



Course Specifications

Faculty: Veterinary Medicine

Department: Pathology

General Considerations

- Program: Bachelor of Vet Medicine (BVS).
- Major or minor element of program: Major.
- Department offering the Program: Faculty of Veterinary Medicine.
- Department offering the course: Pathology (general and systemic).

A. Basic Information

- Lecture Tutorial: 4 hours/week.
- Practical Session: 4 hours/week.
- Total: 120 hours/semester (15 weeks).

B. STATISTICAL INFORMATION

No. of students attending the course No. %

No. of students completing the course No. %

Results:

Passed No. % Failed No. %

Grading of successful students:

Excellent No. % Good No. %

Very Good No. % Pass No. %

C. Professional Information

1. Overall Aims of the Course:

١. To familiarize students with the basic disease patterns and their underlying mechanisms within the specific organ systems as for preparing the students for their clinical courses and future as a practitioners

٢. To promote lifelong competencies necessary for continuous professional development

2. Intended Learning Outcomes (ILOs):

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

a) Knowledge and Understanding:

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

- 1- Define and discuss the main disease categories as well as the basic mechanisms underlying these disorders (etiology and pathogenesis)
- ٢- Describe the morphology (gross & microscopic) of such disease processes in various organ systems.

- ٣- Determine the fate & complications of each particular disease and outline the general management procedures.
- 4- Perform PM examination in different animals' species and reach a preliminary diagnosis of the cause of death.

b) Intellectual Skills:

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

- Predict the signs and symptoms of a disease based on the underlying gross & microscopic tissue changes responsible for symptomatology and physical changes in the patient, thereby enabling the student recognize patients with life/organ threatening conditions.
- Interpreting in a professional manner a pathology report.
- Choosing the most appropriate cost effective pathologic diagnostic procedures
- Manage the information gained from different examination (Gross, microscopic, molecular, ,,) to reach accurate diagnosis.

c) Professional and Practical Skills:

By the end of the course, students should be able to be prepared for their upcoming clinical training by:

- ٨- Diagnose and accurately report or describe the pathologic picture of a disorder based on gross or microscopic morphology.
- Distinguish between the normal and abnormal cellular or tissue structure.

d) General and Transferable Skills:

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

- ٩- Appreciate the importance of life long learning and show a strong commitment to it
 - ١٠- Professional use of biomedical information resources to remain current with the advances in knowledge & practice .
 - ١١- Frame a question, search the literature, collect , analyze, critically appraise and utilize the obtained information to solve a particular clinical problem according to the principles of evidenced based medicine .
 - ١٢- Respond appropriately according to the seriousness of the pathologic diagnosis in an acceptable humane manner.
- ١٣- Maintain and improve professional image in manner, dress, speech and interpersonal relationships that is consistent with the veterinary medical profession's accepted contemporary standards in the community
- ١٤- Identify difficult ethical situations and how to properly deal with them

١٠- Express themselves freely and adequately by improving their descriptive capabilities and enhancing their communication skills

3. Contents (1st semester):

3.1. Lecture Contents:

Lecture Topics		Hours
1.	Introduction to the science pathology & its related disciplines, basic language of pathology	2hrs
2.	Introduction to Disturbance in cell metabolism and Causes of cell injuries	2hrs
3.	Cloudy swelling. Hydropic degeneration	6hrs
4.	Mucous degeneration Amyloid infiltration	
5.	Myxomatous degeneration. Gout.	
6.	Fatty Obesity	2hrs
7.	Glycogen storage disease in liver	2hrs
8.	Calcification Hemosidrosis Hemochromatosis	2hrs
9.	Ictrus	4hrs
10.	Pneumoconioses Anthracosis	
11.	Necrosis and Gangrene	2hrs
12.	Hyperemia (active, passive)	4hrs
13.		
14.	Hemorrhage	2hrs
15.	Thrombosis	2hrs
16.	Embolism, Ischemia and Infarction	2hrs
17.	Disturbances in fluid balance and Edema	2hrs
18.	Shock	2hrs
19.	Causes & phenomena of inflammation	2hrs

20.	Inflammatory mediators & Chemotaxis	4hrs
21.		
22.	Types of inflammation	8hrs
23.		
24.		
25.	Fate of inflammation Healing and repair	4hrs
26.	Disturbance in cell growth & differentiation	2hrs
27.		
28.	Introduction Nomenclature and Classification of neoplasia gross appearance	4hrs
28.	Tumors of epithelium	4hrs
29.	Tumors of non-epithelial origin.	4hrs
30.	Causes and treatment of neoplasia	4hrs
Total		60 hrs

3.2. Laboratory Contents:

Laboratory Topics		Hours
1.	<i>Histopathological technique I</i>	4hrs
2.	Disturbance in circulation <ul style="list-style-type: none"> ○ Congestion in different organs as lung, liver and kidney ○ Hemorrhage in different organs ○ Thrombosis in different organs ○ Organized, calcified, recent and parasitic thrombus ○ Infarction. ○ Edema 	12hrs
3.		
4.		
4.		
5.	Disturbance in cell metabolism <ul style="list-style-type: none"> ○ Cloudy swelling in liver and kidney. ○ Hydropic degeneration ○ Mucous degeneration ○ Amyloid infiltration ○ Myxomatous degeneration. 	12hrs
6.		
7.		

	<ul style="list-style-type: none"> ○ Gout. ○ Fatty change in liver and kidney. ○ Glycogen storage disease in liver 	
8.	<p>Inflammation</p> <ul style="list-style-type: none"> ○ Inflammatory cells neutrophil, basophil ,esinophil ,monocyte and lymphocyte ○ Types of inflammation according to exudates content as ○ serous inflammation ○ catarahal inflammation ○ fibrinous inflammation ○ ○ lymphocytic inflammation ○ ○ suppurative inflammation ○ ○ Hemorrhagic ○ Allergic dermatitis ○ Healing and repair 	14hrs
11.	<p>Necrosis and Gangrene</p> <ul style="list-style-type: none"> ○ Coagulative necrosis,liqufactive ,casious necrosis. ○ Gangrene 	4hrs
12.	<p>Disturbance in cell growth</p> <ul style="list-style-type: none"> ○ Hyperplasia in the glandular epithelium. ○ Metaplasia in renal pelvis ,c.t. ○ Dysplasia 	4hrs
13.	<p>Neoplasia</p> <ul style="list-style-type: none"> ○ Morphology of tumors. ○ Tumors of epithelium ○ Tumors of non-epithelial origin. 	12hrs
14.		
15.		
Total		6• hrs

4. Contents (2nd . semester):

4.1.Lecture Contents:

Lecture Topics		Hours
1.	1. Digestive system	12hrs
	○ Pathology of Oral Cavity	
2.	○ Pathology of ruminant stomach. ○ Pathology of intestine	
3.	○ Pathology of Liver & billiary system ○ Pathology of pancreas	
4.	○ Pathology of peritoneum ○ Specific disease condition of digestive tract	

5.	○ Tumors of digestive tract	
6.		
7.	2. Respiratory system	8hrs
8.	○ Pathology of Nasal Cavity and sinuses	
9.	○ Pathology of Larynx, trachea and bronchi.	
10.	○ Pathology of lung and pleura	
10.	○ Specific disease condition of respiratory system	
11.	○ Tumors of respiratory system	
11.	3. Cardiovascular system	8hrs
12.	○ Pathology of Heart and pericardium	
13.	○ Pathology of blood vessels	
14.	○ Specific disease condition of heart and blood vessels.	
14.	○ Tumors of heart & blood vessels.	
15.	4. urinary system	8hrs
16.	○ Pathology kidney	
17.	○ Pathology of ureters	
18.	○ Specific disease condition of in kidney	
18.	○ Pathology of ureters & bladder, & urethra	
19.	○ Tumors of kidney and bladder	
19.	5. Nervous system	8hrs
20.	○ Pathology of brain & meninges	
21.	○ Pathology of peripheral nerves	
22.	○ Specific disease condition of nervous system	
22.	○ Tumors of brain and nerves	
23.	6. Male Genital system	8hrs
24.	○ Pathology of testis and scrotum	
25.	○ Pathology of penis and prepuce	
26.	○ Pathology of prostate & accessory glands	
26.	○ Specific disease condition of the Male Genital system	
27.	○ Tumors of male genital system	
27.	7. Female genital system	10 hrs
	○ Pathology of the ovary	
	○ Pathology of fallopian tube	

28.	○ Pathology of non pregnant uterus	
29.	○ Pathology of pregnant uterus	
30.	○ Pathology of mammary gland ○ Specific disease condition of female Genital system	
	○ Tumors of female genital system & mammary gland.	
Total		60 hrs

4.2. Laboratory Contents:

Lecture Topics		Hours
31.	Post mortem examination technique	4hrs
32.	Digestive system ○ Stomatitis (vesicular, ulcerative,) ○ Chemical ruminitis.	12hrs
33.	○ Gastritis	
34.	○ Entritis ○ Hepatic degeneration and necrosis	
	○ Different types Hepatitis ○ Hepatic carcinoma ○ Pancriatitis ○ Adenocarcinoma of entistine ○ Post mortem examination case study	
35.	Respiratory system ○ Rhinitis ○ Tracheitis	8hrs
36.	○ Bronchitis, ○ Pneumonia and pleurisy ○ Post mortem examination case study	
37.	Cardiovascular system ○ Pericarditis and endocarditis ○ Myocardial degenerations	8hrs
38.	○ Myocarditis ○ Thrombus and vasculitis ○ Post mortem examination case study	
39.	Urinary system ○ Nephrosis kidney	8hrs

40.	<ul style="list-style-type: none"> ○ Nephritis ○ Hydronephrosis ○ Cystitis ○ Post mortem examination case study 	
41.	Nervous system <ul style="list-style-type: none"> ○ Meningitis ○ Encephalomalacia ○ Encephalitis ○ Neuronal degeneration ○ Post mortem examination case study 	6hrs
42.		
43.	Male Genital system <ul style="list-style-type: none"> ○ Testicular degeneration ○ Different types of orchitis ○ Hyperplasia of prostate ○ Prostatic adenitis ○ Post mortem examination case study 	6hrs
44.	Female genital system <ul style="list-style-type: none"> ○ cystic ovary ○ salpingitis ○ endometritis ○ Mastitis ○ Pathology of mammary gland ○ Tumors of female genital system & mammary gland. ○ Post mortem examination case study 	8hrs
45.		
Total		60 hrs

5. Teaching and Learning Methods:

5.1. Lectures

5.2. **Practical** (tutor presentation followed by students' small group sessions).

5.3. **Independent** (Laboratory and home assignments supervised by tutor):

- a) Writing reports/assignments.
- b) Preparation of colored posters and slide presentations.
- c) Preparation of slides.
- d) Group discussion.

5.4. Computer Courseware: For independent student can be accessed at the education centre: CLIVE standalone programs and any other recently developed web-based courseware.

Methods for disabled students:

No special arrangements are available now; however those students can consult our staff for help.

6. Students Assignment:

6.1. Assignment Methods:

- a) Mid and final term written examinations to assess knowledge and understanding.
- b) Periodical semester activities to assess general and transferable skills.
- c) Periodical examinations to assess professional and practical skills.
- d) Oral examination to assess intellectual skills, understanding of topics and ways of thinking in resolving problems.

6.2. Assessment Schedule:

- Assessment ρ: Midterm examination.... ~10th week.
- Assessment ϑ: Final examination (practical)..... 15th week.
- Assessment Ϙ: Final examination (oral)..... Together with written exam.
- Assessment ϙ: Final examination (written)... According to faculty schedule.

6.3. Writing of Assessments:

a) <i>Semester formative work:</i>	
1. Midterm examination.....	10%
2. Home and laboratory periodical assignments.....	10%
b) <i>Final term examinations:</i>	
1. Written examination.....	50%
2. Oral examination.....	15%
3. Practical examination.....	15%
c) <i>Other types of assessment.....</i>	0%
Total.....	100%

7. List of References:

- a. Lectures Notes in General pathology systemic pathology
- b. Lectures Notes in General pathology systemic pathology
- c. Color atlases of Gross and Histopathology

8. Essential Text Books:

- a. Principles of Veterinary Pathology by Runnels RA, Monlux WS and Monlux AW .

