



**Kafrelsheikh University**  
Faculty of Veterinary Medicine



**Kafrelsheikh University**

**Faculty of Veterinary Medicine**

**Department of Biochemistry**

# **Program Specification for Master Degree**

**(2021 - 2022)**

**Program Title:**

**Master of The Veterinary Medicine**

**(Biochemistry)**



### **A- Administrative information:**

- 1- **Awarding Body:** Kafrelsheikh University
- 2- **Teaching Body:** Faculty of Veterinary Medicine
- 3- **Department responsible:** Biochemistry
- 4- **Program Title:** Master Degree in Veterinary Science (Biochemistry)
- 5- **Final award:** Master Degree
- 6- **Registration period:** 2-4 years
- 7- **Program Coordinator:** Prof. Dr.
- 8- **External evaluator:**
- 9- **Date of revision:**
- 10- **Date of approval:**

### **B- Professional information:**

#### **1-Educational aims of the program**

- Provides graduates the opportunity to develop communication and teaching skills and the experience of scientific research.
- Develops the ability of graduate to engage critically with recent techniques and diagnostic tools in the field of Biochemistry, clinical Biochemistry and molecular Biology.
- Supplies the graduates with the most recent knowledge in science and technological applications in Biochemistry, clinical Biochemistry and molecular Biology.
- Demonstrates an awareness of the connections between disciplines and develop the ability to engage critically with scientific literature and to critically review and present their own research data for the protection and promotion of the animal health.
- Allows graduates to develop practical research project.
- Enables graduates to achieve competency in modern laboratory technology.

#### **2- Academic standards:**

**Academic reference standards (ARS) adopted by the faculty committee No (1) 14-9-2014)**



### **3-Graduate attributes:**

*Upon successful completion of the program, the graduate has the ability to:*

- 1) Perfect application of scientific research basics and methodologies in Biochemistry and Molecular Biology, and using its advanced tools.
- 2) Application and use of analytical methods for detection of different metabolic pathways.
- 3) Application of gained specialized knowledge and integrating them with the relevant knowledge in Biochemistry.
- 4) Awareness with the advanced theories in dealing with different metabolic pathways and relations between them.
- 5) Identification of the problems in the area of Biochemistry and Molecular Biology.
- 6) Mastering the proper scope of specialized professional skills, and using appropriate Biochemical and Molecular technological means.
- 7) Effective communication with students, researchers and leading work team.
- 8) Molecular Biochemistry Decision making for suggesting the relation between different molecular mechanism in the body and coordination between them.
- 9) Uses of the available resources efficiently in the development of new techniques and work to find new molecular mechanisms.
- 10) Awareness with his role in society development and community preservation.
- 11) Reflection of the commitment to act with integrity, credibility and the rules of profession.
- 12) Academic and professional self-development and ability for life-long learning and progress by studying modern biochemical molecular aspects.

### **4-Programme outcomes [intended learning outcomes (ILOs)]**

#### **a. Knowledge and understanding:**

*By the end of this program the graduate should be able to:*

- a.1. Recognize theories and principles in the field of Biochemistry and related fields.
- a.2. Identify mutual effect between professional practice and its impact on body metabolism and function.
- a.3. Recognize scientific progress in the field of Biochemistry
- a.4. Confirm the health and safety assessment of metabolic pathways.
- a.5. Apply the basics and ethics of scientific research in the field of Biochemistry.
- a.6. Ensure the legal and ethical basics of professional practice in the field of Biochemistry.

#### **b. Intellectual skills:**

*At the end of the program, graduate must be able to:*

- b.1. Analyze and judge the information in the field of Biochemistry and analog to solve problems
- b.2. Relate between different knowledge to solve professional metabolic disorders.
- b.3. Relate between the various sources of knowledge to solve biochemical in producing animal and poultry.
- b.4. Develop a research proposal in the field of Biochemistry and/ or write scientific article on a research problem.



- b.5. Assess risks of professional practices in Biochemistry and their possible consequences.
- b.6. Plan to enhance professional performance the field of Biochemistry.
- b.7. Make professional decisions and suggestions in dealing with biochemical problems in animals and poultry.

**c. Practical and professional skills:**

*At the end of the programme, graduate must be able to:*

- c.1. Apply basic and recent professional skills in the field of in Biochemistry
- c.2. Investigate existing materials and methods in Biochemistry
- c.3. Perform an experiment in Biochemistry and Chemistry of Nutrition and analyze data statistically.
- c.4. Write, conclude and evaluate a professional and conclusive report.
- c.5. Prepare a research project in the field of biochemistry.
- c.6. Conduct experiments for evaluation of metabolic disorders

**d. General and transferable skills:**

*At the end of the programme, graduate must be able to:*

- d.1. Communicate effectively with his professors, collages and animal owner(s).
- d.2. Utilize different sources of knowledge and information.
- d.3. Assess him and identify his personal educational needs.
- d.4. Demonstrate interpersonal skills and team working ability
- d.5. Demonstrate an ability to learn independently for a career of lifelong learning.
- d.6. Use information technology to serve the professional practice.
- d.7. Manage time efficiently.
- d.8. Set tools and indicators for assessment of the performance of others.

**5-Program structure:**

a. Program duration (years):

Master degree from 2-4 years

b) Premaster courses – at least one academic year

Course	Lecture (hours/week)	Practical (hours/week)
Fundamental (core) course	3	4
Research methodology	1	2
2-5 Elective Courses Offered by other departments and are selected from the list below according to thesis topic (10-12 hours)	5-6	5-6

c) M.V.Sc Thesis (at least one academic year)

- All master-degree students should prepare a master thesis.



- The department and the ethical committees must approve the protocol of the research.
- The thesis should include a review part and a research part.
- The thesis is supervised by one or more senior staff members of the department responsible for the program and may include other specialties according to the nature of the research.
- The thesis should be evaluated and approved by a committee of three professors including one of the supervisors and an external professor.

*A number of subsidiary courses are selected from the following list according to the title of the research work:*

Subject	Code	Course title	No of hours/week	
			Lecture	Practical Lab
Anatomy and embryology	101/1	<b>1- Applied anatomy</b>	2	2
	102/1	<b>2- Anatomical techniques and surface anatomy</b>	2	2
	103/1	<b>3- Osteology and arthrology</b>	2	2
	104/1	<b>4- Comparative digestive system</b>	2	2
	105/1	<b>5- Comparative uro-genital system</b>	2	2
	106/1	<b>6-Comparative respiratory system</b>	2	2
	107/1	<b>7- Comparative cardiovascular system</b>	2	2
	108/1	<b>8- Comparative nervous system and endocrine glands</b>	2	2
	109/1	<b>9- General and special embryology</b>	2	2
	110/1	<b>10- Avian anatomy</b>	1	2
Histology	111/1	<b>11- cytology and cytochemistry</b>	1	2
	112/1	<b>12- general histology</b>	2	2
	113/1	<b>13- Histology and histochemistry of blood, lymph and cardiovascular system.</b>	1	1
	114/1	<b>14- Comparative histology and histochemistry of body muscles, heart and blood vessels</b>	1	1
	115/1	<b>15- Comparative histology and histochemistry of respiratory system</b>	1	1
	116/1	<b>16-Comparative histology and histochemistry of digestive system</b>	2	2
	117/1	<b>17- Comparative histology and histochemistry of uro-genital system</b>	2	2
	118/1	<b>18- Comparative histology and histochemistry of nervous</b>	2	2



		<b>and endocrine systems</b>		
	119/1	<b>19- Histology and histochemistry of special sensors</b>	1	2
	120/1	<b>20-Histology and histochemistry of skin, hooves, claws and nails</b>	2	2
	121/1	<b>21- Avian histology</b>	2	2
	122/1	<b>22- Fish histology</b>	1	2
<b>Physiology</b>	123/1	<b>23- Physiology of mammalian endocrine and reproduction</b>	2	2
	124/1	<b>24- poultry physiology (advanced)</b>	2	2
	125/1	<b>25- physiology of muscle and nerve</b>	1	2
	126/1	<b>26- physiology of ruminants</b>	2	2
	127/1	<b>27- physiology of environment, adaptation and cell</b>	2	2
	128/1	<b>28- physiology of blood</b>	2	2
	129/1	<b>29- physiology of digestion, metabolism and energy</b>	2	2
	130/1	<b>30- Physiology in pollution</b>	1	2
	131/1	<b>31- Radioactive isotopes and biological uses</b>	2	2
	132/1	<b>32- Physiology of heights</b>	1	1
	133/1	<b>33-Fish physiology.</b>	1	2
<b>Animal behavior and management</b>				
	144/1	<b>44- Behavior and management of ruminants ( specific courses in cattle, buffalo, sheep, camels and goats)</b>	2	3
	145/1	<b>45- Behavior and management of horses</b>	2	3
	146/1	<b>46- Behavior and management of pet animals</b>	1	2
	147/1	<b>47- Behavior and management of laboratory animals</b>	1	2
	148/1	<b>48- Behavior and management of wild animals</b>	2	2
	149/1	<b>49- Behavior and management of poultry</b>	2	2
	150/1	<b>50- Behavior and management of rabbit</b>	1	2
	151/1	<b>51- Behavior of experimental animals</b>	1	2
<b>Nutrition and clinical nutrition</b>				
	152/1	<b>52- Basics of animal nutrition</b>	2	2
	153/1	<b>53- feedstuff</b>	2	2
	154/1	<b>54- nutrition of farm animals and fish specific courses in ( cattle and buffalo nutrition – sheep and goat nutrition – camel nutrition- equine nutrition – fish nutrition)</b>	2	2
	155/1	<b>55- poultry and rabbit nutrition( advanced)</b>	2	2
	156/1	<b>56- wild animal nutrition</b>	1	2
	157/1	<b>57- laboratory animal nutrition</b>	1	2



	158/1	<b>58- feed additives</b>	1	2
	159/1	<b>59- feedstuff analysis</b>	2	2
	160/1	<b>60- Quality control of feed and feed factories</b>	2	2
	161/1	<b>61- Clinical nutrition and malnutrition</b>	2	2
	162/1	<b>62- Fish nutrition</b>	1	2
<b>Pathology</b>	163/1	<b>63- General pathology and neoplasm( progressive)</b>	2	2
	164/1	<b>64-pathology of microbial and parasitic diseases in animal</b>	2	2
	165/1	<b>65- pathology of bad nutrition</b>	1	2
	166/1	<b>66- pathology of environmental pollution</b>	1	2
	167/1	<b>67- pathology of reproductive diseases</b>	1	2
	168/1	<b>68- Avian pathology</b>	2	2
	169/1	<b>69-Experimental pathology</b>	2	2
	170/1	<b>70- toxins pathology</b>	2	2
	171/1	<b>71- surgical pathology</b>	2	2
	172/1	<b>72- Pathology of experimental animals.</b>		
	173/1	<b>73- Pathology of genetics</b>		
	174/1	<b>74-- Fish pathology</b>	2	2
<b>Clinical pathology</b>	175/1	<b>75- Advanced clinical pathology</b>	2	2
	176/1	<b>76-Organ function tests and body and urine balance</b>	2	2
	177/1	<b>77- Clinical hematology and bone marrow examination</b>	1	2
<b>Bacteriology, immunology and mycology</b>	178/1	<b>78- General bacteriology(advanced)</b>	1	2
	179/1	<b>79-systemic bacteriology</b>	2	3
	182/1	<b>80- Advanced immunology</b>	2	2
	183/2	<b>81- Advanced mycology</b>	1	2
<b>Virology</b>	180/3	<b>82- General virology</b>	1	2
	181/4	<b>83-Systemic virology( specific courses)</b>	2	3
	182/5	<b>84- Advanced immunology</b>	2	2
<b>Mixed courses between Bacteriology and Virology</b>	184/1	<b>85- Microbiology of poultry</b>	2	2
	185/1	<b>86- Microbiology of ??????</b>	1	2
	186/1	<b>87- Microbiology of animal product</b>	2	2
	187/1	<b>88- Fish Microbiology</b>	1	2
		<b>81- Advanced immunology</b>	2	2
<b>Parasitology</b>	188/1	<b>89- Veterinary medical entomology and acarology</b>	2	2
	189/1	<b>90-helminthology</b>	2	2
	190/1	<b>91- protozoology</b>	2	2
	191/1	<b>92- Avian and rabbits parasitology</b>	2	2
	192/1	<b>93Malacology and its vet. Importance</b>	1	2
	193/1	<b>94- parasitic Immunology</b>	1	2



	194/1			
	195/1			
	196/1	<b>97-Special vet. Parasitology</b>	2	2
	197/1	<b>98- Physiology and biochemistry of parasites</b>	2	2
	198/1	<b>99- Fish parasitology</b>	1	2
<b>Pharmacology</b>	199/1	<b>100- Aeneral pharmacology ( advanced)</b>	2	2
	200/1	<b>101- pharmacology of autonomic nervous system and autocoid</b>	2	2
	201/1	<b>102- pharmacology of central nervous system</b>	2	2
	202/1	<b>103 pharmacology of anesthesia</b>	2	2
	203/1	<b>104- Systemic pharmacology</b>	2	2
	204/1	<b>105- pharmacology of metabolism</b>	2	2
	205/1	<b>106- pharmacology of hormones</b>	2	2
	206/1	<b>107-Chemotherapy</b>	2	2
	207/1	<b>108-Biological evolution of drug</b>	1	1
<b>Hygiene and control of milk and dairy products</b>	208/1	<b>108- Hygiene and control of milk and dairy products</b>	2	2
	209	<b>109- Microbiology of milk and dairy products</b>	2	2
	210/1	<b>110- Milk technology and preservation</b>	2	2
	211/1	<b>111- Food analysis</b>	2	2
	212/1	<b>112- Food poisoning</b>	1	2
	213/1	<b>113- Specific courses on sources of contamination, disturbances of milk production, milk born diseases, hygiene of table egg, edible fats and oils</b>	1	1
	214/1	<b>114- The sanitation of dairy plant</b>	2	2
<b>Control of meat hygiene and their products</b>	215/1	<b>115- Slaughter animal Hygiene</b>	1	2
	216/1	<b>116- Abattoir management and hygiene</b>	2	2
	217/1	<b>117- Hygienic control of meat and their product</b>	2	2
	218/1	<b>118 inspection of poultry meat.</b>	1	2
	219/1	<b>119- Food technology</b>	1	2
	220/1	<b>120- Microbiology of meat and fish meats and their product</b>	2	1
	221/1	<b>121- Chilled meal microbiology</b>	1	2
	222/1	<b>122- Analysis of meat and fish and their product</b>	1	2
	223/1	<b>123- Preservation of meat, poultry, fish and their products</b>	1	2
	224/1	<b>124- Sanitation affairs of meat and fish plants.</b>	2	2
<b>Internal medicine</b>	225/1	<b>125- advanced general medicine</b>	2	2
	226/1	<b>126- disease of ruminants( cattle, buffalo, camels, sheep and goats)</b>	3	3
	227/1	<b>127- diseases of equines</b>	2	2





	228/1	<b>128 diseases of pet animals</b>	2	2
	229/1	<b>129- diseases of wild animals</b>	2	2
	230/1	<b>130- diseases of metabolic disorders</b>	2	2
	231/1	<b>131- nutritional deficiency diseases</b>	2	2
	232/1	<b>132- Skin diseases</b>	1	2
	233/1	<b>133 - diseases of newly born animals</b>	2	2
	234/ 1	<b>134- Stress diseases during animals transport.</b>		
<b>Infectious diseases</b>	235/ 1	<b>135- Infectious diseases of cattle</b>	2	2
	236/ 1	<b>136- Infectious diseases of sheep and goat</b>	2	2
	237/ 1	<b>137- Infectious diseases camel</b>	2	2
	238/ 1	<b>138 Infectious diseases of equine</b>	2	2
	239/ 1	<b>139- Infectious diseases of pet animals</b>	2	2
	240/ 1	<b>140- Infectious diseases lab animals</b>	1	2
	241/ 1	<b>141- Infectious diseases of udder and newly born animals</b>	2	2
	242/ 1	<b>142- Infectious diseases buffaloes</b>	2	1
	243/1	<b>143- Infectious diseases of wild animals.</b>		
<b>Forensic medicine and toxicology</b>	244/1	<b>144- Forensic medicine and veterinary procedures</b>	2	2
	245/1	<b>145- general toxicology</b>	2	2
	246/1	<b>146- environmental toxicology</b>	2	2
	247/1	<b>147- forensic toxicology</b>	2	2
	248/1	<b>148- laboratory diagnostic toxicology</b>	2	2
	249/1	<b>149- Drug toxicology</b>		
<b>Veterinary Surgery</b>	259/1	<b>159- General surgery (advanced)</b>	2	2
	260/1	<b>160- Special surgery( organs)</b>	2	3
	261/1	<b>161- surgery of eye, ear, nose and larynx</b>	2	2
	262/1	<b>162 digestive system surgery</b>	2	2
	263/1	<b>163- surgery of the limbs, hoof and claws</b>	2	2
	264/1	<b>164- experimental surgery</b>	2	2
	265/1	<b>165- anesthesiology</b>	1	1
	266/1	<b>166- radiology and ultrasonography</b>	2	2
<b>Poultry and rabbit diseases</b>	267/1	<b>167- bacterial diseases of poultry</b>	2	2
	268/1	<b>168- viral diseases of poultry</b>	2	2
	269/1	<b>169- fungal diseases of poultry</b>	2	2
	270/1	<b>170 parasitic diseases of poultry</b>	1	2
	271/1	<b>171 - nutritional diseases of poultry</b>	1	2
	272/1	<b>172-diseases of rabbit (advanced)</b>	2	2
	273/1	<b>173-Diseases of wild and migrating birds</b>	2	2
	274/1	<b>174- Preventive vaccines and their evaluation in polutry</b>	2	2
	275/1	<b>175- Laboratory diagnosis of poultry diseases.</b>		



<b>Animal and environmental hygiene</b>	276/1	<b>176- farm animal hygiene ( advanced)</b>	2	2
	277/1	<b>177- poultry hygiene ( advanced)</b>	2	2
	278/1	<b>178- environmental hygiene and pollution</b>	2	2
	279/1	<b>179- control of contagious diseases</b>	2	2
	280/1	<b>180- eradication of rodents and disease vector</b>	2	2
	281/1	<b>181- insecticides and public health</b>	2	2
	282/1	<b>182-hygiene of animal enclosures- specific courses in :- cattle houses – poultry houses – rabbit houses- pet animals house3s – experimental animals houses</b>	2	2
	283/1	<b>183-disinfections and disinfectants</b>	2	2
	284/1	<b>184- veterinary epidemiology – specific courses in animal environment</b>	2	-
<b>Zoonoses</b>	285/1	<b>185- advanced zoonoses ( specific courses in bacterial and Mycotic diseases – viral diseases – parasitic diseases)</b>	2	2
	286/1	<b>186- role of rodents in transmission of zoonoses</b>	2	2
	287/1	<b>187- role of wild animals in transmission of zoonoses</b>	2	2
	288/1	<b>188- role of birds (special courses in: poultry, wild migrating or pets) in transmission of zoonoses</b>		
<b>Genetics and genetic engineering</b>	289/1	<b>189- Genetics of microorganisms .</b>	1	2
	290/1	<b>190- Genetic engineering( advanced)</b>	1	2
	291/1	<b>191- Cytological genetics</b>	1	-
	292/1	<b>192- Genetics of genuses.</b>	2	-
	293/1	<b>193- physiological genetics</b>	2	-
	294/1	<b>194- Chemical and radiological genetics.</b>	1	2
<b>Animal production</b>	295/1	<b>195- Animal breeding and improvement (advanced).</b>	2	-
	296/1	<b>196- Poultry breeding and improvement(advanced).</b>	2	-
	297/1	<b>197- Cattle and buffalo production (advanced).</b>	2	2
	298/1	<b>198- Sheep and goat production (advanced).</b>	2	2
	299/1	<b>199- Poultry production (advanced).</b>	2	2
	300	<b>200-Rabbit production (advanced).</b>	2	2
	301	<b>201-Improving by artificial insemination in poultry and rabbits.</b>	2	2
<b>Fish diseases and management</b>	302/1	<b>202- Biology of fish.</b>	2	2
	303/1	<b>203-Fish diseases (advanced)</b>	2	2
	304/1	<b>204-Fish farms.</b>	1	2



	305/1	<b>205-Fish breeding .</b>	2	2
<b>Economic and farms management</b>	306/1	<b>206- economics of animals and dairy production</b>	2	-
	307/1	<b>207- economics of poultry farms</b>	2	-
	308/1	<b>208-economics of fish farms</b>	2	-
	309/1	<b>209- feasibility studies</b>	2	-
	310/1	<b>210- farm management</b>	2	-
	311/1	<b>211- economics of beef production</b>	2	-
<b>Biostatistics</b>	312/1	<b>212- Biostatistics (advanced)</b>	2	-
	313/1	<b>213- Experimental design</b>	2	2
	314/1	<b>214- Computer and data processing</b>	2	1

### 6-Teaching and Learning Methods:

*The program features a variety of teaching approaches for different intended learning objectives including:*

- Lectures to gain knowledge and understanding skills
- Writing a review paper to gain the skills of self-learning and presentation
- Practical and lab sessions to gain practical skills
- Seminars

### 7- Students assessments:

The program depends on different assessment ways:

#### a. Course assessment:

<b>1- Written examination</b>	<b>For assessment of knowledge, back calling and Intellectual skills</b>
<b>2- Practical examination</b>	<b>For assessment of practical and professional skill</b>
<b>3- Oral examination</b>	<b>For assessment of knowledge and Intellectual skills</b>

#### b. Master Thesis

- Annual reports adopted by the Faculty
- Finally, the assessment of thesis measure the individual student ability to work independently in the field specialization
- Final evaluation and approval by a judging committee of at least three professors including one or more of the supervisors and an external professor. This assesses the ability to write a review article, perform the needed practical steps and to present the results in tables and graphs. In addition, the



skills of analysis of results and discussion with previous findings obtained by other authors are also assessed.

**Assessment of program intended learning outcomes**

	<b>Tool or method</b>	<b>ILOs</b>
1-	Written	a1,2; b1,2,3,5,6,7
2-	Oral	a1,2,5; b2,3,4,6
3-	Practical	b1,7; c1-5
4-	Thesis	a2-7; b1-7, c1-6, d1-8

**8. Marking scale as follow:-**

<b>Excellent</b>		> 90
<b>Very good</b>		>80
<b>Good</b>		>70
<b>Pass</b>		>60
<b>Fail</b>	<b>Weak</b>	45 to less than 60
	<b>very weak</b>	Less than 45

**9. Program evaluation methods**

<b>Evaluator</b>	<b>Tool</b>	<b>Sample</b>
Postgraduate Student	Questioners	<b>20%</b>
	Meeting	<b>1</b>
Postgraduate alumni	Questioners	<b>5</b>
Stakeholders (employers)	Questioners	<b>10</b>
	Meeting	<b>1</b>
External evaluator/External examiner	Reports	<b>1</b>

**10. Program Admission Requirements:**

The Applicant must normally satisfy the faculty of veterinary medicine- kafrelsheikh University general entrance and requirement. The normal minimum entrance qualification for registration at the faculty on a master's program

- 1- Bachelor degree in Veterinary Medical Sciences of one of the Egyptian Universities or hold a degree in Veterinary Medical Sciences equivalent through the Supreme Council of Universities with general grade at least "Good" and at least grade "Very Good" in specialization.
- 2- Diploma of general grade at least "Good" and at least grade "Very Good" in specialization. The total number of study hours must be not less than 3 weekly in that specialization.
- 3- After he has passed the courses studied during premaster he must perform a research work in a subject approved by the faculty council at least for one year. He must submit the results of this work in thesis that should be approved by the discussion committee.



## 11. Regulations for progression of program

- a) Registration period for the M.V.Sc in veterinary medical science is at least 2 years after the approval date by the faculty council and it should not exceed a period of 4 years, an extension could be approved by the faculty council depending on the supervisor report that approved by the department council and postgraduate and research committee refers to the universities regulation law.
- b) The student should conduct the courses proposed by both department council and approved by postgraduate and research committee and faculty council and include, 2-5 courses of the postgraduates stated in article (28) in regulation law list and the student will entitled to apply for the exam only after meeting attendance rate for each courses.
- c) The student should pass written, practical and oral exams successfully in all courses, and the examination is held two times annually.
- d) The Faculty council should deprive the student from entering the exam if his attendance rate in the course is less than 75%.
- e) Failure or depriving from entering one or more course did not require reexamination of successful passed courses.
- f) The applicant should conduct an innovate research on the subject that has been registered for at least 2 years from the date of registration approved by the faculty council. And the faculty council depending on a request from the supervisor has the right to authorize the student to do scientific experiments at recognized scientific institute.
- g) The applicant should submit the thesis that accepted by the judging committee in an open discussion and the following policies should be met:
- h) Pass all courses.
- i) The applicant should submit 4 copies of his thesis concerned department council to form committee examining the thesis to be presented to the postgraduate studies committee and the faculty council, and in case of thesis approval by the department council, the applicant will submit 6 copies for the faculty library, 1 copy for public university library before introducing the report of examination committee to the post graduate studies committee and the faculty council.
- j) Registration will be during March and September of each year.
- k) The applicant should submit a request enrolment for the dean who forwards bit to the concerned department council to determine the research subject and the study program and then take calendar after complete documentation on the faculty council for approval.
- l) The thesis title should be identified before being submitted at least 2 months and the judging committee has the right to amend the title without prejudice the subject of research.
- m) The Faculty council has the right to suspend the student enrolment for a certain period if he has acceptable excuse preventing him from continuing his study or research, and his period will not counted within the period stated in article 25.
- n) The applicant should submit 5 hard copies and 10 electronic copies (CDs) of the thesis after its validity approved by the judging committee and head of department to be



distributed to the committee members and faculty library and the judging committee can decide the exchange of the thesis with other universities or printing at the expense of the university.

**12. Registration will be cancelled in one of the following cases:**

1. If the supervisors report during the registration period is un satisfactory (2 reports).
2. If he did not submit his thesis before the end of registration period.
3. If the judging committee rejected the thesis twice.

**13. Examination Regulations**

- a- Time of written exam, 3 hours for each course that has 3 hours or more for lecture / practical /week. **If has less than 3 hours/week, the time of exam, is 2 hours only.**
- b- The final degree of each course which has 3 hours (lecture and practical) per week is **100 and less than 3 hours is 50 degrees and divided into 50% for written exam, and 50% for practical and oral exam.**

**14. Program completion:**

- Successfully completion of the required courses and submission of a thesis.

**Program Co-ordinator**

Prof. Dr.

**Head of Department**

Prof. Dr.



Program ILOs	ARS																								
	K&U (a)						I.S. (b)							P.P. (c)				G.T. (d)							
	1	2	3	4	5	6	1	2	3	4	5	6	7	1	2	3	4	1	2	3	4	5	6	7	8
K&U	1 2	3	4	5	6	7																			
I.S.							1	2	3	4	5	6	7												
P.P.														1	3	4	5								
G.T.																		1	2	3	4	5	6	7	8



## Program Specification Matrix

### Master in Veterinary Medicine (Biochemistry)

Courses		Total Contact hours/ course	No. of hours / week			KU (a)						IS (b)							PPS (c)						GTS (d)																				
						Lect.	Lab.	Total	1	2	3	4	5	6	1	2	3	4	5	6	7	1	2	3	4	5	6	1	2	3	4	5	6	7	8										
-	Fundamental (Basic) course	308	3	4	7	x	x	x				x	x	x									x								x	x	x	x											
-	Research methodology	176	1	3	4			x	x	x			x	x	x									x														x	x	x					
	Elective courses	10-12 hours/ week				x						x											x													x	x	x							
<b>Thesis</b>										x	x																																		

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.







