Laboratory
2. Kits
3. Lab animals
4. Spectrophotometer
5. Plate reader

6. Thermal Cycler
7. Microscopes
8. Data show
9. Computer

Course coordinator and Head of department:

Dr. Khalid Mohamed Mustafa Fararh

Assistant professor of Clinical Pathology

Date: