



Course Specification of Veterinary Laboratory Diagnosis

I. Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect					
Order	Topic List / Units	CILOs (symbols)	Sub-topic List	Number of weeks	Contact hours
1	-Syllabus Reading & Knowing each other -Collection of Samples	a1, a2, d2	Blood, Urine, Faeces, Milk, GIT, Abortion Cases, Nasal discharge, Saliva & Tears, Eye, Skin, Body Fluids, Gastric Juice & Ruminal Fluid, Abscess	1	1
2	Clinical Hematology	c1, c2, d2	Erythrocytes Count Leukocytes Count Reticulocytes Count Thrombocytes Count Hemoglobin Determination Hemostasis & Coagulating of blood	1	1
3	Bone Marrow Examination	a2. b1, b2	Examination of bone marrow film Cell identification	1	1
4	Clinical Biochemistry	a2. c1, c2	Preparation of Solutions Equipments of Biochemical Analyses	1	1
5	Urinalysis	a2. b2	Macroscopic & Microscopic Examination of the Urine Urine Culture	1	1

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			Kidney Function Tests I		
6	Clinical Parasitology	a2, a2, b1	Coprolological Examination Blood Examination-Blood Protozoa Miscellaneous Parasitic Examination Diagnosis of External Parasites	1	1
7	Rumen Fluid Examination	b1, c1, d2	Examination of Fluid Examination of Protozoa Examination of Bacteria	1	1
8	Milk Examination	b1, c1, d2	Physical (Strip-Cup test) Chemical Examination Indirect Leukocyte Count Direct Leukocyte Count Hotis Test	1	1
9	Clinical Microbiology	a1, a2. b1, b2	Clinical Microbiology Clinical Virology Clinical Mycology	1	1
10	Serology	a1, a2, b1, b2	Agglutination Test Hemagglutination Test Precipitation Complement Fixation Test ELISA Test Immunofluorescence	1	1
11	Polymerase Chain Reaction	b1, b2,	Materials in PCR technique Procedure of PCR technique	1	1
12	General Examination of Animals	a2, d2, c2	<ul style="list-style-type: none"> • Palpation and Auscultation • Heartbeats • Respiratory Rate • Rumen Movements • Pulsation 	1	1
13	Examination of Skin & Appendages	a1, d1	<ul style="list-style-type: none"> • Abnormalities in skin coat • Elasticity of Skin 	1	1

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			<ul style="list-style-type: none"> • Skin Lesions 		
14	<p>Examination of Eyes & Ears</p> <p>Examination of Skin Scrapings</p>	a1, a2, c2	<p>Eyes</p> <ul style="list-style-type: none"> • Diseases of eyes • Testing of eye function <p>Ear</p> <ul style="list-style-type: none"> • Diseases of ear • Ear Function Test • General considerations • Examination of skin scrapings for management • Examination of skin scrapings for fungi • Lice, mites, ticks & fleas 	1	1
Number of Weeks /and Units Per Semester				14	14

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Course Plan of Veterinary Laboratory Diagnosis

X. - Information about Faculty Member Responsible for the Course:							
Name of Faculty Member	Dr. Hussein Abdulhadi Al-Wadei	Office Hours					
Location & Telephone No.	Faculty of Veterinary Medicine Building	SAT	SUN	MON	TUE	WED	THU
E-mail	haalwadei@gmail.com	8am 2pm	8am 2pm	8am 2pm	8am 2pm	8am 2pm	

XI. Course Identification and General Information:						
1-	Course Title:	Veterinary Laboratory Diagnosis				
2-	Course Number & Code:	IM568				
3-	Credit hours:	C.H				Total
		Th.	Seminar	Pr.	F. Tr.	
		1	-	2	-	3
4-	Study level/year at which this course is offered:	Second Semester Fifth Year				
5-	Pre –requisite (if any):	MI353, MI355, MI357				
6-	Co –requisite (if any):	None				
7-	Program (s) in which the course is offered	Veterinary Medicine				
8-	Language of teaching the course:	English				
9-	System of Study:	Regular / Semester				
10-	Mode of delivery:	Lectures and Practical				
11-	Location of teaching the course:	Faculty of Veterinary Medicine Building				

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II. Course Description:

This course is designed to provide students with necessary background to perform basic veterinary clinical or laboratory procedures such as examination of blood and urine for diagnostic and prognostic purposes. Along with examination of blood and urine, students will learn to perform several tests including blood counts, serological tests, and complete urinalyses. Furthermore, students will know how to perform milk analysis, skin scraping, and practice on how to do an x-ray film process. Theories of tests, methodology for care, relevance of quality laboratory results in the evaluation of the health of animals, and maintenance of veterinary laboratory equipment will be covered in lecture periods.