**Kafrelsheikh University**  
Faculty of Veterinary Medicine



**Kafrelsheikh University**  
**Faculty of Veterinary Medicine**  
**Department of Biochemistry**



## **ARS for Master in Veterinary Medicine (Biochemistry)**

### **1) Graduate attributes**

*The graduate should have the ability for:*

- (1) Perfect application of scientific research basics and methodologies in Biochemistry and Molecular Biology with the use of its advanced tools.
- (2) Application and use of analytical methods for detection of different metabolic pathways.
- (3) Application of gained specialized knowledge and integrating them with the relevant knowledge in animal Biochemistry.
- (4) Awareness with the advanced theories in dealing with different metabolic pathways and relations between them.
- (5) Identification of the problems in the area of Biochemistry.
- (6) Mastering the proper scope of specialized professional skills, and using appropriate Biochemical and Molecular technological means.
- (7) Effective communication with students, researchers and leading work team.
- (8) Molecular Biochemistry decision making for suggesting the relation between different molecular mechanism in the body and coordination between them.
- (9) Uses of the available resources efficiently in the development of new techniques and work to find new molecular mechanisms.
- (10) Awareness with his role in society development and community preservation.
- (11) Reflection of the commitment to act with integrity, credibility and the rules of profession.
- (12) Academic and professional self-development and ability for life-long learning and progress by studying modern biochemical molecular aspects.



### A) Knowledge and understanding

Adopted ARS		NARS (Master)
	<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Basic concepts and ethics in the field of Biochemistry and related fields.	Theories and principles in the field of specialization and related fields.
2)	The mutual effect between biochemical and molecular studies on the environment and methods of environmental development and maintenance.	Mutual effect between professional practice and its impact on environment
3)	Application of his knowledge about recent biochemical and molecular research methods and its utility.	Scientific progress in the field of specialization
4)	Legal and ethical principles of professional practice in the area of biochemistry and molecular biology.	Legal and ethical basics in professional practice in the field of specialization
5)	Health and safety risk assessments of harmful effects of different chemicals	Principles and basics of quality assurance in the area of specialization
6)	Basics and ethics of scientific research especially that involving laboratory animals	Basics and ethics of scientific research

### B) Intellectual skills

Adopted ARS		NARS (Master)
	<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Analysis and evaluation of information about metabolic pathways and coordinate with them.	Analysis and judgment of information in the field of specialization and analog to solve problems.
2)	Solving different problems in the area of Biochemistry using available data and recent techniques.	Solving professional problems even in scarcity of data.
3)	Development of creative approaches to solve technical problems or issues associated with running and researches project.	Relating between different knowledge to solve professional problems.



4)	Identification, summarizing and evaluating researches about different biochemical and molecular aspects and prepare scientific paper.	Preparing research plan in specialization and/ or writing scientific article on a research problem.
5)	Comprehending areas where further researches necessary and be aware of any which would be beyond current ethical code.	Risk-assessment of professional practices in specialization.
6)	Development of plans to improve performance in laboratory practice with advanced techniques.	Planning for improvement of professional performance.
7)	Using appropriate intellectual strategy to deal with laboratory diagnostic problems.	Taking professional decisions in a variety of professional contexts.

### C) Professional and practical skills

Adopted ARS		NARS (Master)
	<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Efficiently perform the required laboratory investigations in the field of Biochemistry	Mastering basic and recent professional skills in the field of specialization
2)	Application of the principles of good experimental design and analysis to their own research project	Writing and evaluating professional reports.
3)	Planning a research project in the field of Biochemistry with a consideration to the technical, ethical and safety issues and associated costs.	Evaluating existing materials and methods in the area of specialization.
4)	Using modern biochemical and molecular technological means to serve laboratory diagnosis for different metabolic disorders	Using modern technological means to serve professional practice

### D) General and transferable skill

Adopted ARS		NARS (Master)
	<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and accommodate the following:</i>



1)	Communicating effectively with his professors, collages and students	Effective communication.
2)	Using information technology to serve the professional practice.	Utilizing information technology to serve development of professional practice.
3)	Self-assessment and identify his personal educational needs.	Self-assessment and determination of personal educational needs.
4)	Utilizing different sources of knowledge and information.	Using different resources to obtain knowledge and information.
5)	Using appropriate attitude and rules towards teaching staff and colleagues and use evidence based evaluations.	Establishing rules and indicators for assessment of the performance of others.
6)	Demonstrating interpersonal skills and team working ability.	Team working and leading a team in familiar professional contexts.
7)	Managing time efficiently.	Efficient time management.
8)	Demonstrating an ability to learn independently for a career of lifelong learning.	Self and continuous learning.

### ثانياً: برامج الماجستير

#### ١ - مواصفات الخريج

- خريج برنامج الماجستير في أي تخصص يجب أن يكون قادراً على:
١. إجادة تطبيق أساسيات و منهجيات البحث العلمي واستخدام أدواته المختلفة
  ٢. تطبيق المنهج التحليلي واستخدامه في مجال التخصص
  ٣. تطبيق المعارف المتخصصة و دمجها مع المعارف ذات العلاقة في ممارسته المهنية
  ٤. إظهار وعيا بالمشاكل الجارية و الرؤى الحديثة في مجال التخصص
  ٥. تحديد المشكلات المهنية و إيجاد حلولاً لها
  ٦. إتقان نطاق مناسب من المهارات المهنية المتخصصة، واستخدام الوسائل التكنولوجية المناسبة بما يخدم ممارسته المهنية
  ٧. التواصل بفاعلية و القدرة على قيادة فرق العمل
  ٨. اتخاذ القرار في سياقات مهنية مختلفة
  ٩. توظيف الموارد المتاحة بما يحقق أعلى استفادة و الحفاظ عليها
  ١٠. إظهار الوعي بدوره في تنمية المجتمع و الحفاظ على البيئة في ضوء المتغيرات العالمية و الإقليمية
  ١١. التصرف بما يعكس الالتزام بالنزاهة و المصداقية و الالتزام بقواعد المهنة
  ١٢. تنمية ذاته أكاديمياً و مهنياً و قادراً على التعلم المستمر

#### ١٢ - المعايير القياسية العامة

#### ١ المعرفة و الفهم

- بإنتهاء دراسة برنامج الماجستير يجب ان يكون الخريج على فهم و دراية بكل من:
- أ - النظريات و الأساسيات المتعلقة بمجال التعلم وكذا في المجالات ذات العلاقة
  - ب - التأثير المتبادل بين الممارسة المهنية وانعكاسها على البيئة
  - ت - التطورات العلمية في مجال التخصص
  - ث - المبادئ الأخلاقية و القانونية للممارسة المهنية في مجال التخصص



ج-مبادئ و أساسيات الجودة في الممارسة المهنية في مجال التخصص  
ح-أساسيات وأخلاقيات البحث العلمي

### ٢ المهارات الذهنية

- بانتهاء دراسة برنامج الماجستير يجب ان يكون الخريج قادرا على:  
أ -تحليل و تقييم المعلومات في مجال التخصص و القياس عليها لحل المشاكل  
ب -حل المشاكل المتخصصة مع عدم توافر بعض المعطيات  
ت -الربط بين المعارف المختلفة لحل المشاكل المهنية  
ث -إجراء دراسة بحثية و /أو كتابة دراسة علمية منهجية حول مشكلة بحثية  
ج -تقييم المخاطر في الممارسات المهنية في مجال التخصص  
ح -التخطيط لتطوير الأداء في مجال التخصص  
خ -اتخاذ القرارات المهنية في سياقات مهنية متنوعة

### ٣ المهارات المهنية

- بانتهاء دراسة برنامج الماجستير يجب ان يكون الخريج قادرا على:  
أ -إتقان المهارات المهنية الأساسية و الحديثة في مجال التخصص  
ب -كتابة و تقييم التقارير المهنية  
ت -تقييم الطرق و الأدوات القائمة في مجال التخصص

### ٤ المهارات العامة و المنقولة

- بانتهاء دراسة برنامج الماجستير يجب أن يكون الخريج قادرا على:  
أ -التواصل الفعال بأنواعه المختلفة  
ب -استخدام تكنولوجيا المعلومات بما يخدم الممارسة المهنية  
ت -التقييم الذاتي وتحديد احتياجاته التعليمية الشخصية  
ث -استخدام المصادر المختلفة للحصول على المعلومات و المعارف  
ج -وضع قواعد ومؤشرات تقييم أداء الآخرين  
ح -العمل في فريق ، وقيادة فرق في سياقات مهنية مختلفة  
خ -إدارة الوقت بكفاءة  
د -التعلم الذاتي و المستمر



**Kafrelsheikh University**  
Faculty of Veterinary Medicine



---

**Kafrelsheikh University**

**Faculty of Veterinary Medicine**

**Department of Animal Wealth Development**

# **Program Specification for Master Degree**

**(2021 - 2022)**

**Program Title:**

**Master of The Veterinary Medicine  
(Genetics and Genetic Engineering)**



### **A- Administrative information:**

- 1- **Awarding Body:** Kafrelsheikh University
- 2- **Teaching Body:** Faculty of Veterinary Medicine
- 3- **Department responsible:** Animal Wealth Development
- 4- **Program Title:** Master Degree in Veterinary Medicine (Genetics and Genetic Engineering)
- 5- **Final award:** Master Degree
- 6- **Registration period:** 2-4 years
- 7- **Program Coordinator:** Prof. Dr. Mohamed Atef Helal
- 8- **External evaluator:**
- 9- **Date of revision:**
- 10- **Date of approval:**

### **B- Professional information:**

#### **1-Educational aims of the program**

- Provides graduates the opportunity to develop communication and teaching skills and the experience of scientific research.
- Develops the ability of graduate to engage critically with recent techniques and tools in the field of Veterinary genetics and genetic engineering.
- Supplies the graduates with the most recent knowledge in science and technological applications in Veterinary genetics and genetic engineering.
- Demonstrates an awareness of the connections between disciplines and develop the ability to engage critically with scientific literature and to critically review and present their own research data for the protection and promotion of the animal genetics.
- Allows graduates to develop practical research project.
- Enables graduates to achieve competency in modern Veterinary genetics and genetic engineering technology.

#### **2- Academic standards:**

**Academic reference standards (ARS) adopted by the faculty committee No (1) 14-9-2014)**

#### **3-Graduate attributes:**

At the end of the program, graduate must be able to:

- 1) Perfect application of scientific research basics and methodologies in Veterinary genetics and genetic engineering, and using its various tools.
- 2) Application and use of analytical methodology in Veterinary genetics and genetic





- engineering.
- 3) Application of gained specialized knowledge and integrating them with the relevant knowledge in Veterinary genetics and genetic engineering.
  - 4) Awareness with current problems and recent visions in Veterinary genetics and genetic engineering.
  - 5) Identification of genetics and genetic engineering problems suggesting suitable and economic solutions.
  - 6) Mastering an appropriate scale of specific professional skills, and using suitable technological means to serve professional practice.
  - 7) Effective communication with students, animal breeders and owners of animal and poultry farms and leading work team.
  - 8) Decision making in various genetic problems in field neither breeding special breed nor culling.
  - 9) Employment of the available resources efficiently to maximize genetic value.
  - 10) Awareness with his role in society development and maximizing genetic value of animals with preservation of a clean environment.
  - 11) Reflection of the commitment to act with integrity, credibility and the rules of profession.
  - 12) Academic and professional self- development and ability for life-long learning and progress.

#### **4-Programme outcomes [intended learning outcomes (ILOs)]**

##### **a. Knowledge and understanding:**

*On successful completion of this program, postgraduate will be able to:*

- a.1. Explain different theories and principles in the field of Veterinary genetics and genetic engineering and related fields.
- a.2. Identify the impact of genetic engineering on animal and poultry products and its reflection on the environment
- a.3. Distinguish the scientific developments in the field of Veterinary genetics and genetic engineering.
- a.4. Demonstrate the ethical and legal principles for professional practice in the field of Veterinary genetics and genetic engineering.
- a.5. Realize the principles and basics of quality assurance in the area of Veterinary genetics and genetic engineering.
- a.6. Apply the basics and ethics of scientific research in the field of Veterinary genetics and genetic engineering.
- a.7. Realize the legal and ethical basics in the field of Veterinary genetics and genetic engineering.

##### **b. Intellectual skills:**

*At the end of the program, graduate must be able to:*

- b.1. Analyze and judge the information collected from animal and poultry farms on the basis of genetic indices.
- b.2. Determine an accurate approach to genetic problems and find the solution based on the available data.
- b.3. Relate between the various sources of knowledge to solve genetic problems in producing animal and poultry.



- b.4.** Develop a research proposal in the field of Veterinary genetics and genetic engineering and/ or write scientific article on a research problem.
- b.5.** Assess risks of professional practices in Veterinary genetics and genetic engineering and their possible consequences.
- b.6.** Plan to enhance professional performance the field of Veterinary genetics and genetic engineering.
- b.7.** Make professional decisions and suggestions in dealing with genetic problems in animals and poultry.

**c. Practical and professional skills:**

*At the end of the programme, graduate must be able to:*

- c.1.** Master the fundamental and recent professional skills in the Veterinary genetics and genetic engineering.
- c.2.** Write and assess professional and conclusive report about the genetics of animal and poultry.
- c.3.** Assess the existing methods and tools in the field of Veterinary genetics and genetic engineering.
- c.4.** Plan a research project in the field of Veterinary genetics and genetic engineering with a consideration to the technical, ethical and safety issues and associated costs.
- c.5.** Perform essential skills that underpin techniques associated with experimental design, collecting, summarizing, organizing, presenting and analyzing data

**d. General and transferable skills:**

*At the end of the programme, graduate must be able to:*

- d.1.** Communicate effectively with his professors, collages and animal owner(s).
- d.2.** Utilize different sources of knowledge and information.
- d.3.** Assess him and identify his personal educational needs.
- d.4.** Demonstrate interpersonal skills and team working ability
- d.5.** Demonstrate an ability to learn independently for a career of lifelong learning.
- d.6.** Use information technology to serve the professional practice.
- d.7.** Manage time efficiently.
- d.8.** Set tools and indicators for assessment of the performance of others.

**5-Program structure:**

a. Program duration (years):

Master degree from 2-4 years

b) Premaster courses – at least one academic year

Course	Lecture (hours/week)	Practical (hours/week)
Fundamental (core) course	3	4
Research methodology	1	3
2-5 Elective Courses Offered by other departments and are selected from the list below	5-6	5-6



according to thesis topic (10-12 hours)		
---	--	--

c) M.V.M Thesis (at least one academic year)

- All master-degree students should prepare a master thesis.
- The department and the ethical committees must approve the protocol of the research.
- The thesis should include a review part and a research part.
- The thesis is supervised by one or more senior staff members of the department responsible for the program and may include other specialties according to the nature of the research.
- The thesis should be evaluated and approved by a committee of three professors including one of the supervisors and an external professor.

*A number of subsidiary courses are selected from the following list according to the title of the research work:*

Subject	Code	Course title	No of hours/week	
			Lecture	Practical Lab
Anatomy and embryology	101/1	<b>1- Applied anatomy</b>	2	2
	102/1	<b>2- Anatomical techniques and surface anatomy</b>	2	2
	103/1	<b>3- Osteology and arthrology</b>	2	2
	104/1	<b>4- Comparative digestive system</b>	2	2
	105/1	<b>5- Comparative uro-genital system</b>	2	2
	106/1	<b>6-Comparative respiratory system</b>	2	2
	107/1	<b>7- Comparative cardiovascular system</b>	2	2
	108/1	<b>8- Comparative nervous system and endocrine glands</b>	2	2
	109/1	<b>9- General and special embryology</b>	2	2
	110/1	<b>10- Avian anatomy</b>	1	2
Histology	111/1	<b>11- cytology and cytochemistry</b>	1	2
	112/1	<b>12- general histology</b>	2	2
	113/1	<b>13- Histology and histochemistry of blood, lymph and cardiovascular system.</b>	1	1
	114/1	<b>14- Comparative histology and histochemistry of body muscles, heart and blood vessels</b>	1	1
	115/1	<b>15- Comparative histology and histochemistry of respiratory system</b>	1	1
	116/1	<b>16-Comparative histology and histochemistry of digestive system</b>	2	2
	117/1	<b>17- Comparative histology and histochemistry of</b>	2	2



		<b>uro- genital system</b>		
	118/1	<b>18- Comparative histology and histochemistry of nervous and endocrine systems</b>	2	2
	119/1	<b>19- Histology and histochemistry of special sensors</b>	1	2
	120/1	<b>20-Histology and histochemistry of skin, hooves, claws and Nails</b>	2	2
	121/1	<b>21- Avian histology</b>	2	2
	122/1	<b>22- Fish histology</b>	1	2
<b>Physiology</b>	123/1	<b>23- Physiology of mammalian endocrine and reproduction</b>	2	2
	124/1	<b>24- poultry physiology (advanced)</b>	2	2
	125/1	<b>25- physiology of muscle and nerve</b>	1	2
	126/1	<b>26- physiology of ruminants</b>	2	2
	127/1	<b>27- physiology of environment, adaptation and cell</b>	2	2
	128/1	<b>28- physiology of blood</b>	2	2
	129/1	<b>29- physiology of digestion, metabolism and energy</b>	2	2
	130/1	<b>30- Physiology in pollution</b>	1	2
	131/1	<b>31- Radioactive isotopes and biological uses</b>	2	2
	132/1	<b>32- Physiology of heights</b>	1	1
	133/1	<b>33-Fish physiology.</b>	1	2
<b>Biochemistry</b>	134/1	<b>34- Basics of biochemistry</b>	2	3
	135/1	<b>35- Metabolism</b>	2	2
	136/1	<b>36- Biochemistry of tissue and body fluids .</b>	2	2
	137/1	<b>37- Biochemistry of hormones and reproduction</b>	2	2
	138/1	<b>38- Feeding biochemistry</b>	2	2
	139/1	<b>39- Clinical biochemistry</b>	2	2
	140/1	<b>40- Avian biochemistry</b>	2	2
	141/1	<b>41- Microbial biochemistry</b>	2	2
	142/1	<b>42- Biochemistry of radiation</b>	1	2
	143/1	<b>43- Fish biochemistry</b>		
<b>Animal behavior and management</b>	144/1	<b>44- Behavior and management of ruminants ( specific courses in cattle, buffalo, sheep, camels and goats)</b>	2	3
	145/1	<b>45- Behavior and management of horses</b>	2	3
	146/1	<b>46- Behavior and management of pet animals</b>	1	2
	147/1	<b>47- Behavior and management of laboratory animals</b>	1	2



	148/1	<b>48- Behavior and management of wild animals</b>	2	2
	149/1	<b>49- Behavior and management of poultry</b>	2	2
	150/1	<b>50- Behavior and management of rabbit</b>	1	2
	151/1	<b>51- Behavior of experimental animals</b>	1	2
<b>Nutrition and clinical nutrition</b>	152/1	<b>52- Basics of animal nutrition</b>	2	2
	153/1	<b>53- feedstuff</b>	2	2
	154/1	<b>54- nutrition of farm animals and fish specific courses in ( cattle and buffalo nutrition – sheep and goat nutrition – camel nutrition- equine nutrition – fish nutrition)</b>	2	2
	155/1	<b>55- poultry and rabbit nutrition( advanced)</b>	2	2
	156/1	<b>56- wild animal nutrition</b>	1	2
	157/1	<b>57- laboratory animal nutrition</b>	1	2
	158/1	<b>58- feed additives</b>	1	2
	159/1	<b>59- feedstuff analysis</b>	2	2
	160/1	<b>60- Quality control of feed and feed factories</b>	2	2
	161/1	<b>61- Clinical nutrition and malnutrition</b>	2	2
	162/1	<b>62- Fish nutrition</b>	1	2
<b>Pathology</b>	163/1	<b>63- General pathology and neoplasm( progressive)</b>	2	2
	164/1	<b>64-pathology of microbial and parasitic diseases in animal</b>	2	2
	165/1	<b>65- pathology of bad nutrition</b>	1	2
	166/1	<b>66- pathology of environmental pollution</b>	1	2
	167/1	<b>67- pathology of reproductive diseases</b>	1	2
	168/1	<b>68- Avian pathology</b>	2	2
	169/1	<b>69-Experimental pathology</b>	2	2
	170/1	<b>70- toxins pathology</b>	2	2
	171/1	<b>71- surgical pathology</b>	2	2
	172/1	<b>72- Pathology of experimental animals.</b>		
	173/1	<b>73- Pathology of genetics</b>		
	174/1	<b>74-- Fish pathology</b>	2	2
<b>Clinical pathology</b>	175/1	<b>75- Advanced clinical pathology</b>	2	2
	176/1	<b>76-Organ function tests and body and urine balance</b>	2	2
	177/1	<b>77- Clinical hematology and bone marrow examination</b>	1	2
<b>Bacteriology, immunology and mycology</b>	178/1	<b>78- General bacteriology(advanced)</b>	1	2
	179/1	<b>79-systemic bacteriology</b>	2	3
	182/1	<b>80- Advanced immunology</b>	2	2
	183/2	<b>81- Advanced mycology</b>	1	2
<b>Virology</b>	180/3	<b>82- General virology</b>	1	2



	181/4	<b>83-Systemic virology( specific courses)</b>	2	3
	182/5	<b>84- Advanced immunology</b>	2	2
<b>Mixed courses between Bacteriology and Virology</b>	184/1	<b>85- Microbiology of poultry</b>	2	2
	185/1	<b>86- Microbiology of ??????</b>	1	2
	186/1	<b>87- Microbiology of animal product</b>	2	2
	187/1	<b>88- Fish Microbiology</b>	1	2
			<b>81- Advanced immunology</b>	2
<b>Parasitology</b>	188/1	<b>89- Veterinary medical entomology and acarology</b>	2	2
	189/1	<b>90-helminthology</b>	2	2
	190/1	<b>91- protozoology</b>	2	2
	191/1	<b>92- Avian and rabbits parasitology</b>	2	2
	192/1	<b>93Malacology and its vet. Importance</b>	1	2
	193/1	<b>94- parasitic Immunology</b>	1	2
	194/1			
	195/1			
	196/1			
	197/1	<b>98- Physiology and biochemistry of parasites</b>	2	2
	198/1	<b>99- Fish parasitology</b>	1	2
<b>Pharmacology</b>	199/1	<b>100- Aeneral pharmacology ( advanced)</b>	2	2
	200/1	<b>101- pharmacology of autonomic nervous system and autocoid</b>	2	2
	201/1	<b>102- pharmacology of central nervous system</b>	2	2
	202/1	<b>103 pharmacology of anesthesia</b>	2	2
	203/1	<b>104- Systemic pharmacology</b>	2	2
	204/1	<b>105- pharmacology of metabolism</b>	2	2
	205/1	<b>106- pharmacology of hormones</b>	2	2
	206/1	<b>107-Chemotherapy</b>	2	2
	207/1	<b>108-Biological evolution of drug</b>	1	1
<b>Hygiene and control of milk and dairy products</b>	208/1	<b>108- Hygiene and control of milk and dairy products</b>	2	2
	209	<b>109- Microbiology of milk and dairy products</b>	2	2
	210/1	<b>110- Milk technology and preservation</b>	2	2
	211/1	<b>111- Food analysis</b>	2	2
	212/1	<b>112- Food poisoning</b>	1	2
	213/1	<b>113- Specific courses on sources of contamination, disturbances of milk production, milk born diseases, hygiene of table egg, edible fats and oils</b>	1	1
	214/1	<b>114- The sanitation of dairy plant</b>	2	2
<b>Control of meat hygiene and their</b>	215/1	<b>115- Slaughter animal Hygiene</b>	1	2
	216/1	<b>116- Abattoir management and hygiene</b>	2	2



<b>products</b>	217/1	<b>117- Hygienic control of meat and their product</b>	2	2
	218/1	<b>118 inspection of poultry meat.</b>	1	2
	219/1	<b>119- Food technology</b>	1	2
	220/1	<b>120- Microbiology of meat and fish meats and their product</b>	2	1
	221/1	<b>121- Chilled meal microbiology</b>	1	2
	222/1	<b>122- Analysis of meat and fish and their product</b>	1	2
	223/1	<b>123- Preservation of meat, poultry, fish and their products</b>	1	2
	224/1	<b>124- Sanitation affairs of meat and fish plants.</b>	2	2
<b>Internal medicine</b>	225/1	<b>125- advanced general medicine</b>	2	2
	226/1	<b>126- disease of ruminants( cattle, buffalo, camels, sheep and goats)</b>	3	3
	227/1	<b>127- diseases of equines</b>	2	2
	228/1	<b>128 diseases of pet animals</b>	2	2
	229/1	<b>129- diseases of wild animals</b>	2	2
	230/1	<b>130- diseases of metabolic disorders</b>	2	2
	231/1	<b>131- nutritional deficiency diseases</b>	2	2
	232/1	<b>132- Skin diseases</b>	1	2
	233/1	<b>133 - diseases of newly born animals</b>	2	2
	234/ 1	<b>134- Stress diseases during animals transport.</b>		
<b>Infectious diseases</b>	235/ 1	<b>135- Infectious diseases of cattle</b>	2	2
	236/ 1	<b>136- Infectious diseases of sheep and goat</b>	2	2
	237/ 1	<b>137- Infectious diseases camel</b>	2	2
	238/ 1	<b>138 Infectious diseases of equine</b>	2	2
	239/ 1	<b>139- Infectious diseases of pet animals</b>	2	2
	240/ 1	<b>140- Infectious diseases lab animals</b>	1	2
	241/ 1	<b>141- Infectious diseases of udder and newly born animals</b>	2	2
	242/ 1	<b>142- Infectious diseases buffaloes</b>	2	1
	243/1	<b>143- Infectious diseases of wild animals.</b>		
<b>Forensic medicine and toxicology</b>	244/1	<b>144- Forensic medicine and veterinary procedures</b>	2	2
	245/1	<b>145- general toxicology</b>	2	2
	246/1	<b>146- environmental toxicology</b>	2	2
	247/1	<b>147- forensic toxicology</b>	2	2
	248/1	<b>148- laboratory diagnostic toxicology</b>	2	2
	249/1	<b>149- Drug toxicology</b>		
<b>Veterinary Surgery</b>	259/1	<b>159- General surgery (advanced)</b>	2	2
	260/1	<b>160- Special surgery( organs)</b>	2	3
	261/1	<b>161- surgery of eye, ear, nose and larynx</b>	2	2
	262/1	<b>162 digestive system surgery</b>	2	2