- b. General Pathology, JB Walter, MS Israel:

9. Recommended Books:

- a. Pathology of Domestic Animals. Jubb, Kennedy & Palmer
- b. Muir's text book of Pathology.
- c. Basic Pathology by Kumar, Cotran & Robbins,

10. Important web sites

- a. <http://www.vet.uga.edu/index.php>
- b. <http://www.vet.cornell.edu/nst/>
- c. <http://www.merckvetmanual.com/>
- d. <http://www.path.uiowa.edu/virtualslidebox/>
- e. <http://www.pathmax.com/>
- f. <http://www.pathmax.com/>
- g. <http://www-medlib.med.utah.edu/WebPath/LABS/LABMENU.html#>
- h. <http://www.med.uiuc.edu/PathAtlas/titlePage.html>
- i. <http://www.medscape.com/pathologyhome>
- j. <http://www.gwumc.edu/dept/path/TF.HTM>
- k. <http://www.path.uiowa.edu/virtualslidebox/>
- l. <http://web.med.unsw.edu.au/pathology/Pathmus/pathmus.htm#InteractiveImages>
- m. <http://www.virtualpathology.leeds.ac.uk/>
- n. <http://histopathsho.usp.com/index.html>
- o. <http://pathology.class.kmu.edu.tw/index.htm>
- p. <http://www.gla.ac.uk/faculties/medicine/teaching/MedCALlist.htm>

11. Facilities Required for Teaching and Learning:

11.1. For Lecture: A large hall equipped with white board, data show and computer.

11.2. For Laboratory sessions: Laboratory room with mono and binuclear microscopes, slide boxes, staining sets, colored posters, charts, atlases, handouts, and pamphlets.

11.3. For small group discussions (of students): Convenient hall equipped with white board, computer and video projector.

11.4. Digital library, Internet and networking connections for easy access of online course materials and the recommended websites by our staff.

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Head of Department*Dr. Abdel-Rahman abou-Rawash***Course Coordinator***Dr. Abdel-Rahman abou-Rawash*

Damanhour University
Faculty of Vet Medicine
Pathology Department

**Course Matrix**

Subjects	Outputs					
	Knowledge	Knowledge	Knowledge	Knowledge	Knowledge	Knowledge
Introduction to pathology & basic language of pathology	x	x				
Introduction to Disturbance in cell metabolism and Causes of cell injuries	x	x				
Disturbance in cell metabolism	x	x		x		x
Disturbance in circulation	x	x		x		x
Inflammation	x	x	x	x		x
Necrosis and Gangrene	x	x		x	x	x
Disturbance in cell growth	x	x		x		
Neoplasia	x	x	x	x		x
Pathology of Digestive system	x	x	x	x		x
Pathology of Respiratory system	x	x	x	x		x
Pathology of Cardiovascular system	x	x	x	x	x	x
Pathology of Nervous system	x	x	x	x	x	x

Pathology of Urinary system Blood	<i>x</i>	<i>x</i>	<i>x</i>	<i>x</i>		<i>x</i>
Pathology of Female Genital System	<i>x</i>	<i>x</i>	<i>x</i>	<i>x</i>	<i>x</i>	<i>x</i>
Pathology of Male genital System	<i>x</i>	<i>x</i>	<i>x</i>	<i>x</i>		<i>x</i>

Subjects	Outputs					
	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Introduction to pathology & basic language of pathology	<i>x</i>	<i>x</i>				
Membranous organelles	<i>x</i>	<i>x</i>		<i>x</i>		<i>x</i>
Non-membranous organelles	<i>x</i>	<i>x</i>		<i>x</i>		<i>x</i>
Cytoskeleton, inclusions	<i>x</i>	<i>x</i>	<i>x</i>	<i>x</i>		<i>x</i>
Epithelial membranes	<i>x</i>		<i>x</i>	<i>x</i>		
Glandular epithelium	<i>x</i>	<i>x</i>		<i>x</i>	<i>x</i>	
Surface modifications of epithelium	<i>x</i>	<i>x</i>		<i>x</i>	<i>x</i>	<i>x</i>
Connective tissues fibers	<i>x</i>	<i>x</i>	<i>x</i>	<i>x</i>		<i>x</i>
Connective proper	<i>x</i>	<i>x</i>		<i>x</i>	<i>x</i>	<i>x</i>
Connective tissue cells	<i>x</i>	<i>x</i>	<i>x</i>	<i>x</i>	<i>x</i>	<i>x</i>
Cartilage	<i>x</i>	<i>x</i>	<i>x</i>			<i>x</i>

Bone	<i>x</i>	<i>x</i>	<i>x</i>	<i>x</i>		<i>x</i>
Blood	<i>x</i>	<i>x</i>		<i>x</i>	<i>x</i>	<i>x</i>
Skeletal muscle	<i>x</i>		<i>x</i>	<i>x</i>	<i>x</i>	<i>x</i>
Cardiac and smooth muscles	<i>x</i>		<i>x</i>	<i>x</i>	<i>x</i>	<i>x</i>