II. Intended learning outcomes (ILOs) of the course:

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After completing this course, students will be able to:

- a1- Explain concepts/procedures related to laboratory tests: sampling and transport of biological/infectious materials, biosafety, biohazard classifications, quality control for laboratory techniques and analyses in order to perform a proper risk assessment and plan for containment and transport.
- a2- Identify the terminology, epidemiology, laboratory diagnosis, control and prevention of infectious and non-infectious diseases of animals
- b1- Appraise molecular (PCR) and serological (ELISA) pathogen detection tests in order to identify an appropriate diagnostic strategy for a specified pathogen infection
- b2- Analyze information from a variety of sources to diagnose and prognose a disease.
- c1- Perform a complete blood count, including microscopic examination of a blood film, slide preparation techniques, staining techniques
- c2- Identify commonly used laboratory instruments and equipment, and describe proper procedures for their operation, care, and maintenance
- d1- Demonstrate the ability to work as part of a team through the collection and presentation of information
- d2- Practice safety in the laboratory while working with others, during a clinical procedure and while handling hazards objects

V. Course Content:

A – Theoretical Aspect:

Order	Topics List	Week Due	Contact Hours
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1	Collection of Samples	1	1
2	Clinical Hematology	2	1
3	Bone Marrow Examination	3	1
4	Clinical Biochemistry	4	1
5	Urinalysis	5	1
6	Clinical Parasitology	6	1
7	Rumen Fluid Examination Milk Examination	7	1
8	Midterm Exam	8	1
9	Clinical Microbiology	9	1
10	Serology	10	1
11	Polymerase Chain Reaction	11	1
12	Examination of Skin Appendages	12	1
13	Examination of Musculoskeletal System	13	1
14	Examination of Eyes & Ears	14	1
15	Examination of Skin Scrapings	15	1
16	Final Exam	16	1
Number of Weeks /and Units Per Semester		16	16

b- Training Aspect:

Order	Training Tasks	Week Due	Contact hours
1	Collection of blood sample	1	2
2	Chemical analysis of blood samples (site, size of needles, sterilization...etc.)	2	2
3	Taking and reading x-ray film results	3	2
4	Protein, lipid, carbohydrate analysis	4	2

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5	Practical Exam 1	5	2
6	Macroscopic & Microscopic Examination of the Urine	6	2
7	Parasitic and Protozoal Examination Rumen Fluid Examination	7	2
8	Midterm Exam	8	2
9	Macroscopic and microscopic examination of Milk	9	2
10	Practical Exam 2	10	2
11	Proper ways of Bacterial, Viral and Fungal Examination	11	2
12	Determination of Blood Type -Determination of Coagulant Agents	12	2
13	Understanding of Genetic Molecular Analysis (PCR, R-PCR, Q-PCR)	13	2
14	Physical Examination of Animals for General Health Signs	14	2
15	Performing Skin Scraping	15	2
16	Final Exam	16	2
Number of Weeks /and Units Per Semester		16	32

V. Teaching strategies of the course:

- Lectures
- Group discussions
- Literature Review
- Brainstorming
- Practical Seminars
- Individual assignments

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VI. Assessment Methods:

- The written test
- Short tests (Quizzes)
- Oral tests
- Evaluation of reports
- Assignments (Homeworks)
- Projects
- Presentations

Grading Scale:

Grades are awarded on a scale from A to F, where A is the best grade (91-100) and F is a fail (<50).

N.B.:

1. Any student who pass the 25% of the class attendance will not be allowed for the final exam.
2. Students are advised to study hard in the class during the semester.
3. Retaking an exam is not allowed without valid excuse.

No.	Type of Assessment Tasks	Week Due	Mark	Proportion of Final Assessment
1	Participation, quizzes and Assignments	2-14	10	10%
2	Mid-semester exam	8	10	10%
3	Mid-Term Practical Exam	8	10	10%
4	Final Practical Exam	16	10	10%
5	Final Oral Exam	16	5	5%
6	Final Written Exam	16	55	55%
Total			100	100%

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II. Learning Resources:	
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1- Required Textbook(s) (maximum two).	
2- Essential References.	
3- Electronic Materials and Web Sites etc.	
	PubMed https://www.ncbi.nlm.nih.gov/pubmed/

II. Course Policies:	
1	Class Attendance: MANDATORY TO ATTEND ALL COURSE LECTURES
2	Tardy: Not allowed at all. Students must be in class 10 minutes prior to the beginning of lectures or labs.
3	Exam Attendance/Punctuality: Attendance is mandatory; absence is accepted with valid excuse. Students must be on time for each exam, tardiness is not permissible
4	Assignments & Projects: All assignments and projects are to be submitted on their due date. Any assignment turned in after the due date will not be accepted without valid and reasonable excuse.
5	Cheating: Not tolerated and may lead to EXPELLING the student from the program
6	Plagiarism: Not tolerated AT ALL and may lead to EXPELLING the student from the program
7	Other policies: <ol style="list-style-type: none"> All devices must be on silent or at least on vibration during lectures/labs. Before any exam (written, practical, oral) student's identity will be checked (student's card, ID, passport). Without any of these documents, the student will not be allowed in the exam room.

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| | <ol style="list-style-type: none">3. Any of type/ form of cheating is not allowed no matter what.4. Maintain silence during lectures and disturbance is not allowed. |
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