	263/1	<b>163- surgery of the limbs, hoof and claws</b>	2	2
	264/1	<b>164- experimental surgery</b>	2	2
	265/1	<b>165- anesthesiology</b>	1	1
	266/1	<b>166- radiology and ultrasonography</b>	2	2
<b>Poultry and rabbit diseases</b>	267/1	<b>167- bacterial diseases of poultry</b>	2	2
	268/1	<b>168- viral diseases of poultry</b>	2	2
	269/1	<b>169- fungal diseases of poultry</b>	2	2
	270/1	<b>170 parasitic diseases of poultry</b>	1	2
	271/1	<b>171 - nutritional diseases of poultry</b>	1	2
	272/1	<b>172-diseases of rabbit (advanced)</b>	2	2
	273/1	<b>173-Diseases of wild and migrating birds</b>	2	2
	274/1	<b>174- Preventive vaccines and their evaluation in polutry</b>	2	2
	275/1	<b>175- Laboratory diagnosis of poultry diseases.</b>		
<b>Animal and environmental hygiene</b>	276/1	<b>176- farm animal hygiene ( advanced)</b>	2	2
	277/1	<b>177- poultry hygiene ( advanced)</b>	2	2
	278/1	<b>178- environmental hygiene and pollution</b>	2	2
	279/1	<b>179- control of contagious diseases</b>	2	2
	280/1	<b>180- eradication of rodents and disease vector</b>	2	2
	281/1	<b>181- insecticides and public health</b>	2	2
	282/1	<b>182-hygiene of animal enclosures- specific courses in :- cattle houses – poultry houses – rabbit houses- pet animals house3s – experimental animals houses</b>	2	2
	283/1	<b>183-disinfections and disinfectants</b>	2	2
	284/1	<b>184- veterinary epidemiology – specific courses in animal environment</b>	2	-
<b>Zoonoses</b>	285/1	<b>185- advanced zoonoses ( specific courses in bacterial and Mycotic diseases – viral diseases – parasitic diseases)</b>	2	2
	286/1	<b>186- role of rodents in transmission of zoonoses</b>	2	2
	287/1	<b>187- role of wild animals in transmission of zoonoses</b>	2	2
	288/1	<b>188- role of birds (special courses in: poultry, wild migrating or pets) in transmission of zoonoses</b>		
<b>Animal production</b>	295/1	<b>195- Animal breeding and improvement (advanced).</b>	2	-
	296/1	<b>196- Poultry breeding and improvement(advanced).</b>	2	-
	297/1	<b>197- Cattle and buffalo production (advanced).</b>	2	2





	298/1	<b>198- Sheep and goat production (advanced).</b>	2	2
	299/1	<b>199- Poultry production (advanced).</b>	2	2
	300	<b>200-Rabbit production (advanced).</b>	2	2
	301	<b>201-Improving by artificial insemination in poultry and rabbits.</b>	2	2
<b>Fish diseases and management</b>	302/1	<b>202- Biology of fish.</b>	2	2
	303/1	<b>203-Fish diseases (advanced)</b>	2	2
	304/1	<b>204-Fish farms.</b>	1	2
	305/1	<b>205-Fish breeding .</b>	2	2
<b>Economic and farms management</b>	306/1	<b>206- economics of animals and dairy production</b>	2	-
	307/1	<b>207- economics of poultry farms</b>	2	-
	308/1	<b>208-economics of fish farms</b>	2	-
	309/1	<b>209- feasibility studies</b>	2	-
	310/1	<b>210- farm management</b>	2	-
	311/1	<b>211- economics of beef production</b>	2	-
<b>Biostatistics</b>	312/1	<b>212- Biostatistics (advanced)</b>	2	-
	313/1	<b>213- Experimental design</b>	2	2
	314/1	<b>214- Computer and data processing</b>	2	1

## 6-Teaching and Learning Methods:

*The program features a variety of teaching approaches for different intended learning objectives including:*

- Lectures to gain knowledge and understanding skills
- Writing a review paper to gain the skills of self-learning and presentation
- Practical and lab sessions to gain practical skills
- Seminars

## 7- Students assessments:

The program depends on different assessment ways:

### a. Course assessment:

<b>1- Written examination</b>	<b>For assessment of knowledge, back calling and Intellectual skills</b>
<b>2- Practical examination</b>	<b>For assessment of practical and professional skill</b>
<b>3- Oral examination</b>	<b>For assessment of knowledge and Intellectual skills</b>

### b. Master Thesis

- Annual reports adopted by the Faculty



- Finally, the assessment of thesis measure the individual student ability to work independently in the field specialization
- Final evaluation and approval by a judging committee of at least three professors including one or more of the supervisors and an external professor. This assesses the ability to write a review article, perform the needed practical steps and to present the results in tables and graphs. In addition, the skills of analysis of results and discussion with previous findings obtained by other authors are also assessed.

#### *Assessment of program intended learning outcomes*

Tool or method	ILOs
1- Written	a1,2,3,4,5,7; b1,2,3,5,6,7
2- Oral	a1,2,5; b2,3,4,6
3- Practical	b1,7; c1-5
4- Thesis	a2-7; b1-7, c1-5, d1-8

#### 8. Marking scale as follow:-

<b>Excellent</b>	> 90	
<b>Very good</b>	>80	
<b>Good</b>	>70	
<b>Pass</b>	>60	
<b>Fail</b>	<b>Weak</b>	45 to less than 60
	<b>very weak</b>	Less than 45

#### 9. Program evaluation methods

Evaluator	Tool	Sample
Postgraduate Student	Questioners	<b>20%</b>
	meeting	<b>1</b>
Postgraduate alumni	Questioners	<b>5</b>
	Meeting	<b>1</b>
Stakeholders (employers)	Questioners	<b>10</b>
	Meeting	<b>1</b>
External evaluator/External examiner	Reports	<b>1</b>

#### 10. Program Admission Requirements:

The Applicant must normally satisfy the faculty of veterinary medicine- kafrelsheikh University general entrance and requirement. The normal minimum entrance qualification for registration at the faculty on a master's program

- 1- Bachelor degree in Veterinary Medical Sciences of one of the Egyptian Universities or hold a degree in Veterinary Medical Sciences equivalent through the Supreme Council of



- Universities with general grade at least “Good” and at least grade “Very Good” in specialization.
- 2- Diploma of general grade at least “Good” and at least grade “Very Good” in specialization. The total number of study hours must be not less than 3 weekly in that specialization.
  - 3- After he has passed the courses studied during premaster he must perform a research work in a subject approved by the faculty council at least for one year. He must submit the results of this work in thesis that should be approved by the discussion committee.

## 11. Regulations for progression of program

- a) Registration period for the M.V.M. in veterinary medical science is at least 2 years after the approval date by the faculty council and it should not exceed a period of 4 years, an extension could be approved by the faculty council depending on the supervisor report that approved by the department council and postgraduate and research committee refers to the universities regulation law.
- b) The student should conduct the courses proposed by both department council and approved by postgraduate and research committee and faculty council and include, 2-5 courses of the postgraduates stated in article (28) in regulation law list and the student will entitled to apply for the exam only after meeting attendance rate for each courses.
- c) The student should pass written, practical and oral exams successfully in all courses, and the examination is held two times annually.
- d) The Faculty council should deprive the student from entering the exam if his attendance rate in the course is less than 75%.
- e) Failure or depriving from entering one or more course did not require reexamination of successful passed courses.
- f) The applicant should conduct an innovate research on the subject that has been registered for at least 2 years from the date of registration approved by the faculty council. And the faculty council depending on a request from the supervisor has the right to authorize the student to do scientific experiments at recognized scientific institute.
- g) The applicant should submit the thesis that accepted by the judging committee in an open discussion and the following policies should be met:
- h) Pass all courses.
- i) The applicant should submit 4 copies of his thesis concerned department council to form committee examining the thesis to be presented to the postgraduate studies committee and the faculty council, and in case of thesis approval by the department council, the applicant will submit 6 copies for the faculty library, 1 copy for public university library before introducing the report of examination committee to the post graduate studies committee and the faculty council.
- j) Registration will be during March and September of each year.
- k) The applicant should submit a request enrolment for the dean who forwards bit to the concerned department council to determine the research subject and the study program and then take calendar after complete documentation on the faculty council for approval.



- l) The thesis title should be identified before being submitted at least 2 months and the judging committee has the right to amend the title without prejudice the subject of research.
- m) The Faculty council has the right to suspend the student enrolment for a certain period if he has acceptable excuse preventing him from continuing his study or research, and his period will not counted within the period stated in article 25.
- n) The applicant should submit 5 hard copies and 10 electronic copies (CDs) of the thesis after its validity approved by the judging committee and head of department to be distributed to the committee members and faculty library and the judging committee can decide the exchange of the thesis with other universities or printing at the expense of the university.

**12. Registration will be cancelled in one of the following cases:**

1. If the supervisors report during the registration period is unsatisfactory (2 reports).
2. If he did not submit his thesis before the end of registration period.
3. If the judging committee rejected the thesis twice.

**13. Examination Regulations**

- a- Time of written exam, 3 hours for each course that has 3 hours or more for lecture / practical /week. **If has less than 3 hours/week, the time of exam, is 2 hours only.**
- b- The final degree of each course which has 3 hours (lecture and practical) per week is **100 and less than 3 hours is 50 degrees and divided into 50% for written exam, and 50% for practical and oral exam.**

**14. Program completion:**

- Successfully completion of the required courses and submission of a thesis.

**Program Coordinator**

**Dr. Safaa Elsayed Abdo**

**Head of Department**

**Prof. Dr. Mohamed Atef Helal**



**Matching program ILOs with ARS - Matrix**

Program ILOs	ARS																								
	K&U (a)						I.S. (b)							P.P. (c)				G.T. (d)							
	1	2	3	4	5	6	1	2	3	4	5	6	7	1	2	3	4	1	2	3	4	5	6	7	8
<b>K&amp;U</b>	1 2	3	4	5	6	7																			
<b>I.S.</b>							1	2	3	4	5	6	7												
<b>P.P.</b>														1	3	4	5								
<b>G.T.</b>																		1	2	3	4	5	6	7	8











---

## ARS for Master in Veterinary Medical Sciences (Genetics and Genetic Engineering)

### 1) Graduate attributes

*The graduate should have the ability for:*

- 1) Perfect application of scientific research basics and methodologies in Veterinary genetics and genetic engineering, and using its various tools.
- 2) Application and use of analytical methodology in Veterinary genetics and genetic engineering.
- 3) Application of gained specialized knowledge and integrating them with the relevant knowledge in Veterinary genetics and genetic engineering.
- 4) Awareness with current problems and recent visions in Veterinary genetics and genetic engineering.
- 5) Identification of genetics and genetic engineering problems suggesting suitable and economic solutions.
- 6) Mastering an appropriate scale of specific professional skills, and using suitable technological means to serve professional practice.
- 7) Decision making in various genetic problems in field neither breeding special breed nor culling.
- 8) Employment of the available resources efficiently to maximize genetic value.
- 9) Awareness with his role in society development and maximizing genetic value of animals with preservation of a clean environment.
- 10) Reflection of the commitment to act with integrity, credibility and the rules of profession.
- 11) Academic and professional self- development and ability for life-long learning and progress.

### A) Knowledge and understanding

<b>Adopted ARS</b>		<b>NARS (Master)</b>	
	<i>By the end of this program the graduate should understand and accommodate the following:</i>		<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Theories , principles and specialized knowledge in cytogenetic and molecular genetics		Theories and principles in the field of specialization and related fields.
2)	The impact of different scientific progress in the field of genetics and genetic engineering.		Mutual effect between professional practice and its impact on environment
3)	Application of his knowledge of genetics and genetic engineering research methods by evaluating the utility of those techniques to specific research question for genetic improvement of animal and poultry production		Scientific progress in the field of specialization
4)	Applying legal and ethical principal in field application in genetics and genetic engineering.		Legal and ethical basics in professional practice in the field of specialization
5)	Recognizing standard levels of perfection in field application in genetics and genetic engineering		Principles and basics of quality assurance in the area of specialization
6)	Basics and ethics of scientific research especially that associated with animal welfare.		Basics and ethics of scientific research

### B) Intellectual skills

<b>Adopted ARS</b>		<b>NARS (Master)</b>	
	<i>By the end of this program the graduate should understand and accommodate the following:</i>		<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Integration of the available record information, analysis of data and judgment of animal and poultry on the basis of genetic indices.		Analysis and judgment of information in the field of specialization and analog to solve problems.
2)	Solving some genetic fertility, productive and reproductive problems based on the available data		Solving professional problems even in scarcity of data.
3)	Connectivity between the various sources of knowledge to solve genetic productive and reproductive problems in producing animal and poultry.		Relating between different knowledge to solve professional problems.
4)	Demonstration insight into research and scientific		Preparing research plan in specialization

	methods, experimental design, formulating research questions that are relevant to genetics and genetic engineering and writing scientific article on a research problem.	and/ or writing scientific article on a research problem.
5)	Assessing professional risk in the field of Veterinary genetics and genetic engineering	Risk-assessment of professional practices in specialization.
6)	Development of plans to genetic improvement of performance of animal and poultry.	Planning for improvement of professional performance.
7)	Making decisions and suggestions for genetic improvement of animal and poultry production in different contexts	Taking professional decisions in a variety of professional contexts.

### C) Professional and practical skills

<b>Adopted ARS</b>		<b>NARS (Master)</b>
	<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Efficient mastering of information technology and using of available data to genetic improvement of animal and poultry breeds.	Mastering basic and recent professional skills in the field of specialization
2)	-Writing and evaluation professional reports in the diagnosis of some genetic diseases.	Writing and evaluating professional reports.
3)	Planning a research project in the field of genetics and genetic engineering with a consideration to the technical, ethical and safety issues and associated costs.	Evaluating existing materials and methods in the area of specialization.
4)	Performing essential skills that underpin techniques associated with experimental design, collecting, summarizing, organizing, presenting and analyzing data	

### D) General and transferable skill

<b>Adopted ARS</b>		<b>NARS (Master)</b>
	<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Communicating effectively with teaching staff, colleagues and genetics and genetic engineering	Effective communication.

	team work.	
2)	Using information technology in scientific research and publications.	Utilizing information technology to serve development of professional practice.
3)	Demonstrating appropriate attitude towards teaching staff and colleagues.	Self-assessment and determination of personal educational needs.
4)	Identifying and use different sources of information and knowledge.	Using different resources to obtain knowledge and information.
5)	Using appropriate attitude and rules towards teaching staff and colleagues and use evidence based evaluations.	Establishing rules and indicators for assessment of the performance of others.
6)	Respecting the importance of team work.	Team working and leading a team in familiar professional contexts.
7)	Doing good control of timing.	Efficient time management.
8)	Performing continuous self-learning.	Self and continuous learning.

ثانيا :برامج الماجستير

### ١ - مواصفات الخريج

- خريج برنامج الماجستير في أي تخصص يجب أن يكون قادرا على:
- ١ .إجادة تطبيق أساسيات و منهجيات البحث العلمي واستخدام أدواته المختلفة
  - ٢ .تطبيق المنهج التحليلي واستخدامه في مجال التخصص
  - ٣ .تطبيق المعارف المتخصصة و دمجها مع المعارف ذات العلاقة في ممارسته المهنية
  - ٤ .إظهار وعيا بالمشاكل الجارية و الرؤى الحديثة في مجال التخصص
  - ٥ .تحديد المشكلات المهنية و إيجاد حلول لها
  - ٦ .إتقان نطاق مناسب من المهارات المهنية المتخصصة، واستخدام الوسائل التكنولوجية المناسبة بما يخدم ممارسته المهنية
  - ٧ .التواصل بفاعلية و القدرة على قيادة فرق العمل
  - ٨ .اتخاذ القرار في سياقات مهنية مختلفة
  - ٩ .توظيف الموارد المتاحة بما يحقق أعلي استفادة و الحفاظ عليها
  - ١٠ . إظهار الوعي بدوره في تنمية المجتمع و الحفاظ على البيئة في ضوء المتغيرات العالمية و الإقليمية
  - ١١ . التصرف بما يعكس الالتزام بالنزاهة و المصداقية و الالتزام بقواعد المهنة
  - ١٢ . تنمية ذاته أكاديميا و مهنيا و قادرا علي التعلم المستمر

### ١٢ - المعايير القياسية العامة

#### ١ المعرفة و الفهم

- بانتها دراسة برنامج الماجستير يجب ان يكون الخريج على فهم و دراية بكل من:
- أ -النظريات و الأساسيات المتعلقة بمجال التعلم وكذا في المجالات ذات العلاقة
  - ب -التأثير المتبادل بين الممارسة المهنية وانعكاسها علي البيئة
  - ت -التطورات العلمية في مجال التخصص
  - ث -المبادئ الأخلاقية و القانونية للممارسة المهنية في مجال التخصص
  - ج -مبادئ و أساسيات الجودة في الممارسة المهنية في مجال التخصص
  - ح -أساسيات وأخلاقيات البحث العلمي
- #### ٢ المهارات الذهنية

- بانتهاء دراسة برنامج الماجستير يجب ان يكون الخريج قادرا على:
- أ -تحليل و تقييم المعلومات في مجال التخصص و القياس عليها لحل المشاكل
  - ب -حل المشاكل المتخصصة مع عدم توافر بعض المعطيات
  - ت -الربط بين المعارف المختلفة لحل المشاكل المهنية
  - ث -إجراء دراسة بحثية و /أو كتابة دراسة علمية منهجية حول مشكلة بحثية
  - ج -تقييم المخاطر في الممارسات المهنية في مجال التخصص
  - ح -التخطيط لتطوير الأداء في مجال التخصص
  - خ -اتخاذ القرارات المهنية في سياقات مهنية متنوعة

### ٣ المهارات المهنية

- بانتهاء دراسة برنامج الماجستير يجب ان يكون الخريج قادرا على:
- أ -إتقان المهارات المهنية الأساسية و الحديثة في مجال التخصص
  - ب -كتابة و تقييم التقارير المهنية
  - ت -تقييم الطرق و الأدوات القائمة في مجال التخصص

### ٤ المهارات العامة و المنقولة

- بانتهاء دراسة برنامج الماجستير يجب أن يكون الخريج قادرا على:
- أ -التواصل الفعال بأنواعه المختلفة
  - ب -استخدام تكنولوجيا المعلومات بما يخدم الممارسة المهنية
  - ت -التقييم الذاتي و تحديد احتياجاته التعليمية الشخصية
  - ث -استخدام المصادر المختلفة للحصول على المعلومات و المعارف
  - ج -وضع قواعد و مؤشرات تقييم أداء الآخرين
  - ح -العمل في فريق ، و قيادة فرق في سياقات مهنية مختلفة
  - خ -إدارة الوقت بكفاءة
  - د -التعلم الذاتي و المستمر

## COURSE SPECIFICATION (2021 / 2022)

### 1 - Basic Information:

Code number:

Course title: **Genetics and Genetic Engineering – Basic Course**

Academic Year: **Master of Veterinary Medicine Program**

Total teaching hours: **336 hrs.**

Lectures: **144 hrs. (48 weeks- 3hrs/week)**

Practical: **192 hrs. (48 weeks- 4hrs/week)**

### 2 - OVERALL AIMS OF THE COURSE:

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

*By the end of this course, the student should acquire the concepts, principles and skills related to chromosomal aberrations, different characteristics of genetic material and different methods of its manipulation and applications, relationship between the genetic material, diseases, immunity and the genetic control of these, knowledge about Genetic engineering and its application.*

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- a.1. Identify chromosome structure organization
- a.2. Explain chromosomal aberrations and its clinical cases.
- a.3. Define different characteristics of genetic material
- a.4. Be aware by regulation of gene excision and protein synthesis
- a.5. Outline the mutagenic substance and assess its carcinogenicity of different materials
- a.6. Contrast different methods of the genetic engineering and its applications.
- a.7. Summarize advanced molecular techniques for improving animal performance and disease resistance
- a.8. Describe the inborn metabolic disease and their control.

#### 3-B: INTELLECTUAL SKILLS:

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

- b.1. Construct the general structure of different tissues DNA in animals, birds and fish.
- b.2. Examine the result of chemicals assessment and their genotoxic effect.
- b.3. Illustrate the steps of Genetic engineering and Genetic engineering applications
- b.4. Criticize the animal inherited diseases and their control

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

- c.1. Predict chromosome number and karyotyping of different species.
- c.2. Isolate and characterization of DNA/ RNA
- c.3. Use genetic material (chromosome and/or DNA) as a tool to measure genotoxicity of different environmental pollutants.
- c.4. Apply advanced techniques in genetic engineering
- c.5. Diagnose inherited diseases and describe their diagnosis

#### 3- D: GENERAL SKILLS:

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

- d.1. Communicate effectively with his professors, and collages.
- d.2. Utilize different sources of knowledge and information
- d.3. Use information technology to serve the professional practice.
- d.4. Manage time efficiently.

#### **4 - COURSE CONTENTS:**

Topic	No. of hours		
	Lectures	Practical	Total
1- Chromosome structure, organization and aberrations	30	40	70
2- Molecular Genetic: The genetic material	44	45	89
3- Mutation	12	22	34
4- The genetic manipulation and genetic engineering.	28	40	68
5- Genetics Inherited diseases of biochemical origin & Genetic resistance and pathogens Control of Inherited disorders and diseases.	30	45	75
Total	144	192	336

#### **5- TEACHING & LEARNING METHODS:**

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library  
Making individual reports about genetics and genetic engineering

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a8	b1 to b4		d1, d4
Practical sessions		b1 to b4	c1 to c5	d2, d4
Self-Learning activities				d2, d3, d4
Distance Teaching and Learning	a1 to a8	b1 to b4	c1 to c5	d1 to d4

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:-**

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities





<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	All over the academic year
<b>7.c grads</b>	50	20	20	10

6.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a8	b1 to b5		d4
Practical exams			c1 to c5	d2, d3
Oral exams	a1 to a8	b1 to b5		d1
Student activities	a1, a8			d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Essential Books

- Yimer, N.\* and Rosnina, Y. Pertanika J. (2014). Chromosomal Anomalies and Infertility in Farm Animals: A Review. Trop. Agric. Sci. 37 (1): 1 - 18
- Berg JM, Tymoczko JL, Stryer L, Clarke ND (2002) Chapter 27, Section 4: DNA Replication of Both Strands Proceeds Rapidly from Specific Start Site. In: Biochemistry. WH Freeman and Company, USA.
- Alberts B, Johnson A, Lewis J, Raff M, Roberts K, et al. (2002) Molecular Biology of the Cell. (4th edn). Garland Science, UK. pp. 238–240. 18.
- Latchman, D., Latchman, D. S., (2004), Eukaryotic Transcription Factors, (Forth Ed.), USA, Elsevier Ltd.
- Griffiths, F. J. A. , Wessler, R. S., Lewontin, C. R., Gelbart, M. W., Suzuki T. D., Miller, H. J., An Introduction to Genetic Analysis 8th Edition, Chapter 9: Proteins and Their Synthesis, 273-296 , 2004.

### 8-1: Reommended Books

- A. Shinde et al (2018) Recombinant DNA Technology and its Applications: A Review. Int.J. MediPharm Res.,4(2),pp 79-88
- Paun O, Schönswetter P. Amplified Fragment Length Polymorphism (AFLP) - an invaluable fingerprinting technique for genomic, transcriptomic and epigenetic studies. Methods in Molecular Biology. 2012;862:75-87

### Scientific Journals

- Gene and genome <https://www.springer.com/journal/13258>
- <https://www.frontiersin.org/journals/genetics>
- <https://journals.plos.org/plosgenetics/>
- Molecular Genetics & Genomic medicine
- <https://www.journals.elsevier.com/gene>
- <https://www.springer.com/journal/251/> immuogenetics

### Scientific websites

- The Egyptian Knowledge Bank: <https://www.ekb.eg/web/guest/home>



- 
- <https://genome.ucsc.edu/cgi-bin/hgPcr>
  - <https://www.labtools.us/nebcutter-v2-0/>
  - <https://pubmed.ncbi.nlm.nih.gov/>
  - <https://primer3.ut.ee/>

**Course Coordinator**

**Dr. Safaa Elsayed Mohamed Abdo**

**Head of Department**

**Prof. Dr. Mohamed Atef Helal**

**Course Matrix for achievement of Intended Learning Outcomes**

Topics	Hours	Knowledge & Understanding								Intellectual Skills					Practical & Professional Skills					General & Transferable Skills			
		1	2	3	4	5	6	7	8	1	2	3	4	5	1	2	3	4	5	1	2	3	4
1- Chromosome structure, organization and aberrations	70	✓	✓							✓					✓					✓	✓	✓	✓
2- Molecular Genetic: The genetic material	89			✓	✓						✓					✓				✓	✓	✓	✓
3- Mutation	34					✓						✓					✓			✓	✓	✓	✓
4- The genetic manipulation and genetic engineering.	68						✓	✓					✓				✓			✓	✓	✓	✓
5- Genetics Inherited diseases & immunogenetics	75								✓					✓					✓	✓	✓	✓	✓

## COURSE SPECIFICATION (2021 / 2022)

### 1 - Basic Information:

Code number: 289/1

Course title: Microbial genetics

Academic Year: **Master of Veterinary Medicine Program**

Total teaching hours: 144 hrs.

Lectures: 48 hrs. (48 weeks- 1hrs/week)

Practical: 96 hrs. (48 weeks- 2hrs/week)

### 2 - OVERALL AIMS OF THE COURSE:

*By the end of this course, the student should acquire the concepts, principles and skills related to the structure of genome of micro-organisms, accommodate the role of micro-organisms in the process of genetic engineering, awareness by scientific developments in the study of the gene in the micro-organisms.*

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

a1- Describe structure of the genetic material in micro-organisms

a2 - Outline the steps of bacterial transformation

a3- Explain the mechanism of operon action (control of bacterial protein formation).

a4- Identify the role of viruses used in genetic engineering as a vectors

#### 3-B: INTELLECTUAL SKILLS:

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

b1- Construct the genetic material in micro-organisms

b2- Differentiate the steps of bacterial transformation

b3- Diagram the mechanism of operon action

b4- Compare between different uses and application of bacterial genome.

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

c1- Isolate the bacterial genome from micro-organisms, as well as plasmids and deal with it

c2- Predict the Steps of bacterial transduction and transformation

c3- Illustrate the regulation of microbial gene control and regulation

c4- Use bacterial plasmids carry various genes.

#### 3- D: GENERAL SKILLS:

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

d.1. Communicate effectively with his professors, and collages.

d.2. Utilize different sources of knowledge and information

d.3. Use information technology to serve the professional practice.

d.4. Manage time efficiently.

### 4 - COURSE CONTENTS:

Topic	Lecture Hrs.	Practical Hrs.	Total Hrs.
-------	-----------------	-------------------	---------------

Bacterial genome	18	36	54
Transduction & Transformation	10	20	30
Mechanism of operon action	10	20	30
Types of vectors used in genetic engineering	10	20	30
Total	48	96	144

## 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library  
Making individual reports about Microbial genetics

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a4	b1 to b4		d1, d4
Practical sessions		b1 to b4	c1 to c4	d2, d4
Self-Learning activities				d2, d3, d4
Distance Teaching and Learning	a1 to a4	b1 to b4	c1 to c4	d1 to d4

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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 the academic year	At the end of the academic year	At the end of the academic year	All over the academic year
7.c grads	25	10	10	5

6.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a4	b1 to b4		d4
Practical exams			c1 to c4	d2, d3

Oral exams	a1 to a4	b1 to b4		d1
Student activities	a1, a4			d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Essential Books

- The Bacterial Genome – Where the Genes Are. Structure and Function of the Bacterial Genome (2020). Genome: 1-66.
- Gene Control. Structure and Function of the Bacterial Genome(2020):. 113-131.
- Kumar, P. (2018). Operon concept - An overview.

### 8-2: Recmended books:

- Osbourn, A. E., et al. (2009). "Operons." Cellular and Molecular Life Sciences 66(23): 3755-3775.
- An Integrated View of Genome Structure and Function. Structure and Function of the Bacterial Genome (2020):. 231-245.

### Scientific Journals

- Gene and genome <https://www.springer.com/journal/13258>
- <https://www.frontiersin.org/journals/genetics>
- <https://journals.plos.org/plosgenetics/>
- Molecular Genetics & Genomic medicine
- <https://www.journals.elsevier.com/gene>
- <https://www.springer.com/journal/251/> immuogenetics

### Scientific websites

- The Egyptian Knowledge Bank: <https://www.ekb.eg/web/guest/home>
- <https://genome.ucsc.edu/cgi-bin/hgPcr>
- <https://www.labtools.us/nebcutter-v2-0/>
- <https://pubmed.ncbi.nlm.nih.gov/>
- <https://primer3.ut.ee/>

**Course Coordinator**

**Head of Department**

**Dr. Safaa Elsayed Mohamed Abdo**

**Prof. Dr. Mohamed Atef Helal**

**Course Matrix for achievement of Intended Learning Outcomes**

Topics	Hrs.	Knowledge & Understanding				Intellectual Skills				Practical & Professional Skills				General & Transferable Skills			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Genetic material structure expression	54	✓				✓				✓				✓	✓	✓	✓
Steps of recombinant DNA technology	30		✓				✓				✓			✓	✓	✓	✓
Method of studying genome (PCR, RFLP)	30			✓				✓				✓		✓	✓	✓	✓
Applications of Genetic engineering	30				✓				✓				✓	✓	✓	✓	✓



## COURSE SPECIFICATION (2021 / 2022)

### 1 - Basic Information:

**Code number:** 290/1

**Course title:** Advanced Genetic Engineering

**Academic Year:** Master of Veterinary Medicine Program

**Total teaching hours:** 144 hrs.

**Lectures:** 48 hrs. (48 weeks- 1hrs/week)

**Practical:** 96 hrs. (48 weeks- 2hrs/week)

### 2 - OVERALL AIMS OF THE COURSE:

*By the end of this course, the student should acquire the concepts, principles and skills related to Characteristics of genetic material and different methods of its manipulation and applications, relationship between the genetic material, knowledge about Genetic engineering and its application..*

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

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

- a1- Define the genetic material, Replication, expression.
- a2- Identify Recombinant DNA technology and its application
- a3- Discuss Genetic manipulation method of studying the genome.
- a4- Contrast the steps of Genetic engineering and Genetic engineering applications

#### 3-B: INTELLECTUAL SKILLS:

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

- b1- Construct the general structure of different tissues DNA in animals, birds and fish.
- b2- Examine the result of PCR and restriction Endonucleases
- b3- Apply the steps of Recombinant DNA technology and genetic engineering
- b4- Compare between different methods of studying the genome.

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

- c1- Isolation of DNA from different organs.
- c2- Use PCR as a tool of gene isolation, studying genome structure and disease diagnosis
- c3- Explain different application of genetic engineering.
- c4- Evaluate the result of restriction Endonucleases technique

#### 3- D: GENERAL SKILLS:

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

- d.1. Communicate effectively with his professors, and collages.
- d.2. Utilize different sources of knowledge and information
- d.3. Use information technology to serve the professional practice.
- d.4. Manage time efficiently.





#### 4 - COURSE CONTENTS:

Topic	Lecture Hrs.	Practical Hrs.	Total Hrs.
1 .Genetic material structure & expression	10	20	30
2 .Steps of recombinant DNA technology	18	30	38
3. method of studying genome (PCR, RFLP)	10	30	40
4- Applications of Genetic engineering	10	16	26
Total	48	96	144

#### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library Making individual reports about Genetic Engineering

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a4	b1 to b4		d1, d4
Practical sessions		b1 to b4	c1 to c4	d2, d4
Self-Learning activities				d2, d3, d4
Distance Teaching and Learning	a1 to a4	b1 to b4	c1 to c4	d1 to d4

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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 the academic year	At the end of the academic year	At the end of the academic year	All over the academic year
7.c grads	25	10	10	5

7. Student Assessment	
6.1. Methods	Intended Learning Outcomes Covered



	KU	IS	PPS	GTS
Written exams	a1 to a4	b1 to b4		d4
Practical exams			c1 to c4	d2, d3
Oral exams	a1 to a4	b1 to b4		d1
Student activities	a1, a4			d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Essential Books

- Berg JM, Tymoczko JL, Stryer L, Clarke ND (2002) Chapter 27, Section 4: DNA Replication of Both Strands Proceeds Rapidly from Specific Start Site. In: Biochemistry. WH Freeman and Company, USA.
- Alberts B, Johnson A, Lewis J, Raff M, Roberts K, et al. (2002) Molecular Biology of the Cell. (4th edn). Garland Science, UK. pp. 238–240. 18.
- Latchman, D., Latchman, D. S., (2004), Eukaryotic Transcription Factors, (Forth Ed.), USA, Elsevier Ltd.

### 8-2: Reomnded Books

- Griffiths, F. J. A. , Wessler, R. S., Lewontin, C. R., Gelbart, M. W., Suzuki T. D., Miller, H. J., An Introduction to Genetic Analysis 8th Edition, Chapter 9: Proteins and Their Synthesis, 273-296 , 2004.
- A. Shinde et al (2018) Recombinant DNA Technology and its Applications: A Review. Int.J. MediPharm Res.,4(2),pp 79-88
- Paun O, Schönswetter P. Amplified Fragment Length Polymorphism (AFLP) - an invaluable fingerprinting technique for genomic, transcriptomic and epigenetic studies. Methods in Molecular Biology. 2012;862:75-87

### Scientific Journals

- Gene and genome <https://www.springer.com/journal/13258>
- <https://www.frontiersin.org/journals/genetics>
- <https://journals.plos.org/plosgenetics/>
- Molecular Genetics & Genomic medicine
- <https://www.journals.elsevier.com/gene>
- <https://www.springer.com/journal/251/> immuogenetics

### Scientific websites

- The Egyptian Knowledge Bank: <https://www.ekb.eg/web/guest/home>
- <https://genome.ucsc.edu/cgi-bin/hgPcr>
- <https://www.labtools.us/nebcutter-v2-0/>
- <https://pubmed.ncbi.nlm.nih.gov/>
- <https://primer3.ut.ee/>

**Course Coordinator**

**Dr. Safaa Elsayed Mohamed Abdo**

**Head of Department**

**Prof. Dr. Mohamed Atef Helal**

### Course Matrix for achievement of Intended Learning Outcomes

Topics	Hs	Knowledge & Understanding				Intellectual Skills				Practical & Professional Skills				General & Transferable Skills				
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
1 .Genetic material structure & expression	30	✓				✓	✓	✓	✓	✓						✓	✓	✓
2 .Steps of recombinant DNA technology	38		✓			✓	✓	✓	✓		✓					✓	✓	✓
3. method of studying genome (PCR, RFLP)	40			✓		✓	✓	✓	✓			✓				✓	✓	✓
4- Applications of Genetic engineering	26				✓	✓	✓	✓	✓				✓			✓	✓	✓



## COURSE SPECIFICATION (2021 / 2022)

### 1 - Basic Information:

Code number: 291/1

Course title: Cytogenetics.

Academic Year: Master of Veterinary Medicine Program

Total teaching hours: 48 hrs.

Lectures: 48hrs (48 weeks- 1hrs/week)

Practical: -----

### 2 - OVERALL AIMS OF THE COURSE:

*By the end of this course, the student should acquire the concepts, principles and skills related to* Different types of chromosomes, chromosomal aberration, genetic traits affected by sex chromosomes, fertility problems affected by chromosomes, and gene mapping on chromosome.

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

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

a1-Define the basics of chromosome structure and organization and karyotyping.

a2- Identify the different chromosomal aberration.

a3- Evaluate the genetic traits affected by sex chromosomes.

a4- Explain the fertility problems affected by chromosomes

a5- Outline the basics of gene mapping on chromosome

a6- Summarize molecular techniques in cytogenetics as FISH, Primed In Situ Labelling (PRINS) and Comparative Genomic Hybridization.

#### 3-B: INTELLECTUAL SKILLS:

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

b1-Examine the karyotyping results.

b2- Classify different chromosomal aberration.

b3- Assessment fertility problems associated to chromosomes.

b4- Compare between different sex chromosomes related inheritance modes.

b5- Enumerates advanced molecular techniques and their application.

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

#### 3- D: GENERAL SKILLS:

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

d.1. Communicate effectively with his professors, and collages.

d.2. Utilize different sources of knowledge and information

d.3. Use information technology to serve the professional practice.

d.4. Manage time efficiently.



#### 4 - COURSE CONTENTS:

Topic	Lecture Hrs.	Practical Hrs.	Total Hrs.
1 . Chromosome structure and organization	8	--	8
2. Chromosomal aberrations	12	---	12
3. Sex differentiation and sex determination	12	--	12
4. Fertility as affected by chromosomes	8	--	8
5- Introduction to molecular cytogenetics & gene mapping	8	--	8
Total	48	--	48

#### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library Making individual reports about Cytogenetics.

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a6	b1 to b5		d1, d4
Practical sessions		b1 to b5	-----	d2, d4
Self-Learning activities				d2, d3, d4
Distance Teaching and Learning	a1 to a6	b1 to b5	-----	d1 to d4

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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 the academic year	At the end of the academic year		All over the academic year
7.c grads	25	20	-----	5

6.1. Methods	7. Student Assessment
--------------	-----------------------



	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a6	b1 to b5		d4
Practical exams			-----	-----
Oral exams	a1 to a6	b1 to b5		d1
Student activities	a1, a6			d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Essential Books

- Hirschhorn K (1973) Chromosomal abnormalities I: Autosomal defects. In: McKusick VA and Claiborne R (eds) Medical Genetics, pp. 3–14. New York: HP Publishing
- Warburton D (1991) De novo balanced chromosome rearrangements and extra marker chromosomes identified at prenatal diagnosis: clinical significance and distribution of breakpoints. American Journal of Human Genetics 49: 995–1013.
- Yimer, N.\* and Rosnina, Y. /Pertanika J. (2014). Chromosomal Anomalies and Infertility in Farm Animals: A Review. Trop. Agric. Sci. 37 (1): 1 - 18

### 8-2: Recommended books:

- Advanced molecular and cytogenetic technologies in birth defect diagnosis and prevention.
- Li MM. Li MM. Beijing Da Xue Xue Bao Yi Xue Ban. 2005 Feb 18;37(1):14-9. Beijing Da Xue Xue Bao Yi Xue Ban. 2005. PMID: 15719034
- [Strategies to identify supernumerary chromosomal markers in constitutional cytogenetics].
- Douet-Guilbert N, Basinko A, Le Bris MJ, Herry A, Morel F, De Braekeleer M. Douet-Guilbert N, et al. Pathol Biol (Paris). 2008 Sep;56(6):362-7. doi: 10.1016/j.patbio.2008.03.012. Epub 2008 May 5. Pathol Biol (Paris). 2008. PMID: 18456432 Review. French.
- Characterization of complex chromosomal abnormalities in uveal melanoma by fluorescence in situ hybridization, spectral karyotyping, and comparative genomic hybridization.

### Scientific Journals

- Gene and genome <https://www.springer.com/journal/13258>
- <https://www.frontiersin.org/journals/genetics>
- <https://journals.plos.org/plosgenetics/>
- <https://www.journals.elsevier.com/gene>
- <https://www.springer.com/journal/251/>

### Scientific websites

- The Egyptian Knowledge Bank: <https://www.ekb.eg/web/guest/home>
- <https://genome.ucsc.edu/cgi-bin/hgPcr>
- <https://www.labtools.us/nebcutter-v2-0/>
- <https://pubmed.ncbi.nlm.nih.gov/>
- <https://primer3.ut.ee/>

**Course Coordinator**

**Head of Department**

**Dr. Safaa Elsayed Mohamed Abdo**

**Prof. Dr. Mohamed Atef Helal**

### Course Matrix for achievement of Intended Learning Outcomes

Topics	Hs	Knowledge & Understanding						Intellectual Skills					General & Transferable Skills			
		1	2	3	4	5	6	1	2	3	4	5	1	2	3	4
1 . Chromosome structure and orgnization	8	✓						✓	✓	✓		✓	✓	✓	✓	✓
2. Chromosomal aberrations	12		✓					✓	✓	✓		✓	✓	✓	✓	✓
3. Sex differnation and sex determination	12			✓				✓	✓	✓		✓	✓	✓	✓	✓
4. Fertility as affected by chromosomes	8				✓							✓	✓	✓	✓	✓
5- Introduction to molecular genetics & gene mapping	8					✓	✓						✓	✓	✓	✓



## COURSE SPECIFICATION (2021 / 2022)

### 1 - Basic Information:

Code number: 292/1

Course title: Population genetics.

Academic Year: Master of Veterinary Medicine Program

Total teaching hours: 96 hrs.

Lectures: 96 hrs. (48 weeks- 2hrs/week)

Practical: -----

### 2 - OVERALL AIMS OF THE COURSE:

*By the end of this course, the student should acquire the concepts, principles and skills related to Population genetic terminology, gene epistasis, Mendelian genetics law, genetic selection and genetic improvement of population.*

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

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

- a1- Define the common terms as genotype, phenotype, allele, allele frequencies and type of inherited traits.
- a2- Identify the genetic basics of population equilibrium and Hardy Weinberg theories.
- a3- Explain the roles of Mendelian genetics and effect of gene and environment interaction on phenotype
- a4- Contrast the genetic epistasis and phenotype.
- a5- Summarize the effect of chromosomal polymorphism and gene mutation on population structure
- a6- Discuss the genome assisted selection methods (GAS & MAS).

#### 3-B: INTELLECTUAL SKILLS:

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

- b1- Classify the genetic parameters related to inherited traits in animal any species.
- b2- Compare between monogenic and polygenic traits
- b3- Assessment of population structure and balance.
- b4- Expect the phenotype and the genotype of next generation.
- b5- Enumerates different genetic markers.

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

#### 3- D: GENERAL SKILLS:

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

- d.1. Communicate effectively with his professors, and collages.
- d.2. Utilize different sources of knowledge and information
- d.3. Use information technology to serve the professional practice.





d.4. Manage time efficiently.

**4 - COURSE CONTENTS:**

Topic	Lecture Hrs.	Practical Hrs.	Total Hrs.
1 . introduction to population genetics	4	--	4
2. Mendeline genetics	12	---	12
3. Population structure and genetic epistasis	12	--	12
4. Genetic improvement to a herd	12	--	12
5- Introduction to genome assisted selectin	8	--	8
Total	48	--	48

**5- TEACHING & LEARNING METHODS:**

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library Making individual reports about Population genetics.

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a6	b1 to b5		d1, d4
Practical sessions		b1 to b5	-----	d2, d4
Self-Learning activities				d2, d3, d4
Distance Teaching and Learning	a1 to a6	b1 to b5	-----	d1 to d4

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:-**

<u>7.a Used methods</u>	Written examination	Oral examination	Practical examination	Activities
<u>7.b time</u>	At the end of the academic year	At the end of the academic year		All over the academic year
<u>7.c grads</u>	25	20	-----	5



6.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a6	b1 to b5		d4
Practical exams			-----	-----
Oral exams	a1 to a6	b1 to b5		d1
Student activities	a1, a6			d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Essential Books

- Principles of Population Genetics 4th Edition by Daniel L. Hartl, Andrew G. Clark. 1980. ISBN-13: 978-0878933082
- Molecular Population Genetics 1st Edition. Sònia Casillas and Antonio Barbadilla. 2017
- Dekkers, J. C., 2004. Commercial application of marker- and gene-assisted selection in livestock: strategies and lessons. *Journal of Animal Science*. 82 E-Suppl, 313-328.

### 8-2: Recmended books:

- Yao, J. B., Aggrey, S. E., Zadworny, D., Hayes, J. F., Kuhnlein, U., 1996. Sequence variations in the bovine growth hormone gene characterized by single-strand conformation polymorphism (SSCP) analysis and their association with milk production traits in Holsteins. *Genetics*. 144, 1809-1816.
- Davis, G. P., DeNise, S. K., 1998. The impact of genetic markers on selection. *Journal of Animal Science*. 76, 2331-2339.

### Scientific Journals

- Gene and genome <https://www.springer.com/journal/13258>
- <https://www.frontiersin.org/journals/genetics>
- <https://journals.plos.org/plosgenetics/>
- <https://www.journals.elsevier.com/gene>
- <https://www.springer.com/journal/251/>

### Scientific websites

- The Egyptian Knowledge Bank: <https://www.ekb.eg/web/guest/home>
- <https://genome.ucsc.edu/cgi-bin/hgPcr>
- <https://www.labtools.us/nebcutter-v2-0/>
- <https://pubmed.ncbi.nlm.nih.gov/>
- <https://primer3.ut.ee/>

**Course Coordinator**

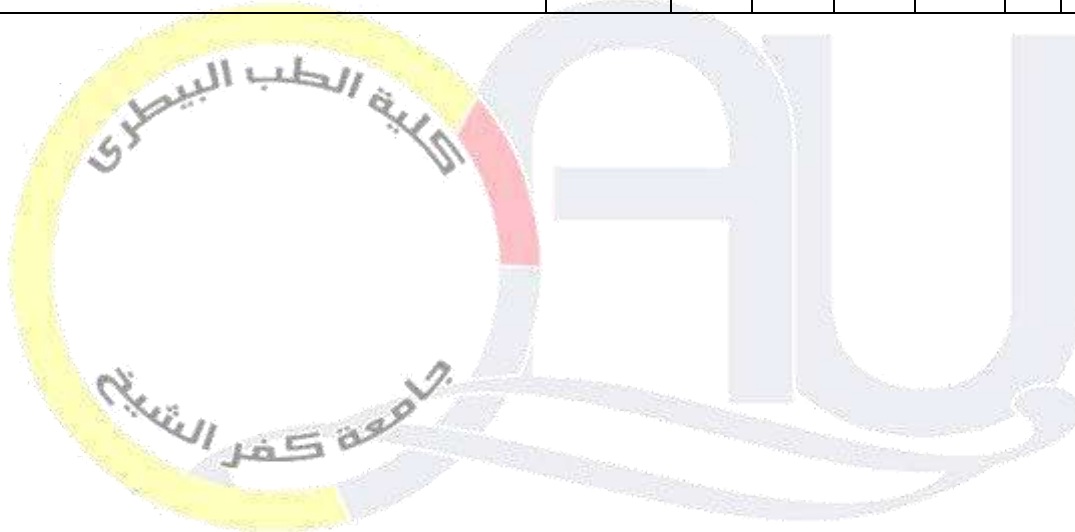
**Head of Department**

**Dr. Safaa Elsayed Mohamed Abdo**

**Prof. Dr. Mohamed Atef Helal**

### Course Matrix for achievement of Intended Learning Outcomes

Topics	Hs	Knowledge & Understanding						Intellectual Skills					General & Transferable Skills				
		1	2	3	4	5	6	1	2	3	4	5	1	2	3	4	
1 . introduction to population genetics	4	✓						✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2. Mendeline genetics	12			✓					✓	✓	✓		✓	✓	✓	✓	✓
3. Population structure and genetic epistasis	12		✓							✓	✓		✓	✓	✓	✓	✓
4. Genetic improvement to a herd	12					✓	✓					✓	✓	✓	✓	✓	✓
5- Introduction to genome assisted selectin	8					✓	✓					✓	✓	✓	✓	✓	✓





## COURSE SPECIFICATION (2021 / 2022)

### 1 - Basic Information:

**Code number:** 293/1

**Course title:** Physiological Genetics.

**Academic Year:** Master of Veterinary Medicine Program

**Total teaching hours:** 96 hrs.

**Lectures:** 96hrs (48 weeks- 2hrs/week)

**Practical:** -----

### 2 - OVERALL AIMS OF THE COURSE:

*By the end of this course, the student should acquire the concepts, principles and skills related to Nucleic acid structure, regulation of protein, hormones, enzyme expression and action, inherited Bleeding Disorders and immunogenetics multiple alleles.*

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- a1- Identify the structure of DNA, RNA in different animal species and fish.
- a2- Define the regulation of gene expression and protein synthesis
- a3- Evaluate the genetic differences between hormones and enzymes mode of action
- a4- Illustrate the genetic Factors regulates the developmental and Morphogenesis
- a5- Discuss the inborn errors of metabolism and inherited Bleeding Disorders
- a6- Outline immunogenetics multiple alleles as red-cell antigen, antibodies Diversity and MHC and host-pathogens interaction

#### 3-B: INTELLECTUAL SKILLS:

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

- b1-Examine the nucleic acid extraction results.
- b2-. Assess the gene expression regulation in different species.
- b3- Compare between different hormones and enzymes pathway
- b4-. Study the animal inherited diseases and their control
- b5- Enumerates different multiple allele and gene diversity.

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

#### 3- D: GENERAL SKILLS:

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

- d.1. Communicate effectively with his professors, and collages.
- d.2. Utilize different sources of knowledge and information
- d.3. Use information technology to serve the professional practice.
- d.4. Manage time efficiently.

### 4 - COURSE CONTENTS:

Topic	Lecture Hrs.	Practical Hrs.	Total Hrs.
1 . Nucleic acid structure	8	--	8
2. Regulation of gene expression and protein synthesis	14	---	14



3. Inborn Errors of Metabolism and inherited Bleeding Disorders	14	--	14
4. The inheritance of immune-related traits	12	--	12
Total	48	--	48

### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library  
Making individual reports about Physiological Genetics

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a6	b1 to b5		d1, d4
Practical sessions		b1 to b5	-----	d2, d4
Self-Learning activities				d2, d3, d4
Distance Teaching and Learning	a1 to a6	b1 to b5	-----	d1 to d4

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year		All over the academic year
<b>7.c grads</b>	25	20	-----	5

6.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a6	b1 to b5		d4
Practical exams			-----	-----
Oral exams	a1 to a6	b1 to b5		d1



Student activities	a1, a6		d1 to d4
--------------------	--------	--	----------

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Essential Books

- Berg JM, Tymoczko JL, Stryer L, Clarke ND (2002) Chapter 27, Section 4: DNA Replication of Both Strands Proceeds Rapidly from Specific Start Site. In: Biochemistry. WH Freeman and Company, USA.
- Alberts B, Johnson A, Lewis J, Raff M, Roberts K, et al. (2002) Molecular Biology of the Cell. (4th edn). Garland Science, UK. pp. 238–240. 18.
- Brown TA (2002) Genomes. (2nd edn). Oxford: Wiley-Liss, USA
- Murakami, K. S., Masuda, S., Campbell, E. A., Muzzin, O., Darst, S. A., Structural basis of transcription initiation: an RNA polymerase holoenzyme-DNA complex, Science, 296, 5571, 1285-90, 2002. 48. Yang,
- Latchman, D., Latchman, D. S., (2004), Eukaryotic Transcription Factors, (Forth Ed.), USA, Elsevier Ltd.
- Griffiths, A. J. F., Miller, J. H., Suzuki, D. T., Lewontin, R. C., Gelbart, W. M., (2000), An Introduction to Genetic Analysis, (7th Ed.), New York, W. H. Freeman and Company.
- Hajam, Y. A., et al. (2022). Chapter 3 - Basics of immunogenetics: application and future perspectives. A Molecular Approach to Immunogenetics. M. U. Rehman, A. Arafah, M. N. Ali and S. Ali, Academic Press: 41-62.
- Introductory Chapter: Immunogenetics Amene Saghadzadeh and Nima Rezaei, **2019**

### 8-2: Recommended books:

- Johnson, B. G., Raven, H. P., Chapter 15: Genes and How They Work , Biology, Eighth Edition (Raven) , 300-308, 2008.
- Griffiths, F. J. A. , Wessler, R. S., Lewontin, C. R., Gelbart, M. W., Suzuki T. D., Miller, H. J., An Introduction to Genetic Analysis 8th Edition, Chapter 9: Proteins and Their Synthesis, 273-296 , 2004.
- A. Shinde et al (2018) Recombinant DNA Technology and its Applications: A Review. Int.J. MediPharm Res.,4(2),pp 79-88
- Matzaraki V et al. The MHC locus and genetic susceptibility to autoimmune and infectious diseases. Genome Biology. 2017;18(1):76

### Scientific Journals

- Gene and genome <https://www.springer.com/journal/13258>
- <https://www.frontiersin.org/journals/genetics>
- <https://journals.plos.org/plosgenetics/>
- <https://www.journals.elsevier.com/gene>
- <https://www.springer.com/journal/251/>

### Scientific websites

- The Egyptian Knowledge Bank: <https://www.ekb.eg/web/guest/home>
- <https://genome.ucsc.edu/cgi-bin/hgPcr>



**Kafrelsheikh University**  
Faculty of Veterinary Medicine



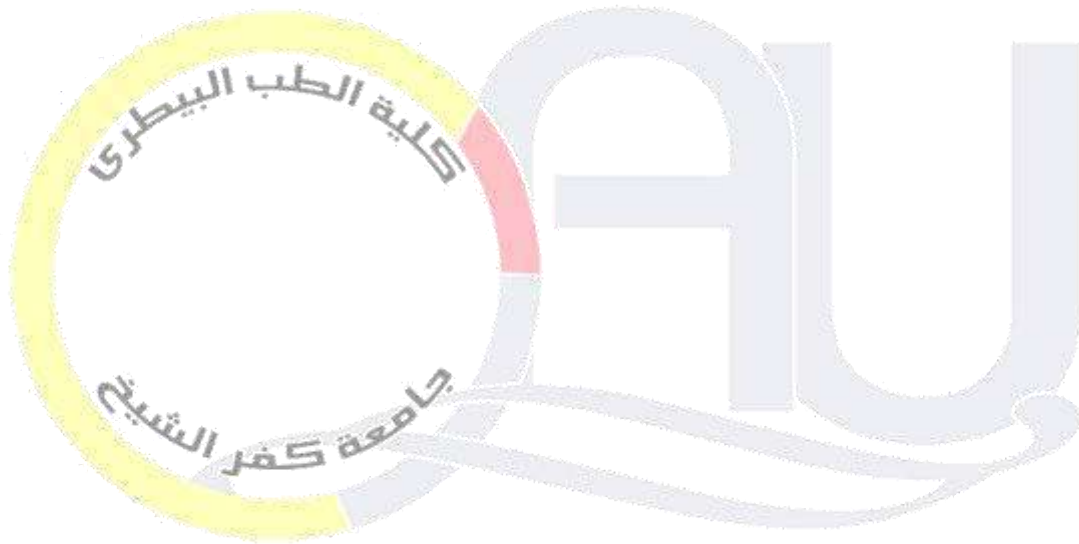
- <https://www.labtools.us/nebcutter-v2-0/>
- <https://pubmed.ncbi.nlm.nih.gov/>
- <https://primer3.ut.ee/>

**Course Coordinator**

**Head of Department**

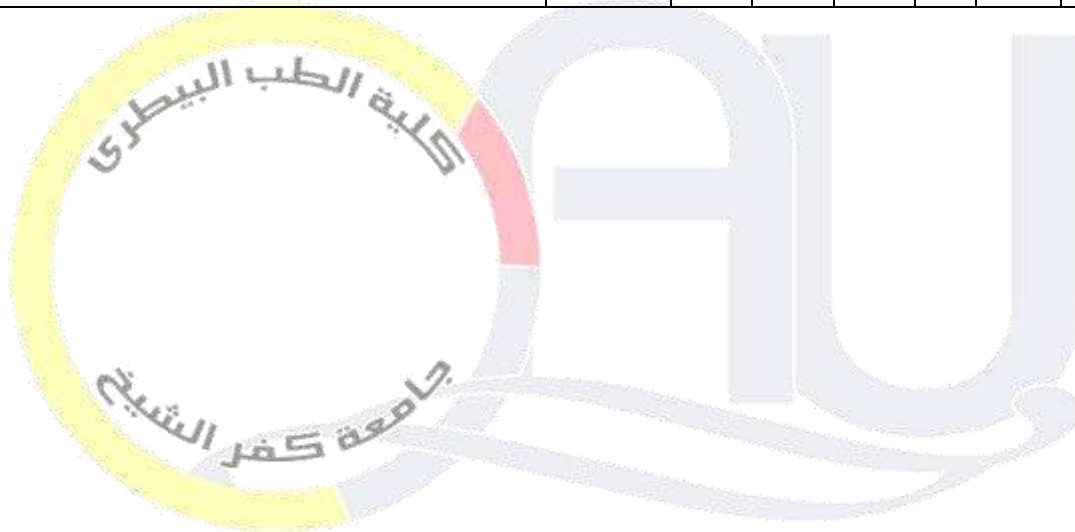
**Dr. Safaa Elsayed Mohamed Abdo**

**Prof. Dr. Mohamed Atef Helal**



### Course Matrix for achievement of Intended Learning Outcomes

Topics	Hs	Knowledge & Understanding						Intellectual Skills					General & Transferable Skills			
		1	2	3	4	5	6	1	2	3	4	5	1	2	3	4
1 . Nucleic acid structure	8	✓						✓					✓	✓	✓	✓
2. Regulation of gene expression and protein synthesis	14		✓	✓	✓				✓	✓			✓	✓	✓	✓
3. Inborn Errors of Metabolism and inherited Bleeding Disorders	14					✓					✓		✓	✓	✓	✓
4. The inheritance of immune-related traits	12						✓					✓	✓	✓	✓	✓







## COURSE SPECIFICATION (2021 / 2022)

### 1 - Basic Information:

**Code number:** 294/1

**Course title:** Chemical and Radial Genetics.

**Academic Year:** Master of Veterinary Medicine Program

**Total teaching hours:** 144 hrs.

**Lectures:** 48 hrs. (48 weeks- 1hrs/week)

**Practical:** 96 hrs. (48 weeks- 2hrs/week)

### 2 - OVERALL AIMS OF THE COURSE:

*By the end of this course, the student should acquire the concepts, principles and skills related to* Different types of mutations, Chemical, physical and radical genotoxic substance, lab assessment of mutagenicity, different DNA repair pathway.

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- a1- Define the different types of genetic mutation.
- a2- Identify the chemical and radical mutagenic substance.
- a3- Evaluate the mutagenicity and carcinogenicity of chemicals.
- a4- Explain DNA repairing mechanisms.

#### 3-B: INTELLECTUAL SKILLS:

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

- b1- Construct a typical classification of mutation.
- b2- Examine the result of chemicals assessment and their genotoxic effect.
- b3- Use online programs to identify mutagens on DNA sequence.
- b4- Compare different types of DNA repair.

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

- c1- Isolate DNA and chromosomes and assort them in a karyotyping..
- c2- Use advanced genetic application to detect mutation on the chromosomes and DNA.
- c3- Test the genotoxic and carcinogenicity of chemicals.
- c4- Evaluate the antimutagenicity and repairing efficiency of DNA repair system.

#### 3- D: GENERAL SKILLS:

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

- d.1. Communicate effectively with his professors, and collages.
- d.2. Utilize different sources of knowledge and information
- d.3. Use information technology to serve the professional practice.
- d.4. Manage time efficiently.

### 4 - COURSE CONTENTS:

Topic	Lecture Hrs.	Practical Hrs.	Total Hrs.
-------	-----------------	-------------------	---------------



1 .Definition and classification of mutation	10	--	10
2. Chemical and radical mutagens	18	26	44
3. Genetic evaluation and assessment of mutagens	10	60	70
4. DNA repair mechanisms	10	10	20
Total	48	96	144

### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library

Making individual reports about Chemical and Radial Genetics

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a4	b1 to b4		d1, d4
Practical sessions		b1 to b4	c1 to c4	d2, d4
Self-Learning activities				d2, d3, d4
Distance Teaching and Learning	a1 to a4	b1 to b4	c1 to c4	d1 to d4

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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 the academic year	At the end of the academic year	At the end of the academic year	All over the academic year
7.c grads	25	10	10	5

6.1. Methods	7. Student Assessment
	Intended Learning Outcomes Covered



	KU	IS	PPS	GTS
Written exams	a1 to a4	b1 to b4		d4
Practical exams			c1 to c4	d2, d3
Oral exams	a1 to a4	b1 to b4		d1
Student activities	a1, a4			d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Essential Books

- Gupta, M., et al. (2021). "Gene Mutation Classification through Text Evidence Facilitating Cancer Tumour Detection." *Journal of Healthcare Engineering* **2021**: 8689873.
- Guidelines for Mutagenicity Risk Assessment
- ICH guideline S2 (R1) on genotoxicity testing and data interpretation for pharmaceuticals intended for human use

### 8-2: Recmoned books:

- Torgovnick, A., et al. (2015). "DNA repair mechanisms in cancer development and therapy." *Frontiers in Genetics* 6.
- Chatterjee, N., et al. (2017). "Mechanisms of DNA damage, repair, and mutagenesis." *Environmental and molecular mutagenesis* 58(5): 235-263.
- "Reverse chemical mutagenesis: identification of the mutagenic lesions resulting from reactive oxygen species-mediated damage to DNA." *Proceedings of the National Academy of Sciences of the United States of America*

### Scientific Journals

- Gene and genome <https://www.springer.com/journal/13258>
- <https://www.frontiersin.org/journals/genetics>
- <https://journals.plos.org/plosgenetics/>
- Molecular Genetics & Genomic medicine
- <https://www.journals.elsevier.com/gene>
- <https://www.springer.com/journal/251/> immuogenetics

### Scientific websites

- The Egyptian Knowledge Bank: <https://www.ekb.eg/web/guest/home>
- <https://genome.ucsc.edu/cgi-bin/hgPcr>
- <https://www.labtools.us/nebcutter-v2-0/>
- <https://pubmed.ncbi.nlm.nih.gov/>
- <https://primer3.ut.ee/>

**Course Coordinator**

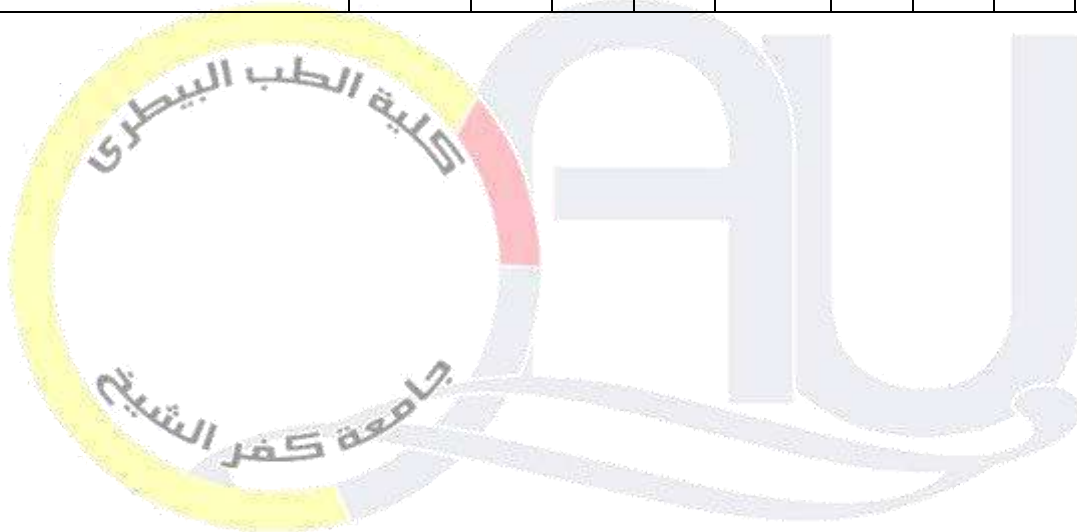
**Dr. Safaa Elsayed Mohamed Abdo**

**Head of Department**

**Prof. Dr. Mohamed Atef Helal**

### Course Matrix for achievement of Intended Learning Outcomes

Topics	Hs	Knowledge & Understanding				Intellectual Skills				Practical & Professional Skills				General & Transferable Skills			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1. Definition and classification of mutation	10	✓				✓	✓	✓	✓						✓	✓	✓
2. Chemical and radical mutagens	44		✓			✓	✓	✓	✓	✓	✓				✓	✓	✓
3. Genetic evolution and assessment of mutagens	70			✓		✓	✓	✓	✓			✓			✓	✓	✓
4. DNA repair mechanisms	20				✓				✓				✓		✓	✓	✓





**Kafrelsheikh University**  
Faculty of Veterinary Medicine



---

**Kafrelsheikh University**

**Faculty of veterinary medicine**

**Department of Animal Wealth Development**

# **Program Specification for Master Degree (2021-2022)**

**Program Title:**

**Master of The Veterinary Medicine  
(Animal Production)**



## **A- Administrative information:**

- 1- **Awarding Body:** Kafrelsheikh University
- 2- **Teaching Body:** Faculty of Veterinary Medicine
- 3- **Department responsible:** Animal Wealth Development
- 4- **Program Title:** Master Degree in Veterinary Medicine (Animal Production)
- 5- **Final award:** Master Degree
- 6- **Registration period:** 2-4 years
- 7- **Program Coordinator:** Prof. Dr. **Mohamed Atef Helal**
- 8- **External evaluator:**
- 9- **Date of revision:** -----
- 10- **Date of approval:** -----

## **B- Professional information:**

### **1-Educational aims of the program**

- Provides graduates the opportunity to develop communication and teaching skills and the experience of scientific research.
- Develops the ability of graduate to engage critically with recent techniques and tools in the field of Animal, Poultry and Fish breeding and production.
- Supplies the graduates with the most recent knowledge in science and technological applications in Animal, Poultry and Fish breeding and production.
- Demonstrates an awareness of the connections between disciplines and develop the ability to engage critically with scientific literature and to critically review and present their own research data for the protection and promotion of the animal production.
- Allows graduates to develop practical research project.



- Enables graduates to achieve competency in modern Animal, Poultry and fish production technology.

## **2- Academic standards:**

**Academic reference standards (ARS) adopted by the faculty committee No (1) 14-9-2014)**

## **3-Graduate attributes:**

*At the end of the program, graduate must be able to:*

- 1) Perfect application of scientific research basics and methodologies in Animal, Poultry and Fish breeding and production, and using its various tools.
- 2) Application and use of analytical methodology in the field of Animal, Poultry and Fish production and improvement.
- 3) Application of gained specialized knowledge and integrating them with the relevant knowledge in Animal, Poultry and Fish breeding and production.
- 4) Awareness with current problems and recent visions in Animal, Poultry and Fish breeding and production
- 5) Identification of animal, poultry and fish production problems suggesting suitable and economic solutions.
- 6) Mastering an appropriate scale of specific professional skills, and using suitable technological means to serve professional practice.
- 7) Effective communication with students, animal breeders and owners of animal, poultry and fish farms and leading work team.
- 8) Decision making in various animal, poultry and fish production contexts.
- 9) Employment of the available resources efficiently to maximize animal, poultry and fish production.
- 10) Awareness with his role in society development and maximizing animal, poultry and fish production with preservation of a clean environment.
- 11) Reflection of the commitment to act with integrity, credibility and the rules of profession.
- 12) Academic and professional self- development and ability for life-long learning and progress.



#### **4-Programme outcomes [intended learning outcomes (ILOs)]**

##### **a. Knowledge and understanding:**

*On successful completion of this program, postgraduate will be able to:*

- a.1. Explain different theories and principles in the field of animal, poultry and fish breeding and production and related fields.
- a.2. Identify the impact of different production systems on animal, poultry and fish products and its reflection on the environment
- a.3. Distinguish the scientific developments in the field of animal, poultry and fish production.
- a.4. Demonstrate the ethical and legal principles for professional practice in the field of animal, poultry and fish production.
- a.5. Realize the principles and basics of quality assurance in the area of animal, poultry and fish production.
- a.6. Apply the basics and ethics of scientific research in the field of animal, poultry and fish breeding and production
- a.7. Realize the legal and ethical basics in the field of animal, poultry and fish breeding and production

##### **b. Intellectual skills:**

*At the end of the program, graduate must be able to:*

- b.1. Analyze and judge the information collected from animal, poultry and fish farms on the basis of productive and reproductive indices.
- b.2. Determine an accurate approach to productive and reproductive problems and find the solution based on the available data.
- b.3. Relate between the various sources of knowledge to solve productive and reproductive problems in producing animal, poultry and fish.
- b.4. Develop a research proposal in the animal, poultry and fish breeding and production and/ or write scientific article on a research problem.
- b.5. Assess risks of professional practices in animal, poultry and fish breeding and production and their possible consequences.
- b.6. Plan to enhance professional performance the field of animal, poultry and fish breeding and production.
- b.7. Make professional decisions and suggestions in dealing with productive and reproductive problems in animals and poultry.



### **c. Practical and professional skills:**

*At the end of the programme, graduate must be able to:*

- c.1.** Master the fundamental and recent professional skills in the field of animal, poultry and fish breeding and production
- c.2.** Write and assess professional and conclusive report about the animal, poultry and fish production.
- c.3.** Assess the existing methods and tools in the field of animal, poultry and fish production.
- c.4.** Plan a research project in the field of animal, poultry and fish with a consideration to the technical, ethical and safety issues and associated costs.
- c.5.** Perform essential skills that underpin techniques associated with experimental design, collecting, summarizing, organizing, presenting and analyzing data

### **d. General and transferable skills:**

*At the end of the programme, graduate must be able to:*

- d.1.** Communicate effectively with his professors, collages and animal owner(s).
- d.2.** Utilize different sources of knowledge and information.
- d.3.** Assess himself and identify his personal educational needs.
- d.4.** Demonstrate interpersonal skills and team working ability
- d.5.** Demonstrate an ability to learn independently for a career of lifelong learning.
- d.6.** Use information technology to serve the professional practice.
- d.7.** Manage time efficiently.
- d.8.** Set tools and indicators for assessment of the performance of others.

### **5-Program structure:**

**a) Program duration (years):** Master degree from 2-4 years

**b) Premaster courses – at least one academic year**

Course	Lecture (hours/week)	Practical (hours/week)
Fundamental (core) course	3	4
Research methodology	1	3
2-5 Elective Courses Offered by other departments and are selected from the list below according to thesis topic (10-12 hours)	5-6	5-6



c) Master of Veterinary Medicine Thesis (at least one academic year)

- All master-degree students should prepare a master thesis.
- The department and the ethical committees must approve the protocol of the research.
- The thesis should include a review part and a research part.
- The thesis is supervised by one or more senior staff members of the department responsible for the program and may include other specialties according to the nature of the research.
- The thesis should be evaluated and approved by a committee of three professors including one of the supervisors and an external professor.

**The elective courses are selected from the list below according to thesis topic:**

Subject	Code	Course title	No of hours/week	
			Lecture	Practical Lab
Anatomy and embryology	101/1	<b>1- Applied anatomy</b>	2	2
	102/1	<b>2- Anatomical techniques and surface anatomy</b>	2	2
	103/1	<b>3- Osteology and arthrology</b>	2	2
	104/1	<b>4- Comparative digestive system</b>	2	2
	105/1	<b>5- Comparative urogenital system</b>	2	2
	106/1	<b>6-Comparative respiratory system</b>	2	2
	107/1	<b>7- Comparative cardiovascular system</b>	2	2
	108/1	<b>8- Comparative nervous system and endocrine glands</b>	2	2
	109/1	<b>9- General and special embryology</b>	2	2
	110/1	<b>10- Avian anatomy</b>	1	2
Histology	111/1	<b>11- cytology and cytochemistry</b>	1	2
	112/1	<b>12- general histology</b>	2	2
	113/1	<b>13- Histology and histochemistry of blood, lymph and cardiovascular system.</b>	1	1
	114/1	<b>14- Comparative histology and histochemistry of body muscles, heart and blood vessels</b>	1	1



	115/1	<b>15- Comparative histology and histochemistry of respiratory system</b>	1	1
	116/1	<b>16-Comparative histology and histochemistry of digestive system</b>	2	2
	117/1	<b>17- Comparative histology and histochemistry of uro-genital system</b>	2	2
	118/1	<b>18- Comparative histology and histochemistry of nervous and endocrine systems</b>	2	2
	119/1	<b>19- Histology and histochemistry of special sensors</b>	1	2
	120/1	<b>20-Histology and histochemistry of skin, hooves, claws and nails</b>	2	2
	121/1	<b>21- Avian histology</b>	2	2
	122/1	<b>22- Fish histology</b>	1	2
<b>Physiology</b>	123/1	<b>23- Physiology of mammalian endocrine and reproduction</b>	2	2
	124/1	<b>24- poultry physiology (advanced)</b>	2	2
	125/1	<b>25- physiology of muscle and nerve</b>	1	2
	126/1	<b>26- physiology of ruminants</b>	2	2
	127/1	<b>27- physiology of environment, adaptation and cell</b>	2	2
	128/1	<b>28- physiology of blood</b>	2	2
	129/1	<b>29- physiology of digestion, metabolism and energy</b>	2	2
	130/1	<b>30- Physiology in pollution</b>	1	2
	131/1	<b>31- Radioactive isotopes and biological uses</b>	2	2
	132/1	<b>32- Physiology of heights</b>	1	1
	133/1	<b>33-Fish physiology.</b>	1	2
<b>Biochemistry</b>	134/1	<b>34- Basics of biochemistry</b>	2	3
	135/1	<b>35- Metabolism</b>	2	2
	136/1	<b>36- Biochemistry of tissue and body fluids .</b>	2	2
	137/1	<b>37- Biochemistry of hormones and reproduction</b>	2	2



	138/1	<b>38- Feeding biochemistry</b>	2	2
	139/1	<b>39- Clinical biochemistry</b>	2	2
	140/1	<b>40- Avian biochemistry</b>	2	2
	141/1	<b>41- Microbial biochemistry</b>	2	2
	142/1	<b>42- Biochemistry of radiation</b>	1	2
	143/1	<b>43- Fish biochemistry</b>		
<b>Animal behavior and management</b>	144/1	<b>44- Behavior and management of ruminants ( specific courses in cattle, buffalo, sheep, camels and goats)</b>	2	3
	145/1	<b>45- Behavior and management of horses</b>	2	3
	146/1	<b>46- Behavior and management of pet animals</b>	1	2
	147/1	<b>47- Behavior and management of laboratory animals</b>	1	2
	148/1	<b>48- Behavior and management of wild animals</b>	2	2
	149/1	<b>49- Behavior and management of poultry</b>	2	2
	150/1	<b>50- Behavior and management of rabbit</b>	1	2
	151/1	<b>51- Behavior of experimental animals</b>	1	2
<b>Nutrition and clinical nutrition</b>	152/1	<b>52- Basics of animal nutrition</b>	2	2
	153/1	<b>53- feedstuff</b>	2	2
	154/1	<b>54- nutrition of farm animals and fish specific courses in ( cattle and buffalo nutrition – sheep and goat nutrition – camel nutrition- equine nutrition – fish nutrition)</b>	2	2
	155/1	<b>55- poultry and rabbit nutrition( advanced)</b>	2	2
	156/1	<b>56- wild animal nutrition</b>	1	2
	157/1	<b>57- laboratory animal nutrition</b>	1	2
	158/1	<b>58- feed additives</b>	1	2
	159/1	<b>59- feedstuff analysis</b>	2	2
	160/1	<b>60- Quality control of feed and feed factories</b>	2	2
	161/1	<b>61- Clinical nutrition and malnutrition</b>	2	2
	162/1	<b>62- Fish nutrition</b>	1	2
<b>Pathology</b>	163/1	<b>63- General pathology and neoplasm(</b>	2	2



		<b>progressive)</b>		
	164/1	<b>64-pathology of microbial and parasitic diseases in animal</b>	2	2
	165/1	<b>65- pathology of bad nutrition</b>	1	2
	166/1	<b>66- pathology of environmental pollution</b>	1	2
	167/1	<b>67- pathology of reproductive diseases</b>	1	2
	168/1	<b>68- Avian pathology</b>	2	2
	169/1	<b>69-Experimental pathology</b>	2	2
	170/1	<b>70- toxins pathology</b>	2	2
	171/1	<b>71- surgical pathology</b>	2	2
	172/1	<b>72- Pathology of experimental animals.</b>		
	173/1	<b>73- Pathology of genetics</b>		
	174/1	<b>74-- Fish pathology</b>	2	2
<b>Clinical pathology</b>	175/1	<b>75- Advanced clinical pathology</b>	2	2
	176/1	<b>76-Organ function tests and body and urine balance</b>	2	2
	177/1	<b>77- Clinical hematology and bone marrow examination</b>	1	2
<b>Bacteriology, immunology and mycology</b>	178/1	<b>78- General bacteriology(advanced)</b>	1	2
	179/1	<b>79-systemic bacteriology</b>	2	3
	182/1	<b>80- Advanced immunology</b>	2	2
	183/2	<b>81- Advanced mycology</b>	1	2
<b>Virology</b>	180/3	<b>82- General virology</b>	1	2
	181/4	<b>83-Systemic virology( specific courses)</b>	2	3
	182/5	<b>84- Advanced immunology</b>	2	2
<b>Mixed courses between Bacteriology and Virology</b>	184/1	<b>85- Microbiology of poultry</b>	2	2
	185/1	<b>86- Microbiology of ??????</b>	1	2
	186/1	<b>87- Microbiology of animal product</b>	2	2
	187/1	<b>88- Fish Microbiology</b>	1	2
		<b>81- Advanced immunology</b>	2	2
<b>Parasitology</b>	188/1	<b>89- Veterinary medical entomology and acarology</b>	2	2
	189/1	<b>90-helminthology</b>	2	2
	190/1	<b>91- protozoology</b>	2	2
	191/1	<b>92- Avian and rabbits parasitology</b>	2	2
	192/1	<b>93Malacology and its vet. Importance</b>	1	2
	193/1	<b>94- parasitic Immunology</b>	1	2
	194/1	<b>95- Clinical parasitology</b>	2	2



	195/1	<b>96-Wild life parasitology</b>	1	2
	196/1	<b>97-Special vet. Parasitology</b>	2	2
	197/1	<b>98- Physiology and biochemistry of parasites</b>	2	2
	198/1	<b>99- Fish parasitology</b>	1	2
<b>Pharmacology</b>	199/1			
	200/1	<b>system and autocoid</b>		
	201/1	<b>102- pharmacology of central nervous system</b>	2	2
	202/1	<b>103 pharmacology of anesthesia</b>	2	2
	203/1	<b>104- Systemic pharmacology</b>	2	2
	204/1	<b>105- pharmacology of metabolism</b>	2	2
	205/1	<b>106- pharmacology of hormones</b>	2	2
	206/1	<b>107-Chemotherapy</b>	2	2
	207/1	<b>108-Biological evolution of drug</b>	1	1
<b>Hygiene and control of milk and dairy products</b>	208/1	<b>108- Hygiene and control of milk and dairy products</b>	2	2
	209	<b>109- Microbiology of milk and dairy products</b>	2	2
	210/1	<b>110- Milk technology and preservation</b>	2	2
	211/1	<b>111- Food analysis</b>	2	2
	212/1	<b>112- Food poisoning</b>	1	2
	213/1	<b>113- Specific courses on sources of contamination, disturbances of milk production, milk born diseases, hygiene of table egg, edible fats and oils</b>	1	1
	214/1	<b>114- The sanitation of dairy plant</b>	2	2
<b>Control of meat hygiene and their products</b>	215/1	<b>115- Slaughter animal Hygiene</b>	1	2
	216/1	<b>116- Abattoir management and hygiene</b>	2	2
	217/1	<b>117- Hygienic control of meat and their product</b>	2	2
	218/1	<b>118 inspection of poultry meat.</b>	1	2
	219/1	<b>119- Food technology</b>	1	2
	220/1	<b>120- Microbiology of meat and fish meats and their product</b>	2	1



	221/1	<b>121- Chilled meal microbiology</b>	1	2
	222/1	<b>122- Analysis of meat and fish and their product</b>	1	2
	223/1	<b>123- Preservation of meat, poultry, fish and their products</b>	1	2
	224/1	<b>124- Sanitation affairs of meat and fish plants.</b>	2	2
<b>Internal medicine</b>	225/1	<b>125- advanced general medicine</b>	2	2
	226/1	<b>126- disease of ruminants( cattle, buffalo, camels, sheep and goats)</b>	3	3
	227/1	<b>127- diseases of equines</b>	2	2
	228/1	<b>128 diseases of pet animals</b>	2	2
	229/1	<b>129- diseases of wild animals</b>	2	2
	230/1	<b>130- diseases of metabolic disorders</b>	2	2
	231/1	<b>131- nutritional deficiency diseases</b>	2	2
	232/1	<b>132- Skin diseases</b>	1	2
	233/1	<b>133 - diseases of newly born animals</b>	2	2
	234/ 1	<b>134- Stress diseases during animals transport.</b>		
<b>Infectious diseases</b>	235/ 1	<b>135- Infectious diseases of cattle</b>	2	2
	236/ 1	<b>136- Infectious diseases of sheep and goat</b>	2	2
	237/ 1	<b>137- Infectious diseases camel</b>	2	2
	238/ 1	<b>138 Infectious diseases of equine</b>	2	2
	239/ 1	<b>139- Infectious diseases of pet animals</b>	2	2
	240/ 1	<b>140- Infectious diseases lab animals</b>	1	2
	241/ 1	<b>141- Infectious diseases of udder and newly born animals</b>	2	2
	242/ 1	<b>142- Infectious diseases buffaloes</b>	2	1
	243/1	<b>143- Infectious diseases of wild animals.</b>		
<b>Forensic medicine and toxicology</b>	244/1	<b>144- Forensic medicine and veterinary procedures</b>	2	2
	245/1	<b>145- general toxicology</b>	2	2
	246/1	<b>146- environmental toxicology</b>	2	2
	247/1	<b>147- forensic toxicology</b>	2	2
	248/1	<b>148- laboratory diagnostic toxicology</b>	2	2
	249/1	<b>149- Drug toxicology</b>		



<b>Veterinary Surgery</b>	259/1	<b>159- General surgery (advanced)</b>	2	2
	260/1	<b>160- Special surgery( organs)</b>	2	3
	261/1	<b>161- surgery of eye, ear, nose and larynx</b>	2	2
	262/1	<b>162 digestive system surgery</b>	2	2
	263/1	<b>163- surgery of the limbs, hoof and claws</b>	2	2
	264/1	<b>164- experimental surgery</b>	2	2
	265/1	<b>165- anesthesiology</b>	1	1
	266/1	<b>166- radiology and ultrasonography</b>	2	2
<b>Poultry and rabbit diseases</b>	267/1	<b>167- bacterial diseases of poultry</b>	2	2
	268/1	<b>168- viral diseases of poultry</b>	2	2
	269/1	<b>169- fungal diseases of poultry</b>	2	2
	270/1	<b>170 parasitic diseases of poultry</b>	1	2
	271/1	<b>171 - nutritional diseases of poultry</b>	1	2
	272/1	<b>172-diseases of rabbit (advanced)</b>	2	2
	273/1	<b>173-Diseases of wild and migrating birds</b>	2	2
	274/1	<b>174- Preventive vaccines and their evaluation in polutry</b>	2	2
	275/1	<b>175- Laboratory diagnosis of poultry diseases.</b>		
<b>Animal and environmental hygiene</b>	276/1	<b>176- farm animal hygiene ( advanced)</b>	2	2
	277/1	<b>177- poultry hygiene ( advanced)</b>	2	2
	278/1	<b>178- environmental hygiene and pollution</b>	2	2
	279/1	<b>179- control of contagious diseases</b>	2	2
	280/1	<b>180- eradication of rodents and disease vector</b>	2	2
	281/1	<b>181- insecticides and public health</b>	2	2
	282/1	<b>182-hygiene of animal enclosures- specific courses in :- cattle houses – poultry houses – rabbit houses- pet animals house3s – experimental animals houses</b>	2	2
	283/1	<b>183-disinfections and disinfectants</b>	2	2
	284/1	<b>184- veterinary epidemiology – specific courses in animal environment</b>	2	-
<b>Zoonoses</b>	285/1	<b>185- advanced zoonoses ( specific courses in bacterial and Mycotic diseases – viral diseases – parasitic diseases)</b>	2	2
	286/1	<b>186- role of rodents in transmission of</b>	2	2





		<b>zoonoses</b>		
	287/1	<b>187- role of wild animals in transmission of zoonoses</b>	2	2
	288/1	<b>188- role of birds (special courses in: poultry, wild migrating or pets) in transmission of zoonoses</b>		
<b>Genetics and genetic engineering</b>	289/1	<b>189- Genetics of microorganisms .</b>	1	2
	290/1	<b>190- Genetic engineering( advanced)</b>	1	2
	291/1	<b>191- Cytological genetics</b>	1	-
	292/1	<b>192- Genetics of populations.</b>	2	-
	293/1	<b>193- physiological genetics</b>	2	-
	294/1	<b>194- Chemical and radiological genetics.</b>	1	2
<b>Fish diseases and management</b>	302/1	<b>202- Biology of fish.</b>	2	2
	303/1	<b>203-Fish diseases (advanced)</b>	2	2
	304/1	<b>204-Fish farms.</b>	1	2
	305/1	<b>205-Fish breeding .</b>	2	2
<b>Economic and farms management</b>	306/1	<b>206- economics of animals and dairy production</b>	2	-
	307/1	<b>207- economics of poultry farms</b>	2	-
	308/1	<b>208-economics of fish farms</b>	2	-
	309/1	<b>209- feasibility studies</b>	2	-
	310/1	<b>210- farm management</b>	2	-
	311/1	<b>211- economics of beef production</b>	2	-
<b>Biostatistics</b>	312/1	<b>212- Biostatistics (advanced)</b>	2	-
	313/1	<b>213- Experimental design</b>	2	2
	314/1	<b>214- Computer and data processing</b>	2	1

## 6-Teaching and Learning Methods:

*The program features a variety of teaching approaches for different intended learning objectives including:*

- Lectures to gain knowledge and understanding skills
- Writing a review paper to gain the skills of self-learning and presentation
- Practical and lab sessions to gain practical skills
- Seminars



## 7- Students assessments:

The program depends on different assessment ways:

### a. Course assessment:

1- Written examination	For assessment of knowledge, back calling and Intellectual skills
2- Practical examination	For assessment of practical and professional skill
3- Oral examination	For assessment of knowledge and Intellectual skills
4- Student activities	For assessment of knowledge and general and transferable skills

### b. Master Thesis

- Annual reports adopted by the Faculty
- Finally, the assessment of thesis measure the individual student ability to work independently in the field specialization
- Final evaluation and approval by a judging committee of at least three professors including one or more of the supervisors and an external professor. This assesses the ability to write a review article, perform the needed practical steps and to present the results in tables and graphs. In addition, the skills of analysis of results and discussion with previous findings obtained by other authors are also assessed.

### *Assessment of program intended learning outcomes*

Tool or method	ILOs
1- Written	a1,2,3; b1,2,3
2- Oral	a1,2,5; b2,3,4,6
3- Practical	b1,7; c1-3
4- Assignments	a1,2; b4; d1-8
5- Thesis	a4-7; b4-7, c1-5, d1-8

## 8. Marking scale as follow:-

<b>Excellent</b>		> 90
<b>Very good</b>		>80
<b>Good</b>		>70
<b>Pass</b>		>60
<b>Fail</b>	<b>Weak</b>	45 to less than 60
	<b>very weak</b>	Less than 45



## 9. Program evaluation methods

Evaluator	Tool	Sample
Postgraduate Student	Questioners	20%
	meeting	1
Postgraduate alumni	Questioners	5
Stakeholders (employers)	Questioners	10
	Meeting	1
External evaluator/External examiner	Reports	1

## 10. Program Admission Requirements:

The Applicant must normally satisfy the faculty of veterinary medicine- kafrelsheikh University general entrance and requirement. The normal minimum entrance qualification for registration at the faculty on a master's program

- 1- Bachelor degree in Veterinary Medical Sciences of one of the Egyptian Universities or hold a degree in Veterinary Medical Sciences equivalent through the Supreme Council of Universities with general grade at least "Good" and at least grade "Very Good" in specialization.
- 2- Diploma of general grade at least "Good" and at least grade "Very Good" in specialization. The total number of study hours must be not less than 3 weekly in that specialization.
- 3- After he has passed the courses studied during premaster he must perform a research work in a subject approved by the faculty council at least for one year. He must submit the results of this work in thesis that should be approved by the discussion committee.

## 11. Regulations for progression of program

- a) Registration period for the Master in veterinary medicine is at least 2 years after the approval date by the faculty council and it should not exceed a period of 4 years, an extension could be approved by the faculty council depending on the supervisor report that approved by the department council and postgraduate and research committee refers to the universities regulation law.
- b) The student should conduct the courses proposed by both department council and approved by postgraduate and research committee and faculty council and include, 2-5 courses of the postgraduates stated in article (28) in regulation law list and the student will entitled to apply for the exam only after meeting attendance rate for each courses.



- c) The student should pass written, practical and oral exams successfully in all courses, and the examination is held two times annually.
- d) The Faculty council should deprive the student from entering the exam if his attendance rate in the course is less than 75%.
- e) Failure or depriving from entering one or more course did not require reexamination of successful passed courses.
- f) The applicant should conduct an innovate research on the subject that has been registered for at least 2 years from the date of registration approved by the faculty council. And the faculty council depending on a request from the supervisor has the right to authorize the student to do scientific experiments at recognized scientific institute.
- g) The applicant should submit the thesis that accepted by the judging committee in an open discussion and the following policies should be met:
- h) Pass all courses.
- i) The applicant should submit 4 copies of his thesis concerned department council to form committee examining the thesis to be presented to the postgraduate studies committee and the faculty council, and in case of thesis approval by the department council, the applicant will submit 6 copies for the faculty library, 1 copy for public university library before introducing the report of examination committee to the post graduate studies committee and the faculty council.
- j) Registration will be during March and September of each year.
- k) The applicant should submit a request enrolment for the dean who forwards bit to the concerned department council to determine the research subject and the study program and then take calendar after complete documentation on the faculty council for approval.
- l) The thesis title should be identified before being submitted at least 2 months and the judging committee has the right to amend the title without prejudice the subject of research.
- m) The Faculty council has the right to suspend the student enrolment for a certain period if he has acceptable excuse preventing him from continuing his study or research, and his period will not counted within the period stated in article 25.
- n) The applicant should submit 5 hard copies and 10 electronic copies (CDs) of the thesis after its validity approved by the judging committee and head of department to be distributed to the committee members and faculty library and



the judging committee can decide the exchange of the thesis with other universities or printing at the expense of the university.

**12. Registration will be cancelled in one of the following cases:**

1. If the supervisors report during the registration period is unsatisfactory (2 reports).
2. If he did not submit his thesis before the end of registration period.
3. If the judging committee rejected the thesis twice.

**13. Examination Regulations**

**a-** Time of written exam, 3 hours for each course that has 3 hours or more for lecture / practical /week. **If has less than 3 hours/week, the time of exam, is 2 hours only.**

**b-**The final degree of each course which has 3 hours (lecture and practical) per week is **100 and less than 3 hours is 50 degrees and divided into 50% for written exam, and 50% for practical and oral exam.**

**14. Program completion:**

- Successfully completion of the required courses and submission of a thesis.

**Program Coordinator**

**Dr. Seham Mohammed Elkassas**

**Head of Department**

**Prof. Dr. Mohamed Atef Helal**



## Matching program ILOs with ARS - Matrix

Program ILOs	ARS																											
	K&U (a)						I.S. (b)							P.P. (c)				G.T. (d)										
	1	2	3	4	5	6	1	2	3	4	5	6	7	1	2	3	4	1	2	3	4	5	6	7	8			
<b>KU</b>	1 2	3	4	5	6	7																						
<b>IS</b>							1	2	3	4	5	6	7															
<b>PPS</b>														1	3	4	5											
<b>GTS</b>																		1	2	3	4	5	6	7	8			

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.





## Program Specification Matrix

### Master in Veterinary Medicine (Animal Production)

Name of student: **Wesam Adel Ismail Abosheashae**

Registration date: 11/2017

Courses		Total Contact hours/ course	No. of hours / week			KU (a)							IS (b)							PPS (c)					GTS (d)												
						Lect.	Lab.	Total	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	1	2	3	4	5	6	7	8		
-	Fundamental (Basic) course	336	3	4	7	x	x	x							x	x	x									x	x	x	x								
-	Research methodology	192	1	3	4			x	x	x						x	x	x										x	x	x							
290/1	Advanced Genetic Engineering	144	1	2	3	x									x												x	x	x								
162/1	Fish Nutrition	144	1	2	3	x									x												x	x	x								
314/1	Experimental Design	192	2	2	4	x									x												x	x	x								
<b>Thesis</b>																																					

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.





# Program Specification Matrix

## Master in Veterinary Medicine (Animal Production)

Name of student: **Esraa Abelaouf Ahemd Ismail**

Registration date: 11/2017

Courses		Total Contact hours/course	No. of hours / week			KU (a)							IS (b)							PPS (c)					GTS (d)							
Code	Name		Lect.	Lab.	Total	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	1	2	3	4	5	6	7	8
-	Fundamental (Basic) course	336	3	4	7	x	x	x					x	x	x					x					x	x	x	x				
-	Research methodology	192	1	3	4			x	x	x				x	x	x					x					x	x	x				
290/1	Advanced Genetic Engineering	144	1	2	3	x							x							x					x	x	x					
154/1	Farm Animal Nutrition	192	2	2	4	x							x							x					x	x	x					
314/1	Experimental Design	192	2	2	4	x							x							x					x	x	x					
<b>Thesis</b>										x	x	x					x	x	x			x	x	x	x	x	x	x	x	x	x	x

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.



**Kafrelsheikh University**  
Faculty of Veterinary Medicine



**Kafr El-Sheikh University**  
**Faculty of Veterinary Medicine**  
**Department of Animal Wealth Development**



## **ARS for Master in Veterinary Medicine (Animal Production)**

### **1) Graduate attributes**

*The graduate should have the ability for:*

- 1) Perfect application of scientific research basics and methodologies in Animal and poultry husbandry and production, and using its various tools.
- 2) Application and use of analytical methodology in the field of Animal and poultry production and improvement.
- 3) Application of gained specialized knowledge and integrating them with the relevant knowledge in Animal and poultry production.
- 4) Awareness with current problems and recent visions in animal and poultry production.
- 5) Identification of animal and poultry production problems suggesting suitable and economic solutions.
- 6) Mastering an appropriate scale of specific professional skills, and using suitable technological means to serve professional practice.
- 7) Effective communication with students, animal breeders and owners of animal and poultry farms and leading work team.
- 8) Decision making in various animal and poultry production contexts.
- 9) Employment of the available resources efficiently to maximize animal and poultry production.
- 10) Awareness with his role in society development and maximizing animal and poultry production with preservation of a clean environment.
- 11) Reflection of the commitment to act with integrity, credibility and the rules of profession.
- 12) Academic and professional self- development and ability for life-long learning and progress.



### A) Knowledge and understanding

Adopted ARS		NARS (Master)
	<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Theories and principles in the field of animal and poultry production and related fields.	Theories and principles in the field of specialization and related fields.
2)	The impact of different production systems on animal and poultry products and its reflection on the environment	Mutual effect between professional practice and its impact on environment
3)	Application of his knowledge of Animal and Poultry Production research methods by evaluating the utility of those techniques to specific research question improvement of animal and poultry production	Scientific progress in the field of specialization
4)	Applying legal and ethical basics in animal and poultry production improvement practice.	Legal and ethical basics in professional practice in the field of specialization
5)	Recognizing basics and principles of quality assurance in the field of animal and poultry production.	Principles and basics of quality assurance in the area of specialization
6)	Basics and ethics of scientific research especially that associated with animal welfare.	Basics and ethics of scientific research

### B) Intellectual skills

Adopted ARS		NARS (Master)
	<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Integration of the available record information, analysis of data and judgment of animal and poultry on the basis of productive and reproductive indices.	Analysis and judgment of information in the field of specialization and analog to solve problems.
2)	Solving productive and reproductive problems based on the available data	Solving professional problems even in scarcity of data.
3)	Connectivity between the various sources of knowledge to solve productive and reproductive	Relating between different knowledge to solve professional problems.



	problems in producing animal and poultry.	
4)	demonstration insight into research and scientific methods, experimental design, formulating research questions that are relevant to animal and poultry production and writing scientific article on a research problem.	Preparing research plan in specialization and/ or writing scientific article on a research problem.
5)	Assessing professional risk in the field of animal and poultry production	Risk-assessment of professional practices in specialization.
6)	Development of plans to maximize productive and reproductive performance of animal and poultry .	Planning for improvement of professional performance.
7)	Making decisions and suggestions for improvement of animal and poultry production in different contexts	Taking professional decisions in a variety of professional contexts.

### C) Professional and practical skills

Adopted ARS		NARS (Master)
	<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Efficient mastering of information technology and using of available data to improve animal and poultry production	Mastering basic and recent professional skills in the field of specialization
2)	-Writing and evaluation of productive and reproductive reports - Analysis of data given in animal records and evaluate productive and reproductive status	Writing and evaluating professional reports.
3)	Planning a research project in the field of animal and poultry production with a consideration to the technical, ethical and safety issues and associated costs.	Evaluating existing materials and methods in the area of specialization.
4)	Performing essential skills that underpin techniques associated with experimental design, collecting, summarizing, organizing, presenting and analyzing data	

### D) General and transferable skill

Adopted ARS	NARS (Master)
-------------	---------------



	<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Communicating effectively with teaching staff, colleagues and animal and poultry producers.	Effective communication.
2)	Using information technology in scientific research and publications.	Utilizing information technology to serve development of professional practice.
3)	Demonstrating appropriate attitude towards teaching staff and colleagues.	Self-assessment and determination of personal educational needs.
4)	Identifying and use different sources of information and knowledge.	Using different resources to obtain knowledge and information.
5)	Using appropriate attitude and rules towards teaching staff and colleagues and use evidence based evaluations.	Establishing rules and indicators for assessment of the performance of others.
6)	Respecting the importance of team work.	Team working and leading a team in familiar professional contexts.
7)	Doing good control of timing.	Efficient time management.
8)	Performing continuous self-learning.	Self and continuous learning.

## ثانياً: برامج الماجستير

### ١- مواصفات الخريج

خريج برنامج الماجستير في أي تخصص يجب أن يكون قادراً على:

١. إجادة تطبيق أساسيات و منهجيات البحث العلمي واستخدام أدواته المختلفة

٢. تطبيق المنهج التحليلي واستخدامه في مجال التخصص

٣. تطبيق المعارف المتخصصة و دمجها مع المعارف ذات العلاقة في ممارسته

المهنية

٤. إظهار وعيا بالمشاكل الجارية و الرؤى الحديثة في مجال التخصص

٥. تحديد المشكلات المهنية و إيجاد حلول لها

٦. إتقان نطاق مناسب من المهارات المهنية المتخصصة، واستخدام الوسائل

التكنولوجية

المناسبة بما يخدم ممارسته المهنية

٧. التواصل بفاعلية و القدرة على قيادة فرق العمل

٨. اتخاذ القرار في سياقات مهنية مختلفة

٩. توظيف الموارد المتاحة بما يحقق أعلى استفادة و الحفاظ عليها

١٠. إظهار الوعي بدوره في تنمية المجتمع و الحفاظ على البيئة في ضوء المتغيرات



## العالمية و الإقليمية

- ١١ . التصرف بما يعكس الالتزام بالنزاهة و المصادقية و الالتزام بقواعد المهنة
- ١٢ . تنمية ذاته أكاديميا و مهنيا و قادرا علي التعلم المستمر

## ١٢ - المعايير القياسية العامة

### ١ المعرفة و الفهم

- بانتهاء دراسة برنامج الماجستير يجب ان يكون الخريج على فهم و دراية بكل من:
- أ - النظريات و الأساسيات المتعلقة بمجال التعلم وكذا في المجالات ذات العلاقة
  - ب - التأثير المتبادل بين الممارسة المهنية وانعكاسها علي البيئة
  - ت - التطورات العلمية في مجال التخصص
  - ث - المبادئ الأخلاقية و القانونية للممارسة المهنية في مجال التخصص
  - ج - مبادئ و أساسيات الجودة في الممارسة المهنية في مجال التخصص
  - ح - أساسيات و أخلاقيات البحث العلمي

### ٢ المهارات الذهنية

- بانتهاء دراسة برنامج الماجستير يجب ان يكون الخريج قادرا على:
- أ - تحليل و تقييم المعلومات في مجال التخصص و القياس عليها لحل المشاكل
  - ب - حل المشاكل المتخصصة مع عدم توافر بعض المعطيات
  - ت - الربط بين المعارف المختلفة لحل المشاكل المهنية
  - ث - إجراء دراسة بحثية و /أو كتابة دراسة علمية منهجية حول مشكلة بحثية
  - ج - تقييم المخاطر في الممارسات المهنية في مجال التخصص
  - ح - التخطيط لتطوير الأداء في مجال التخصص
  - خ - اتخاذ القرارات المهنية في سياقات مهنية متنوعة

### ٣ المهارات المهنية

- بانتهاء دراسة برنامج الماجستير يجب ان يكون الخريج قادرا على:
- أ - إتقان المهارات المهنية الأساسية و الحديثة في مجال التخصص
  - ب - كتابة و تقييم التقارير المهنية
  - ت - تقييم الطرق و الأدوات القائمة في مجال التخصص

### ٤ المهارات العامة و المنتقلة

- بانتهاء دراسة برنامج الماجستير يجب أن يكون الخريج قادرا على:
- أ - التواصل الفعال بأنواعه المختلفة
  - ب - استخدام تكنولوجيا المعلومات بما يخدم الممارسة المهنية



- ت -التقييم الذاتي وتحديد احتياجاته التعلمية الشخصية  
ث -استخدام المصادر المختلفة للحصول على المعلومات و المعارف  
ج -وضع قواعد ومؤشرات تقييم أداء الآخرين  
ح -العمل في فريق ، وقيادة فرق في سياقات مهنية مختلفة  
خ -إدارة الوقت بكفاءة  
د -التعلم الذاتي و المستمر



## COURSE SPECIFICATION (2021 / 2022)

### 1 - Basic Information:

Code number:.....

Course title: Animal Production (Basic) (انتاج حيواني أساسى)

Academic Year: **Master of Veterinary Medicine Program**

Total teaching hours: 336 h

Lectures: 144 hrs (48 weeks- 3hrs/week)

Practical: 192 hrs (48 weeks- 4hrs/week)

### 2 - OVERALL AIMS OF THE COURSE:

*By the end of this course, the student should acquire the concepts, principles and skills related to cattle, buffalo, sheep, goat, poultry and fish production and genetic improvement. The major topics covered are industry structure, evaluation of animal performance, genetic description of populations and principles of their improvement, management, and production systems.*

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- a.1. Define the basic terms in the fields of population genetics and animal production.
- a.2. Memorize farm animal types and breeds suitable for various production purposes.
- a.3. Explain individual and population genetic values.
- a.4. Recall the breeding and production-reproductions goals.
- a.5. Discuss the phases, requirements, and management of cattle, buffaloes, sheep, goats, poultry and fish

#### 3-B: INTELLECTUAL SKILLS:

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

- b.1. Interpret individual and population parameters for implementing an improvement program.
- b.2. Choose the proper approach for genetic improvement of different breeding goals.
- b.3. Discriminate reasons and sources of production inefficiency in different animals.
- b.4. Modify management and breeding schedules in response to emerging technologies, and unexpected problems depending on available data.

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

- c.1. Use available information in designing and implementing appropriate genetic improvement program
- c.2. Assess farm efficiency indices from current and retrospective performance data.
- c.3. Apply sound management practices to newborn, growing and mature animals.
- c.4. Identify Egyptian and standard breeds of cattle, buffaloes, sheep and goats in a slideshow.
- c.5. Determine herd/flock requirements in relation to a specified production system.

#### 3- D: GENERAL SKILLS:

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

- d.1. Communicate effectively with his professors, and collages.
- d.2. Utilize different sources of knowledge and information
- d.3. Use information technology to serve the professional practice.
- d.4. Manage time efficiently.





#### 4 - COURSE CONTENTS:

Topic	No. of hours		
	Lectures	Practical	Total
1. Introduction and Course description	3	4	7
2.. Breeding for genetic improvement of animal populations	21	28	49
3. Dairy Cattle Production	36	48	84
4. Sheep and goat production	12	16	28
5. Beef Cattle Production	12	16	28
6. Poultry production	36	48	84
7. Fish production	24	32	56
Total	144	192	336

#### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library

Making individual reports about poultry or dairy operations

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a5	b1 to b4		d1, d4
Practical sessions		b1 to b4	c1 to c5	d2, d4
Self-Learning activities				d2, d3, d4
Distance Teaching and Learning	a1 to a5	b1 to b4	c1 to c5	d1 to d4

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	All over the academic year
<b>7.c grads</b>	50	20	20	10



6.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a5	b1 to b4		d4
Practical exams			c1 to c5	d2, d3
Oral exams	a1 to a5	b1 to b4		d1
Student activities	a1, a5,			d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Essential Books

- Bourdon, R.M. 2000. Understanding Animal Breeding, 2nd Ed., Prentice Hall, Upper Saddle River, NJ 07458.
- Falconer, D. and Mackay, T., 1996. Introduction to Quantitative Genetics. 4th Edition. Longman.
- Flanders, F. and Gillespie, J.R. 2016. Modern Livestock and Poultry Production. 9th Ed. Delmar Publishers, USA.
- Parker, R.B. and Keillor, G. 2001. The Sheep Book: A Handbook for the Modern Shepherd. Ohio Univ. Press.
- Phillips, C.J.C., 2010. Principles of Cattle Production. 2<sup>nd</sup> Ed., CAB International Wallingford, Oxon Ox10 8De, UK.
- James, R. Gillespie and Frank, B. Flanders. 2015. Modern livestock and poultry production. 9th edition. Delmar, Cengage Learning USA.
- Muir, W.M. and S.E. Aggrey . 2013. Poultry genetics, breeding and biotechnology. Library of Congress Cataloguing - in- Publication Data

### 8-2: Recommended books:

- Belanger, J. 2018. Storey's Guide to Raising Dairy Goats: Breeds, Care, Dairying, Marketing. Storey Publishing, USA.
- Kinghorn, B., J. van der Werf, and M. Ryan. 2011. Animal Breeding. Use of New Technologies; Twynam Press.
- Nelson, M.G. 2015. The Complete Guide to Small-Scale Farming: everything you need to know about raising beef and dairy cattle, rabbits, ducks, and other small animals. Atlantic Publishing Group, Ocala, Florida, USA.
- Payne et al. (2010): Dairy Cattle Principles, Problems, Practices and Profit. 2nd Edition.

### 8-3: Egyptian Knowledge Bank:

- Beaver, BV and Höglund, DL. 2016. Efficient Livestock Handling. The Practical Application of Animal Welfare and Behavioral Science
- Dahl GE, 2020. Animal Agriculture. Sustainability, Challenges and Innovations. Academic Press, Elsevier Inc.
- Das, DN. Paul, D. and Mondal, S. 2022. Emerging Issues in Climate Smart Livestock Production. Biological Tools and Techniques. Academic Press, Elsevier Inc.
- Morris, ST. 2017. Overview of sheep production systems. In: Advances in Sheep Welfare, Ferguson, DM, Lee, C and Fisher, A. (editors). Academic Press, Elsevier Inc.



- Avian (Poultry) Production: 2nd Revised and Enlarged Edition, by D. Sapkota, D. Narahari, J.D. Mahanta, 2017.
- Poultry Health: A Guide for Professionals, by Paul Barrow, Venugopal Nair, Susan Baigent, Robert Atterbury, Michael Clark, 2021.
- Poultry Science, 5th Edition, by Colin G. Scanes, Karen D. Christensen, 2019.

### Scientific Journals

- Tropical Animal Health and Production.
- Journal of Animal Science.
- Livestock Production Science.
- British Journal of Animal Science.
- Egyptian Poultry Science
- Poultry Science Association
- American journal of poultry science
- British Poultry Science
- International journal of Poultry Science.
- Journal of Applied Poultry Research

### Scientific websites

- The Egyptian Knowledge Bank: <https://www.ekb.eg/web/guest/home>
- DeLaval Dairy Supply. <http://www.delaval.com/en/-/Dairy-knowledge-and-advice/>
- Lactation Biology: <http://classes.aces.uiuc.edu/ansci308/index.html>
- Heat Detection and Timing of Insemination for Cattle. Penn State, College of Agricultural Sciences, Cooperative Extension. <https://extension.psu.edu/heat-detection-and-timing-of-insemination-for-cattle> accessed 08/09/2017.
- National Dairy Database: <http://www.inform.umd.edu:8080/edres/topic/agr/ndd>
- The Babcock Institute: <http://babcock.cals.wisc.edu>
- WWW Virtual Library for Dairy Production\* (Oklahoma). <http://www.ansi.okstate.edu/library/dairy/>
- US Dairy Export Council: <http://www.usdec.org/about/whoweare.htm>
- The International Dairy Federation (IDF): <http://www.fil-idf.org/>
- Managing of dairy heifers: <http://www3.das.psu.edu/dcn/calfmgt/385/index.html>
- Management Practices Associated with High-Producing U.S. Dairy Herds (USDA): [http://www.aphis.usda.gov/vs/ceah/cahm/Dairy\\_Cattle/drymgmt.htm](http://www.aphis.usda.gov/vs/ceah/cahm/Dairy_Cattle/drymgmt.htm)
- A beginners guide to raising sheep <http://www.sheep101.info/201/feedwaterequip.html>
- <http://www.thepoultrysite.com/>
- <http://www.worldpoultry.net/>

**Course Coordinator**

**Head of Department**

**Dr. Seham Mohammed Elkassas**

**Prof. Dr. Mohamed Atef Helal**



### Course Matrix for achievement of Intended Learning Outcomes

Topics	Hours	Knowledge & Understanding					Intellectual Skills				Practical & Professional Skills					General & Transferable Skills			
		1	2	3	4	5	1	2	3	4	1	2	3	4	5	1	2	3	4
1. Introduction and Course description	7	✓														✓	✓	✓	✓
2. Breeding for genetic improvement of animal populations	49	✓		✓	✓		✓	✓			✓					✓	✓	✓	✓
3. Dairy Cattle Production	84	✓	✓		✓	✓			✓	✓		✓	✓	✓	✓	✓	✓	✓	✓
4. Sheep and goat production	28	✓	✓		✓	✓			✓	✓		✓	✓	✓	✓	✓	✓	✓	✓
5. Beef Cattle Production	28	✓	✓		✓	✓			✓	✓		✓	✓	✓	✓	✓	✓	✓	✓
6. Poultry production	84	✓	✓													✓	✓	✓	✓
7. Fish production	56	✓	✓													✓	✓	✓	✓



## COURSE SPECIFICATION (2021 / 2022)

### 1 - Basic Information:

Code number: .....

Course title: Research Methods (طرق بحث)

Academic Year: **Master of Veterinary Medicine Program**

Total teaching hours: 240 hrs.

Lectures: 48 hrs. (48 weeks- 1hrs./week)

Practical: 192 hrs. (48 weeks- 3 hrs./week)

### 2 - OVERALL AIMS OF THE COURSE:

*At the end of this course, the student must acquire knowledge and skills related to the techniques of academic research in the context of veterinary studies, in addition to the knowledge and principles needed to write thesis. Scholars would be exposed to the major issues of a research framework, and thesis structure i.e., problem definition, research types and designs, sampling methods, data analysis, ethical issues and plagiarism, and sections of a thesis.*

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- a.1. List the steps of research process.
- a.2. Discuss the types and designs of research.
- a.3. Explain the methods of sampling and data collection.
- a.4. Outline the major sections of a thesis.

#### 3-B: INTELLECTUAL SKILLS:

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

- b.1. Decide on the appropriate sampling technique.
- b.2. Compare experimental and observational study designs.
- b.3. Distinguish citation and referencing systems.
- b.4. Relate the writing styles to the section of a thesis.

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

- c.1. Use scientific databases to search for certain information.
- c.2. Implement a sample collection based on a pre-defined technique.
- c.3. Write different sections of a thesis with reference to ethical issues.

#### 3- D: GENERAL SKILLS:

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

- d.1. Communicate effectively with his professors, and collages.
- d.2. Utilize different sources of knowledge and information
- d.3. Use information technology to serve the professional practice.
- d.4. Manage time efficiently.



#### 4 - COURSE CONTENTS:

Topic	No. of hours		
	Lectures	Practical	Total
1- Research process, and types of research	5	15	20
2- Experimental design	6	18	24
3- Sampling techniques	6	18	24
4- Data types and common methods of data analysis	6	18	24
5- Thesis Structure	5	15	20
6- Citation Systems	5	15	20
7- Linguistic Points	5	15	20
8- Ethical issues and plagiarism	5	15	20
9- Searching databases	5	15	20
Total	48	144	192

#### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library  
Making individual reports

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a4	b1 to b4		d1, d4
Practical sessions		b1 to b4	c1 to c3	d2, d4
Self-Learning activities				d2, d3, d4
Distance Teaching and Learning	a1 to a4	b1 to b4	c1 to c3	d1 to d4

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:- Continuous

#### 8. LEARNING AND REFERENCE MATERIALS:

##### 8-1: Essential Books

- Gruba, P. and Zobel, J. 2017. How to write your first thesis. Springer International Publishing AG.



- [Leedy](#), P. and [Ormrod](#), J. 2018. Practical Research: Planning and Design 12<sup>th</sup> Ed. Pearson Publ.
- Creswell, J.W. and Creswell, D. 2018. Research Design: Qualitative, Quantitative and Mixed Methods Approaches 5<sup>th</sup> Ed. SAGE Publications, Inc

### **8-2: Recommended books:**

- Deepak, C. and Neena, S. 2011. Research methodology: Concepts and cases, Vikas Publishing House Pvt. Ltd. Delhi.
- Kothari C., R. (2004). Research Methodology: Methods and Techniques. New Delhi. New Age International (P) Limited, Publishers

### **8-3: Egyptian Knowledge Bank:**

- Beaver, BV and Höglund, DL. 2016. Efficient Livestock Handling. The Practical Application of Animal Welfare and Behavioral Science
- Dahl GE, 2020. Animal Agriculture. Sustainability, Challenges and Innovations. Academic Press, Elsevier Inc.
- Das, DN. Paul, D. and Mondal, S. 2022. Emerging Issues in Climate Smart Livestock Production. Biological Tools and Techniques. Academic Press, Elsevier Inc.
- Morris, ST. 2017. Overview of sheep production systems. In: Advances in Sheep Welfare, Ferguson, DM, Lee, C and Fisher, A. (editors). Academic Press, Elsevier Inc.
- Avian (Poultry) Production: 2nd Revised and Enlarged Edition, by D. Sapkota, D. Narahari, J.D. Mahanta, 2017.
- Poultry Health: A Guide for Professionals, by Paul Barrow, Venugopal Nair, Susan Baigent, Robert Atterbury, Michael Clark, 2021.
- Poultry Science, 5th Edition, by Colin G. Scanes, Karen D. Christensen, 2019.

### **Scientific Journals**

- International Journal of Research Methodology

### **Scientific websites**

- The Egyptian Knowledge Bank: <https://www.ekb.eg/web/guest/home>
- <https://www.scribbr.com/academic-essay/thesis-statement/>  
[https://www.ideo.columbia.edu/~martins/sen\\_sem/thesis\\_org.html/](https://www.ideo.columbia.edu/~martins/sen_sem/thesis_org.html/)

**Course Coordinator**

**Head of Department**

**Dr. Seham Mohammed Elkassas**

**Prof. Dr. Mohamed Atef Helal**







## COURSE SPECIFICATION (2021 / 2022)

### 1 - Basic Information:

Code number: 295/1

Course title: Advanced Animal Breeding and Improvement (تربية و تحسين حيوان متقدم)

Academic Year: Master of Veterinary Medicine Program

Total teaching hours: 96 hrs

Lectures: 96 hrs (48 weeks- 2hrs/week)

Practical: -----

### 2 - OVERALL AIMS OF THE COURSE:

*At the end of this course, the student must be* acquire knowledge and skills related to quantitative genetics as related to improvement of animal populations, as well as genetic conservation.

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- a.1. Define the aims, advantages and disadvantages of genetic improvement.
- a.2. Classify farm animal traits from genetic improvement point of view.
- a.3. Discuss the causes of variation in economic traits.
- a.4. Classify mating systems.
- a.5. Identify the genetic parameters, different correlation, and selection response.
- a.6. Explain the types of selection.

#### 3-B: INTELLECTUAL SKILLS:

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

- b.1. Manage breeding problems
- b.2. Analyze proper approaches for genetic improvement,

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

#### 3- D: GENERAL SKILLS:

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

- d.1. Communicate effectively with his professors, and collages.
- d.2. Efficiently make use of library facilities and IT tools.
- d.3. Manage time efficiently.
- d.4. Processing, spreadsheets, presentation packages and graph plotting.

### 4 - COURSE CONTENTS:

Topic	No. of hours		
	Lectures	Practical	Total
1. Traits, Phenotypes, Genotypes and Genes in Populations	12	---	12
2. The Basic Model for Quantitative Traits	12	---	12



3. Gene and genotype frequencies	12	---	12
4. Mating Systems	12	---	12
5. Genetic Parameters	12	---	12
6. Correlations	12	---	12
7. Principles of Selection	12	---	12
8. Selection methods	12	---	12
Total	96	---	96

### 5- TEACHING & LEARNING METHODS:

- \* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard Discussion and brain storming
- \* **Self-Learning activities:** Mini reviews from the web and the library Making individual reports about animal breeding
- \* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a6	b1 to b2		d1, d4
Self-Learning activities		b1 to b2		d2, d3, d4
Distance Teaching and Learning	a1 to a6	b1 to b2		d1 to d4

\*Lectures may be offered face to face or via distance teaching and 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 lectures.

### 7. STUDENT ASSESSMENT:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year		All over the academic year
<b>7.c grads</b>	25	20	-----	5

6.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a6	b1 to b2		d4
Practical exams	-----	-----	-----	-----
Oral exams	a1 to a6	b1 to b2		d1
Student activities	a1, a5,			d1 to d4



KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## **8. LEARNING AND REFERENCE MATERIALS:**

### **8-1: Essential Books**

- Bourdon, R.M. 2000. Understanding Animal Breeding, 2nd Ed., Prentice Hall, Upper Saddle River, NJ 07458.
- Falconer, D. and Mackay, T., 1996. Introduction to Quantitative Genetics. 4th Edition. Longman.
- Phillips, C.J.C., 2010. Principles of Cattle Production. 2<sup>nd</sup> Ed., CAB International Wallingford, Oxon Ox10 8De, UK.
- Muir, W.M. and S.E. Aggrey . 2013. Poultry genetics, breeding and biotechnology. Library of Congress Cataloguing - in- Publication Data

### **8-2: Recommended books:**

- Kinghorn, B., J. van der Werf, and M. Ryan. 2011. Animal Breeding. Use of New Technologies; Twynam Press.

### **8-3: Egyptian Knowledge Bank:**

- Dahl GE, 2020. Animal Agriculture. Sustainability, Challenges and Innovations. Academic Press, Elsevier Inc.

Ignacy Miszta 2012. Animal Breeding and Genetics, Introduction. Department of Animal and Dairy Science Breeding and Genetics University of Georgia Athens USA.

DOI: [https://doi.org/10.1007/978-1-4614-5797-8\\_908](https://doi.org/10.1007/978-1-4614-5797-8_908)

### **Scientific Journals**

- Journal of Animal Science.
- British Journal of Animal Science.
- American journal of poultry science
- International journal of Poultry Science.
- Journal of Applied Poultry Research

### **Scientific websites**

- The Egyptian Knowledge Bank: <https://www.ekb.eg/web/guest/home>
- DeLaval Dairy Supply. <http://www.delaval.com/en/-/Dairy-knowledge-and-advice/>
- National Dairy Database: <http://www.inform.umd.edu:8080/edres/topic/agr/ndd>
- The Babcock Institute: <http://babcock.cals.wisc.edu>
- The International Dairy Federation (IDF): <http://www.fil-idf.org/>

**Course Coordinator**

**Dr. Seham Mohammed Elkassas**

**Head of Department**

**Prof. Dr. Mohamed Atef Helal**



### Course Matrix for achievement of Intended Learning Outcomes

Topics	Hours	Knowledge & Understanding						Intelle ctual Skills		General & Transferable Skills			
		1	2	3	4	5	6	1	2	1	2	3	4
1. Traits, Phenotypes, Genotypes and Genes in Populations	12	✓						✓	✓	✓	✓	✓	✓
2. The Basic Model for Quantitative Traits	12	✓		✓				✓	✓	✓	✓	✓	✓
3. Gene and genotype frequencies	12		✓	✓				✓	✓	✓	✓	✓	✓
4. Mating Systems	12				✓			✓	✓	✓	✓	✓	✓
5. Genetic Parameters	12					✓		✓	✓	✓	✓	✓	✓
6. Correlations	12					✓		✓	✓	✓	✓	✓	✓
7. Principles of Selection	12						✓	✓	✓	✓	✓	✓	✓
8. Selection methods	12						✓	✓	✓	✓	✓	✓	✓



## COURSE SPECIFICATION (2021 / 2022)

### 1 - Basic Information:

Code number: 296/1

Course title: Advanced Poultry Breeding and Improvement (تربية و تحسين دواجن متقدم)

Academic Year: Master of Veterinary Medicine Program

Total teaching hours: 96 hrs

Lectures: 96 hrs (48 weeks- 2hrs/week)

Practical: -----

### 2 - OVERALL AIMS OF THE COURSE:

*At the end of this course, the student must be* acquire knowledge and skills related to quantitative genetics as related to improvement of poultry populations, as well as genetic conservation.

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- a.1. Define the aims, advantages and disadvantages of genetic improvement.
- a.2. Classify poultry traits from genetic improvement point of view.
- a.3. Understand the causes of variation in economic traits in poultry.
- a.4. Classify mating systems in poultry.
- a.5. Identify the genetic parameters, different correlation, and selection response.
- a.6. Explain the types of selection in poultry.

#### 3-B: INTELLECTUAL SKILLS:

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

- b.1. Manage poultrybreeding problems
- b.2. Analyze proper approaches for genetic improvement of poultry.

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

.....

#### 3- D: GENERAL SKILLS:

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

- d.1. Communicate effectively with his professors, and collages.
- d.2. Efficiently make use of library facilities and IT tools.
- d.3. Manage time efficiently.
- d.4. Processing, spreadsheets, presentation packages and graph plotting.



#### 4 - COURSE CONTENTS:

Topic	No. of hours		
	Lectures	Practical	Total
1. Traits, Phenotypes, Genotypes and Genes in Populations	12	---	12
2. The Basic Model for Quantitative Traits	12	---	12
3. Gene and genotype frequencies	12	---	12
4. Mating Systems in poultry	12	---	12
5. Genetic Parameters	12	---	12
6. Correlations	12	---	12
7. Principles of Selection in poultry	12	---	12
8. Selection methods in poultry	12	---	12
Total	96	---	96

#### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard Discussion and brain storming

\* **Self-Learning activities:** Mini reviews from the web and the library Making individual reports about poultry breeding

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a6	b1 to b2		d1, d4
Self-Learning activities		b1 to b2		d2, d3, d4
Distance Teaching and Learning	a1 to a6	b1 to b2		d1 to d4

\*Lectures may be offered face to face or via distance teaching and 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 lectures.

#### 7. STUDENT ASSESSMENT:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year		All over the academic year
<b>7.c grads</b>	25	20	-----	5



6.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a6	b1 to b2		d4
Practical exams	-----	-----	-----	-----
Oral exams	a1 to a6	b1 to b2		d1
Student activities	a1, a5,			d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Essential Books

- Bourdon, R.M. 2000. Understanding Animal Breeding, 2nd Ed., Prentice Hall, Upper Saddle River, NJ 07458.
- Falconer, D. and Mackay, T., 1996. Introduction to Quantitative Genetics. 4th Edition. Longman.
- Muir, W.M. and S.E. Aggrey . 2003. Poultry genetics, breeding and biotechnology. Library of Congress Cataloguing - in- Publication Data.
- Muir, W.M. and S.E. Aggrey . 2013. Poultry genetics, breeding and biotechnology. Library of Congress Cataloguing - in- Publication Data

### 8-2: Recommended books:

- Kinghorn, B., J. van der Werf, and M. Ryan. 2011. Animal Breeding. Use of New Technologies; Twynam Press.
- Poultry Science, 5th Edition, by Colin G. Scanes, Karen D. Christensen, 2019.

### 8-3: Egyptian Knowledge Bank:

- Dahl GE, 2020. Animal Agriculture. Sustainability, Challenges and Innovations. Academic Press, Elsevier Inc.
- Ignacy Miszta 2012. Animal Breeding and Genetics, Introduction. Department of Animal and Dairy Science Breeding and Genetics University of Georgia Athens USA.  
DOI: [https://doi.org/10.1007/978-1-4614-5797-8\\_908](https://doi.org/10.1007/978-1-4614-5797-8_908)

### Scientific Journals

- Egyptian Poultry Science
- Poultry Science Association
- American journal of poultry science
- British Poultry Science
- International journal of Poultry Science.
- Journal of Applied Poultry Research

### Scientific websites

- The Egyptian Knowledge Bank: <https://www.ekb.eg/web/guest/home>
- <http://www.thepoultrysite.com/>
- <http://www.worldpoultry.net/>
- <http://www.thepoultry.net/html/About.htm>

**Course Coordinator**

**Head of Department**

**Dr. Seham Mohammed Elkassas**

**Prof. Dr. Mohamed Atef Helal**



### Course Matrix for achievement of Intended Learning Outcomes

Topics	Hours	Knowledge & Understanding						Intelle ctual Skills		General & Transferable Skills			
		1	2	3	4	5	6	1	2	1	2	3	4
1. Traits, Phenotypes, Genotypes and Genes in Populations	12	✓						✓	✓	✓	✓	✓	✓
2. The Basic Model for Quantitative Traits	12	✓		✓				✓	✓	✓	✓	✓	✓
3. Gene and genotype frequencies	12		✓	✓				✓	✓	✓	✓	✓	✓
4. Mating Systems in poultry	12				✓			✓	✓	✓	✓	✓	✓
5. Genetic Parameters	12					✓		✓	✓	✓	✓	✓	✓
6. Correlations	12					✓		✓	✓	✓	✓	✓	✓
7. Principles of Selection in poultry	12						✓	✓	✓	✓	✓	✓	✓
8. Selection methods in poultry	12						✓	✓	✓	✓	✓	✓	✓





## COURSE SPECIFICATION (2021 / 2022)

### 1 - Basic Information:

Code number: 297/1

Course title: Advanced Cattle and Buffalo Production (انتاج أبقار/جاموس متقدم)

Academic Year: Master of Veterinary Medicine Program

Total teaching hours: 192 hrs

Lectures: 96 hrs (48 weeks- 2hrs/week)

Practical: 96 hrs (48 weeks- 2hrs/week)

### 2 - OVERALL AIMS OF THE COURSE:

By the end of this course, students should have gained the basic principles and the essential practical skills in the field of cattle and buffalo production. The major topics covered are industry structure, evaluation of animal performance and principles of management, and production systems.

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.)

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- a.1. Recognize the industry structure and production cycle of cattle and buffalo.
- a.2. Discuss reproductive performance and breeds of cattle and buffalo.
- a.3. Explain lactation physiology, factors affecting milk yield and dry cow management.
- a.4. State the principles of judging and selection of dairy cattle and buffalo.
- a.5. Describe dairy records and correction of milk records for nongenetic factors.
- a.6. Define milking methods and milking routine.

#### 3-B: INTELLECTUAL SKILLS:

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

- b.1. Distinguish reasons and sources of production inefficiency in milk animals
- b.2. Modify management and breeding schedules in response to emerging technologies, and unexpected problems depending on available data.

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

- c.1. Assess farm efficiency indices from current and retrospective performance data.
- c.2. Diagnose environmental problems and reasons of low production,
- c.3. Apply sound management practices to newborn, growing and mature animals.
- c.4. Identify Egyptian and standard breeds of cattle and buffaloes in a slideshow.
- c.5. Operate herd requirements in relation to a specified production system.

#### 3- D: GENERAL SKILLS:

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

- d.1. Communicate effectively with his professors, and colleagues.
- d.2. Utilize different sources of knowledge and information
- d.3. Use information technology to serve the professional practice.
- d.4. Manage time efficiently



#### 4 - COURSE CONTENTS:

Topic	No. of hours		
	Lectures	Practical	Total
1. Cattle and buffalo industry structure in Egypt Reproduction-Production cycle	12	12	24
2. Reproductive performance of cattle and buffaloes	12	12	24
3. Breeds of cattle and buffaloes	8	8	16
4. Lactation physiology	8	8	16
5. Factors affecting milk yield and composition	8	8	16
6. Managing the dry cow	8	8	16
7. Judging dairy cattle	8	8	16
8. Record keeping	8	8	16
9. Correction of milk records for non-genetic factors	12	12	24
10. Milking methods and milking routine	12	12	24
Total	96	96	192

#### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library  
Making individual reports about dairy operations

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a6	b1 to b2		d1, d4
Practical sessions		b1 to b2	c1 to c5	d2, d4
Self-Learning activities				d2, d3, d4
Distance Teaching and Learning	a1 to a6	b1 to b2	c1 to c5	d1 to d4

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	Allover the academic year
<b>7.c grads</b>	50	20	20	10

7.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a6	b1 to b2		d4
Practical exams			c1 to c5	d2, d3
Oral exams	a1 to a6	b1 to b2		d1
Student activities				d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Essential Books

- Phillips, C.J.C., 2016. Principles of Cattle Production. 2<sup>nd</sup> Ed., CAB International Wallingford, Oxon Ox10 8De, UK.
- Nelson, M.G. 2015. The Complete Guide to Small-Scale Farming: everything you need to know about raising beef and dairy cattle, rabbits, ducks, and other small animals. Atlantic Publishing Group, Ocala, Florida, USA

### 8-2: Recommended books:

- Nelson, M.G. 2015. The Complete Guide to Small-Scale Farming: everything you need to know about raising beef and dairy cattle, rabbits, ducks, and other small animals. Atlantic Publishing Group, Ocala, Florida, USA.
- Payne et al. (2010): Dairy Cattle Principles, Problems, Practices and Profit. 2nd Edition.

### 8-3: Egyptian Knowledge Bank:

- Beaver, BV and Höglund, DL. 2016. Efficient Livestock Handling. The Practical Application of Animal Welfare and Behavioral Science
- Das, DN. Paul, D. and Mondal, S. 2022. Emerging Issues in Climate Smart Livestock Production. Biological Tools and Techniques. Academic Press, Elsevier Inc.

### Scientific Journals

- Tropical Animal Health and Production.
- Journal of Animal Science.
- Livestock Production Science.
- British Journal of Animal Science.

### Scientific websites

- The Egyptian Knowledge Bank: <https://www.ekb.eg/web/guest/home>
- DeLaval Dairy Supply. <http://www.delaval.com/en/-/Dairy-knowledge-and-advice/>
- Lactation Biology: <http://classes.aces.uiuc.edu/ansci308/index.html>



**Kafrelsheikh University**  
Faculty of Veterinary Medicine



- Heat Detection and Timing of Insemination for Cattle. Penn State, College of Agricultural Sciences, Cooperative Extension. <https://extension.psu.edu/heat-detection-and-timing-of-insemination-for-cattle> accessed 08/09/2017.
- National Dairy Database: <http://www.inform.umd.edu:8080/edres/topic/agr/ndd>
- WWW Virtual Library for Dairy Production\* (Oklahoma). <http://www.ansi.okstate.edu/library/dairy/>
- US Dairy Export Council: <http://www.usdec.org/about/whoweare.htm>
- The International Dairy Federation (IDF): <http://www.fil-idf.org/>
- Managing of dairy heifers: <http://www3.das.psu.edu/dcn/calfmgt/385/index.html>
- Management Practices Associated with High-Producing U.S. Dairy Herds (USDA): [http://www.aphis.usda.gov/vs/ceah/cahm/Dairy\\_Cattle/drymgmt.htm](http://www.aphis.usda.gov/vs/ceah/cahm/Dairy_Cattle/drymgmt.htm)

### **Course Coordinator**

**Dr. Seham Mohammed Elkassas**

### **Head of Department**

**Prof. Dr. Mohamed Atef Helal**



**Course Matrix for achievement of Intended Learning Outcomes**

Topics	Hours	Knowledge & Understanding						Intelle-ctual Skills		Practical & Professional Skills					General & Transferable Skills			
		1	2	3	4	5	6	1	2	1	2	3	4	5	1	2	3	4
1. Cattle and buffalo industry structure in Egypt Reproduction-Production cycle	24	✓						✓	✓	✓					✓	✓	✓	✓
2. Reproductive performance of cattle and buffaloes	24		✓					✓	✓	✓					✓	✓	✓	✓
3. Breeds of cattle and buffaloes	16		✓					✓	✓				✓		✓	✓	✓	✓
4. Lactation physiology	16			✓				✓	✓		✓				✓	✓	✓	✓
5. Factors affecting milk yield and composition	16			✓				✓	✓				✓		✓	✓	✓	✓
6. Managing the dry cow	16			✓				✓	✓	✓	✓				✓	✓	✓	✓
7. Judging dairy cattle	16				✓			✓	✓					✓	✓	✓	✓	✓
8. Record keeping	16					✓		✓	✓			✓			✓	✓	✓	✓
9. Correction of milk records for non-genetic factors	24					✓		✓	✓		✓				✓	✓	✓	✓
10. Milking methods and milking routine	24						✓	✓	✓		✓			✓	✓	✓	✓	✓



## COURSE SPECIFICATION (2021 / 2022)

### 1 - Basic Information:

Code number: 298/1

Course title: Advanced Sheep and Goat Production (انتاج أغنام و ماعز متقدم)

Academic Year: Master of Veterinary Medicine Program

Total teaching hours: 192 hrs

Lectures: 96 hrs (48 weeks- 2hrs/week)

Practical: 96 hrs (48 weeks- 2hrs/week)

### 2 - OVERALL AIMS OF THE COURSE:

By the end of this course, students should have gained the basic principles and the essential practical skills in the field of sheep and goat production. The major topics covered are industry structure, evaluation of animal performance and principles of management, and production systems.

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.)

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- a.1. Express industry structure, production cycle and economic significance of sheep and goat.
- a.2. Summarize breeds and production systems of sheep and goat
- a.3. Discuss different management techniques for sheep and goat
- a.4. Highlight reproduction process and genetic improvement of sheep and goat
- a.5. Memorize flock health program for sheep and goat.
- a.6. Identify products, by-products and economics of production and marketing of sheep and goat
- a.7. Describe records and record keeping in sheep and goat

#### 3-B: INTELLECTUAL SKILLS:

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

- b.1. Distinguish reasons and sources of production inefficiency in sheep and goat
- b.2. Modify management and breeding schedules in response to emerging technologies, and unexpected problems depending on available data.

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

- c.1. Assess farm efficiency indices from current and retrospective performance data.
- c.2. Diagnose environmental problems and reasons of low production,
- c.3. Apply sound management practices to newborn, growing and mature animals.
- c.4. Identify Egyptian and standard breeds of sheep and goat in a slideshow.
- c.5. Operate flock requirements in relation to a specified production system.

#### 3- D: GENERAL SKILLS:

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

- d.1. Communicate effectively with his professors, and collages.
- d.2. Utilize different sources of knowledge and information
- d.3. Use information technology to serve the professional practice.
- d.4. Manage time efficiently

### 4 - COURSE CONTENTS:



Topic	No. of hours		
	Lectures	Practical	Total
1- Sheep and goat industry structure in Egypt Production cycle	4	4	8
2- Economic significance of sheep and goats	8	8	16
3- Breeds of sheep and goats	12	12	24
4- Sheep and goat production systems	8	8	16
5- Sheep and goat management	8	8	16
6- Reproduction in sheep and goats	8	8	16
7- Genetic improvement of sheep and goats	8	8	16
8- Sheep and goat flock health	8	8	16
9- Sheep and goat products and by-products	8	8	16
10- Sheep and goat economics of production and marketing	12	12	24
11- Records and record keeping	12	12	24
Total	96	96	192

### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library

Making individual reports about dairy operations

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a7	b1 to b2		d1, d4
Practical sessions		b1 to b2	c1 to c5	d2, d4
Self-Learning activities				d2, d3, d4
Distance Teaching and Learning	a1 to a7	b1 to b2	c1 to c5	d1 to d4

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	Allover the academic year
<b>7.c grads</b>	50	20	20	10



7. Student Assessment				
Intended Learning Outcomes Covered				
7.1. Methods	KU	IS	PPS	GTS
Written exams	a1 to a7	b1 to b2		d4
Practical exams			c1 to c5	d2, d3
Oral exams	a1 to a7	b1 to b2		d1
Student activities				d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Essential Books

- Alemu Yami and R.C. Merkel 2008. Sheep and Goat Production Handbook. Ethiopia Sheep and Goat Productivity Improvement Program. USAID
- Nelson, M.G. 2015. The Complete Guide to Small-Scale Farming: everything you need to know about raising beef and dairy cattle, rabbits, ducks, and other small animals. Atlantic Publishing Group, Ocala, Florida, USA

### 8-2: Recommended books:

- Nelson, M.G. 2015. The Complete Guide to Small-Scale Farming: everything you need to know about raising beef and dairy cattle, rabbits, ducks, and other small animals. Atlantic Publishing Group, Ocala, Florida, USA.
- Normet, K. 2017. Raising and Keeping Dairy Goats: A Practical Guide. Firefly Books Publishers.
- Simm, G., 1998. Genetic Improvement of cattle and sheep. Farming Press, Miller Freeman, UK, Ltd.

### 8-3: Egyptian Knowledge Bank:

- Beaver, BV and Höglund, DL. 2016. Efficient Livestock Handling. The Practical Application of Animal Welfare and Behavioral Science
- Das, DN. Paul, D. and Mondal, S. 2022. Emerging Issues in Climate Smart Livestock Production. Biological Tools and Techniques. Academic Press, Elsevier Inc.
- Morris, ST. 2017. Overview of sheep production systems. In: Advances in Sheep Welfare, Ferguson, DM, Lee, C and Fisher, A. (editors). Academic Press, Elsevier Inc.
- Simõesa, J. Abeciab, A. Cannasc, A. Delgadillod, JA Lacastae, D. Voigtf, K. and Chemineaug, P. 2021. Review: Managing sheep and goats for sustainable high yield production.  
<https://doi.org/10.1016/j.animal.2021.100293>

### Scientific Journals

- Tropical Animal Health and Production.
- Journal of Animal Science.
- Livestock Production Science.

### Scientific websites

- The Egyptian Knowledge Bank: <https://www.ekb.eg/web/guest/home>
- DeLaval Dairy Supply. <http://www.delaval.com/en/-/Dairy-knowledge-and-advice/>
- National Dairy Database: <http://www.inform.umd.edu:8080/edres/topic/agr/ndd>
- The Babcock Institute: <http://babcock.cals.wisc.edu>

**Course Coordinator**

**Dr. Seham Mohammed Elkassas**

**Head of Department**

**Prof. Dr. Mohamed Atef Helal**



### Course Matrix for achievement of Intended Learning Outcomes

Topics	Hours	Knowledge & Understanding							Intelle-ctual Skills		Practical & Professional Skills					General & Transferable Skills			
		1	2	3	4	5	6	7	1	2	1	2	3	4	5	1	2	3	4
1- Sheep and goat industry structure in Egypt Production cycle	8	✓							✓	✓	✓					✓	✓	✓	✓
2- Economic significance of sheep and goats	16	✓							✓	✓	✓					✓	✓	✓	✓
3- Breeds of sheep and goats	24		✓						✓	✓				✓		✓	✓	✓	✓
4- Sheep and goat production systems	16		✓						✓	✓		✓				✓	✓	✓	✓
5- Sheep and goat management	16			✓					✓	✓				✓		✓	✓	✓	✓
6- Reproduction in sheep and goats	16				✓				✓	✓	✓	✓				✓	✓	✓	✓
7- Genetic improvement of sheep and goats	16				✓				✓	✓					✓	✓	✓	✓	✓
8- Sheep and goat flock health	16					✓			✓	✓			✓			✓	✓	✓	✓
9- Sheep and goat products and by-products	16						✓		✓	✓		✓				✓	✓	✓	✓
10- Sheep and goat economics of production and marketing	24							✓	✓	✓		✓			✓	✓	✓	✓	✓
11- Records and record keeping	24							✓	✓	✓		✓			✓	✓	✓	✓	✓



## COURSE SPECIFICATION (2021 / 2022)

### 1 - Basic Information:

Code number: 299/1

Course title: Advanced Poultry Production (انتاج دواجن متقدم)

Academic Year: Master of Veterinary Medicine Program

Total teaching hours: 192 hrs

Lectures: 96 hrs (48 weeks- 2hrs/week)

Practical: 96 hrs (48 weeks- 2hrs/week)

### 2 - OVERALL AIMS OF THE COURSE:

By the end of this course, students should have gained the basic principles and the essential practical skills related to chicken biology, housing, production principles as well as quails, turkey, water fowl, ostrich and pigeon.

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.)

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- a.1. Discuss origin, domestication, and classification of poultry.
- a.2. Express basics and types of poultry housing and ventilation
- a.3. Explain how keep up hatching egg quality and artificial incubation
- a.4. Define requirements for chicken brooding and growing management
- a.5. Outline the rules of management and lighting systems of breeder and layer chicken
- a.6. Describe the management practices for broiler chicken.
- a.7. Recall the brooding, growing and rearing practices for Japanese quails, turkey, ostrich, water fowls and pigeons.

#### 3-B: INTELLECTUAL SKILLS:

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

- b.1. Formulate a program for fertile egg production of chicken, quails, turkey, ducks, geese and ostrich.
- b.2. Innovate the appropriate method of brooding, breeding rearing systems of poultry with economic production
- b.3. Interpret unexpected problems in poultry houses and hatcheries as soon as possible, depending on the case history and performance data.

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

- c.1. Assess farm efficiency indices from current and retrospective performance data.
- c.2. Diagnose environmental problems and reasons of low production,
- c.3. Apply sound management practices to eggs, chicks, growing and mature poultry.
- c.4. Identify Egyptian and standard breeds of poultry in a slideshow.
- c.5. Operate flock requirements in relation to a specified production system.

#### 3- D: GENERAL SKILLS:

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

- d.1. Communicate effectively with his professors, and colleagues.
- d.2. Utilize different sources of knowledge and information
- d.3. Use information technology to serve the professional practice.
- d.4. Manage time efficiently



#### 4 - COURSE CONTENTS:

Topic	No. of hours		
	Lectures	Practical	Total
1- Introduction, Origin, domestication, and classification of poultry	8	8	16
2- Poultry Housing	8	8	16
3- Hatching Egg Quality and Artificial Incubation	8	8	16
4- Brooder and Growing Management	8	8	16
5- Breeder Management	8	8	16
6- Management of Broilers	8	8	16
7- Laying management	8	8	16
8- Lighting management	8	8	16
9- Brooding, growing & rearing of Japanese quails	8	8	16
10- Brooding, growing and rearing of turkey	6	6	12
11- Brooding, growing and rearing of ostrich	6	6	12
12- Brooding, growing and rearing of water fowls	6	6	12
13- Brooding, growing and rearing of pigeons	6	6	12
Total	96	96	192

#### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library  
Making individual reports about dairy operations

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures *	a1 to a7	b1 to b3		d1, d4
Practical sessions		b1 to b3	c1 to c5	d2, d4
Self-Learning activities				d2, d3, d4
Distance Teaching and Learning	a1 to a7	b1 to b3	c1 to c5	d1 to d4

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	Allover the academic year
<b>7.c grads</b>	50	20	20	10

7.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a7	b1 to b3		d4
Practical exams			c1 to c5	d2, d3
Oral exams	a1 to a7	b1 to b3		d1
Student activities				d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Essential Books

- Leeson, S., Summers, J. 2018. Commercial Poultry Nutrition, 3<sup>rd</sup> Edition. Nottingham University Press. England.
- Muir, W.M. and S.E. Aggrey . 2013. Poultry genetics, breeding and biotechnology. Library of Congress Cataloguing - in- Publication Data.
- Donald D. Bell & William D. Weaver, Jr. 2012. Commercial Chicken Meat and Egg Production. Springer publishing, New York, USA.
- Lesson, S & Summer J. D. 2010. Broiler breeder production. Nottingham University Press, England.
- Paul Peacock. 2009. The urban Hen. A practical guide to keeping poultry in a town or city.

### 8-2: Recommended books:

- Avian (Poultry) Production: 2nd Revised and Enlarged Edition, by D. Sapkota, D. Narahari, J.D. Mahanta, 2017.
- Poultry Health: A Guide for Professionals, by Paul Barrow, Venugopal Nair, Susan Baigent, Robert Atterbury, Michael Clark, 2021.
- Poultry Science, 5th Edition, by Colin G. Scanes, Karen D. Christensen, 2019.
- Domestic Duck Production: Science and Practice, by Peter Cherry, Trevor R. Morris, 2011
- Turkey Management: A Comprehensive Guide to Raising Turkeys (7) (Norton Creek Classics) Paperback, by Stanley J Marsden (Author), J Holmes Martin (Author), Robert Plamondon, 2016.
- The Production of Duck Eggs - A Collection of Articles on Incubators, Hatching, Collection and Other Aspects of Egg Production Paperback by [Various](#), 2011.

### 8-3: Egyptian Knowledge Bank:

- Beaver, BV and Höglund, DL. 2016. Efficient Livestock Handling. The Practical Application of Animal Welfare and Behavioral Science
- Blair, R. 2018. Nutrition and feeding of organic poultry. University of British Columbia, British Columbia, Canada. ISBN 9781786392985
- Burton, E., Gatcliffe, J., O'Neill, H. M., Scholey, D. 2016. Sustainable poultry production in Europe. School of Animal, Rural and Environmental Sciences, Nottingham Trent University, Brackenhurst Campus, Southwell, Nottinghamshire NG25 0AF, UK.



**Kafrelsheikh University**  
Faculty of Veterinary Medicine



### **Scientific Journals**

- Egyptian Poultry Science
- Poultry Science Association
- American journal of poultry science
- British Poultry Science
- International journal of Poultry Science.
- Journal of Applied Poultry Research

### **Scientific websites**

- The Egyptian Knowledge Bank: <https://www.ekb.eg/web/guest/home>
- <http://www.thepoultrysite.com/>
- <http://www.worldpoultry.net/>
- [www.elib4vet.com](http://www.elib4vet.com)
- <http://www.dawagen.com>
- <http://www.thepoultry.net/html/About.htm>

**Course Coordinator**

**Dr. Seham Mohammed Elkassas**

**Head of Department**

**Prof. Dr. Mohamed Atef Helal**



Course Matrix for achievement of Intended Learning Outcomes

Topics	Hours	Knowledge & Understanding							Intellectual Skills			Practical & Professional Skills					General & Transferable Skills			
		1	2	3	4	5	6	7	1	2	3	1	2	3	4	5	1	2	3	4
1- Introduction, Origin, domestication, and classification of poultry	16	✓							✓	✓	✓				✓		✓	✓	✓	✓
2- Poultry Housing	16		✓						✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
3- Hatching Egg Quality and Artificial Incubation	16			✓					✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
4- Brooder and Growing Management	16				✓				✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
5- Breeder Management	16					✓			✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
6- Management of Broilers	16						✓		✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
7- Laying management	16					✓			✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
8- Lighting management	16					✓			✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
9- Brooding, growing & rearing of Japanese quails	16							✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
10- Brooding, growing and rearing of turkey	12							✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
11- Brooding, growing and rearing of ostrich	12							✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
12- Brooding, growing and rearing of water fowls	12							✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
13- Brooding, growing and rearing of pigeons	12							✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓



## COURSE SPECIFICATION (2021 / 2022)

### 1 - Basic Information:

Code number: 300/1

Course title: Advanced Rabbit Production (انتاج أرانب متقدم)

Academic Year: Master of Veterinary Medicine Program

Total teaching hours: 192 hrs

Lectures: 96 hrs (48 weeks- 2hrs/week)

Practical: 96 hrs (48 weeks- 2hrs/week)

### 2 - OVERALL AIMS OF THE COURSE:

By the end of this course, students should have gained the basic principles and the essential practical skills related to rabbit biology, breeds, housing, production principles as well as genetic principles.

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.)

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- a.1. Discuss rabbit industry, production cycle, origin and domestication of rabbits.
- a.2. Summarize breeds and production systems rabbits
- a.3. Express basics and types of rabbit housing and ventilation.
- a.4. Define nutritional and environmental requirements for rabbits.
- a.5. Outline management operations and reproduction in rabbits
- a.6. Describe behavioral and health problems in rabbit
- a.7. Recall record keeping, economics and financial management of rabbit projects.

#### 3-B: INTELLECTUAL SKILLS:

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

- b.1. Formulate a program for production of rabbit.
- b.2. Innovate the appropriate method of rabbit production systems with economic production
- b.3. Interpret unexpected problems in rabbit houses as soon as possible, depending on the case history and performance data.

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

- c.1. Assess farm efficiency indices from current and retrospective performance data.
- c.2. Diagnose environmental problems and reasons of low production,
- c.3. Apply sound management practices to young and mature rabbits.
- c.4. Identify Egyptian and standard breeds of rabbit in a slideshow.
- c.5. Operate rabbit requirements in relation to a specified production system.

#### 3- D: GENERAL SKILLS:

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

- d.1. Communicate effectively with his professors, and collages.
- d.2. Utilize different sources of knowledge and information
- d.3. Use information technology to serve the professional practice.
- d.4. Manage time efficiently



#### 4 - COURSE CONTENTS:

Topic	No. of hours		
	Lectures	Practical	Total
1- Rabbit industry structure in Egypt and Production cycle	2	2	4
2- Origin and domestication of rabbits	8	8	16
3- Rabbit breeds and production systems	8	8	16
4- Rabbit housing and equipments	8	8	16
5- Nutrient requirements and feeding systems for rabbits	8	8	16
6- Environmental requirements for rabbits	8	8	16
7- Managemnet operations for rabbits	8	8	16
8- Reproduction in rabbits	8	8	16
9- Rabbit Diseases and Health Problems	8	8	16
10- records and record keeping	8	8	16
11. Economics and Financial Management	6	6	12
12. Principles of Rabbit Genetics	8	8	16
13. Rabbit Behavior	8	8	16
Total	96	96	192

#### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library  
Making individual reports about dairy operations

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a7	b1 to b3		d1, d4
Practical sessions		b1 to b3	c1 to c5	d2, d4
Self-Learning activities				d2, d3, d4
Distance Teaching and Learning	a1 to a7	b1 to b3	c1 to c5	d1 to d4

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	Allover the academic year





<b>7.c grads</b>	50	20	20	10
	<b>7. Student Assessment</b>			
	<b>Intended Learning Outcomes Covered</b>			
<b>7.1. Methods</b>	<b>KU</b>	<b>IS</b>	<b>PPS</b>	<b>GTS</b>
Written exams	a1 to a7	b1 to b4		d4
Practical exams			c1 to c5	d2, d3
Oral exams	a1 to a7	b1 to b4		d1
Student activities				d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### **8-1: Essential Books**

- McNitt J.I., S. D. Lukefahr, P.R. Cheeke and N. M. Patton, 2013. Rabbit Production. 9<sup>th</sup> Edition. ISBN-13: 9781 78064 011 2 (Pbk) - 9781 78064 012 9 (Hbk)
- DeBlas, CWiseman, J. 2010. Nutrition of the Rabbit, 2nd Edition. ISBN978-1-84593-669-3(P)
- Smith, T. W. 2018. Commercial Rabbit Production. Extension Service of Mississippi State University
- James,.R. Gillespie and Frank,B.Flanders. 2015.Modern livestock and poultry production.9th edition. Delmar, Cengage Learning.USA.

### **8-2: Recommended books:**

- Kinghorn, B., J. van der Werf, and M. Ryan. 2001. Animal Breeding. Use of New Technologies; Twynam Press.
- Ebenezer U. 2004. Aguide to Raising Rabbit. ISBN 978425090. Royal Pace Publications.
- Nova Scotia Department Of Agriculture. Rabbit Production Manual. A Guide for 4-H Leaders and Beginning Farmers

### **8-3: Egyptian Knowledge Bank:**

- Beaver, BV and Höglund, DL. 2016. Efficient Livestock Handling. The Practical Application of Animal Welfare and Behavioral Science
- DeBlas, CWiseman, J. 2010. Nutrition of the Rabbit, 2nd Edition. ISBN978-1-84593-669-3(P)
- Burton, E., Gatcliffe, J., O'Neill, H. M., Scholey, D. 2016. Sustainable poultry production in Europe. School of Animal, Rural and Environmental Sciences, Nottingham Trent University, Brackenhurst Campus, Southwell, Nottinghamshire NG25 0AF, UK.

### **Scientific Journals**

- Egyptian Poultry Science
- Poultry Science Association
- American journal of poultry science
- British Poultry Science
- International journal of Poultry Science.
- Journal of Applied Poultry Research

### **Scientific websites**

- The Egyptian Knowledge Bank: <https://www.ekb.eg/web/guest/home>
- <http://www.thepoultrysite.com/>
- <http://www.worldpoultry.net/>

**Course Coordinator**  
**Dr. Seham Mohammed Elkassas**

**Head of Department**  
**Prof. Dr. Mohamed Atef Helal**

### Course Matrix for achievement of Intended Learning Outcomes

Topics	Hours	Knowledge & Understanding							Intellectual Skills			Practical & Professional Skills					General & Transferable Skills			
		1	2	3	4	5	6	7	1	2	3	1	2	3	4	5	1	2	3	4
1- Rabbit industry structure in Egypt and Production cycle	4	✓							✓	✓	✓				✓		✓	✓	✓	✓
2- Origin and domestication of rabbits	16		✓						✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
3- Rabbit breeds and production systems	16			✓					✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
4- Rabbit housing and equipments	16				✓				✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
5- Nutrient requirements and feeding systems for rabbits	16					✓			✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
6- Environmental requirements for rabbits	16						✓		✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
7- Managemnet operations for rabbits	16					✓			✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
8- Reproduction in rabbits	16					✓			✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
9- Rabbit Diseases and Health Problems	16							✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
10- records and record keeping	16							✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
11. Economics and Financial Management	12							✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
12. Principles of Rabbit Genetics	16							✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
13. Rabbit Behavior	16							✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓



## COURSE SPECIFICATION (2021 / 2022)

### 1 - Basic Information:

Code number: 300/1

Course title: Improvement by Artificial Insemination in Poultry and Rabbits

(التحسين بواسطة التلقيح الاصطناعي في الدواجن والأرانب)

Academic Year: Master of Veterinary Medicine Program

Total teaching hours: 144 hrs

Lectures: 48 hrs (48 weeks- 1hrs/week)

Practical: 96 hrs (48 weeks- 2hrs/week)

### 2 - OVERALL AIMS OF THE COURSE:

By the end of this course, students should have gained the basic principles and the essential practical skills related to improvement of rabbit and poultry production by using artificial insemination technology.

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.)

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- a.1. Define the structure and reproduction physiology of poultry and rabbit for best management.
- a.2. Review the composition and metabolism of poultry and rabbit semen.
- a.3. Recognize ideal methods for handling, diluting and preservation of poultry and rabbit semen samples.
- a.4. List advanced methods of evaluation of poultry and rabbit semen.
- a.5. State recent methods for processing of poultry and rabbit semen.
- a.6. Identify the different techniques of insemination in poultry and rabbits.
- a.7. Describe the different procedures to improve the fertility status of poultry and rabbit

#### 3-B: INTELLECTUAL SKILLS:

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

- b.1. Select the suitable method for collecting a complete and clean ejaculate from birds and rabbits
- b.2. Evaluate bird and rabbit semen efficiently on scientific basis.
- b.3. Judge the processing of bird and rabbit semen.
- b.4. Design a plan for optimum application and benefit of AI in birds and rabbits.

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

- c.1. Carry out semen collection, labeling and preservation efficiently under standard hygienic conditions.
- c.2. Perform gross and laboratory advanced evaluation of bird and rabbit reproductive system and semen sample.
- c.3. Apply sound management practices to young and mature rabbits.
- c.4. Perform ideal insemination in birds and rabbits.
- c.5. Attain essential laboratory skills that underpin techniques associated with semen biology and AI.

#### 3- D: GENERAL SKILLS:

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

- d.1. Communicate effectively with his professors, and collages.
- d.2. Utilize different sources of knowledge and information



- d.3. Use information technology to serve the professional practice.  
d.4. Manage time efficiently

#### 4 - COURSE CONTENTS:

Topic	No. of hours		
	Lectures	Practical	Total
1- Structure of rabbit and poultry reproductive systems	6	12	18
2- Reproduction management for rabbit and poultry	6	12	18
3- Recent advances in rabbit artificial insemination.	6	12	18
4- Structure and functions of different components of the semen.	6	12	18
5- Different methods for semen collection from birds and rabbits	6	12	18
6- Different methods used for semen evaluation	6	12	18
7- Different methods and techniques used for semen processing	6	12	18
8- Techniques used for insemination of female birds and rabbits	6	12	18
<b>Total</b>	<b>48</b>	<b>96</b>	<b>144</b>

#### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library

Making individual reports about dairy operations

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a7	b1 to b4		d1, d4
Practical sessions		b1 to b4	c1 to c5	d2, d4
Self-Learning activities				d2, d3, d4
Distance Teaching and Learning	a1 to a7	b1 to b4	c1 to c5	d1 to d4

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	All over the academic year
<b>7.c grads</b>	50	20	20	10



7.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a7	b1 to b4		d4
Practical exams			c1 to c5	d2, d3
Oral exams	a1 to a7	b1 to b4		d1
Student activities				d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Essential Books

- Mohan J., S.K. Sharma, G. Kolluri And K. Dhama. 2018. History of artificial insemination in poultry, its components and significance. World's Poultry Science Association 2018.
- Applied animal reproduction (6th edition). Joe Bearden, H.; John w. Fuquay and Scott. T. (2004) Willard Upper saddle River, New Jersey 0745.

### 8-2: Recommended books:

- Bourdon, A. (1999): Understanding Animal Breeding. 1st Ed. Printce Hall, New Jersey
- AISHA, K. and ZAIN, U.A. (2010) Artificial Insemination in Poultry. Department of Pathology, University of Agriculture Faisalabad, Pakistan.
- BEULAH, P.V. (2017) Effect of different semen extenders on fertility of chicken spermatozoa during short term preservation. M.V.Sc Thesis, ICAR-Indian Veterinary Research Institute, India

### 8-3: Egyptian Knowledge Bank:

- Beaver, BV and Höglund, DL. 2016. Efficient Livestock Handling. The Practical Application of Animal Welfare and Behavioral Science
- Burton, E., Gatcliffe, J., O'Neill, H. M., Scholey, D. 2016. Sustainable poultry production in Europe. School of Animal, Rural and Environmental Sciences, Nottingham Trent University, Brackenhurst Campus, Southwell, Nottinghamshire NG25 0AF, UK.

### Scientific Journals

- Reproduction in Domestic Animals - Wiley Online
- Animal Reproduction Science - Journal – Elsevier
- Journal of Animal Science and Biotechnology
- Japanese Journal of Animal Reproduction
- Biology of Reproduction.
- J. Animal reproduction & Fertility
- Journal of Reproduction and development.

### Scientific websites

- The Egyptian Knowledge Bank: <https://www.ekb.eg/web/guest/home>
- <http://www.thepoultrysite.com/>
- <http://www.worldpoultry.net/>

**Course Coordinator**

**Dr. Seham Mohammed Elkassas**

**Head of Department**

**Prof. Dr. Mohamed Atef Helal**

**Course Matrix for achievement of Intended Learning Outcomes**

Topics	Hours	Knowledge & Understanding							Intellectual Skills				Practical & Professional Skills					General & Transferable Skills			
		1	2	3	4	5	6	7	1	2	3	4	1	2	3	4	5	1	2	3	4
1- Structure of rabbit and poultry reproductive systems	18	✓							✓				✓					✓	✓	✓	✓
2- Reproduction management for rabbit and poultry	18		✓						✓				✓					✓	✓	✓	✓
3- Recent advances in rabbit artificial insemination.	18			✓						✓			✓					✓	✓	✓	✓
4- Structure and functions of different components of the semen.	18			✓						✓				✓				✓	✓	✓	✓
5- Different methods for semen collection from birds and rabbits	18				✓					✓				✓				✓	✓	✓	✓
6- Different methods used for semen evaluation	18				✓						✓			✓	✓			✓	✓	✓	✓
7- Different methods and techniques used for semen processing	18					✓					✓	✓					✓	✓	✓	✓	
8- Techniques used for insemination of female birds and rabbits	18						✓	✓				✓					✓	✓	✓	✓	



**Kafrelsheikh University**  
Faculty of Veterinary Medicine



**Kafrelsheikh University**

**Faculty of veterinary medicine**

**Anatomy and Embryology Department**

# **Program Specification for Master Degree**

## **(2021 - 2022)**

**Program Title:**

**Master of The Veterinary Science**  
**(Anatomy & Embryology)**



## **A- Administrative information:**

- 1- **Awarding Body:** Kafrelsheikh University
- 2- **Teaching Body:** Faculty of Veterinary Medicine
- 3- **Department responsible:** Anatomy and Embryology
- 4- **Program Title:** Master Degree in Veterinary Science (Anatomy and embryology)
- 5- **Final award:** Master Degree
- 6- **Registration period:** 2-4 years
- 7- **Program Coordinator:**
- 8- **External evaluator:**
- 9- **Date of revision:**
- 10- **Date of approval:**

## **B- Professional information:**

### **1-Educational aims of the program**

- Provides graduates the opportunity to develop communication and teaching skills and the experience of scientific research.
- Develops the ability of graduate to engage critically with recent techniques and dissecting tools in the field of Anatomy and Embryology
- Supplies the graduates with the most recent knowledge in science and technological applications in Anatomy and Embryology
- Demonstrates an awareness of the connections between disciplines and develop the ability to engage critically with scientific literature and to critically review and present their own research data for the protection and promotion of the animal health.
- Allows graduates to develop practical research project.
- Enables graduates to achieve competency in modern laboratory technology.

### **2- Academic standards:**

**Academic reference standards (ARS) adopted by the faculty committee No (1) 14-9-2014)**

### **3-Graduate attributes:**

*At the end of the program, graduate must be able to:*

- 1) Perfect application of scientific research basics and methodologies in anatomy & embryology and using its varied tools.
- 2) Application and use of analytical methods to find a hypothesis of anatomical relationships among species.





- 3) Application of gained specialized knowledge and integrating them with the relevant knowledge in Anatomy & Embryology.
- 4) Awareness with ongoing anatomical problems and recent concepts of rule of comparative anatomy to solve this problem.
- 5) Identification of anatomical problems and suggesting suitable and economic methods of treatment and control.
- 6) Mastering the proper scope of a rate specialized professional skills, and using appropriate technological means to serve the diagnosis and control of animals with anatomical abnormalities in addition to identification of anatomical cause of death or injury.
- 7) Effective communication with students, anatomists and animal owners and leading work team.
- 8) Decision making for suggesting the cause of anatomical problem that lead to death and measuring the time passed since death.
- 9) Employ available resources efficiently including history, clinical signs, PM lesions and laboratory findings.
- 10) Awareness with his role in society development and fighting bad habits for preservation of a clean environment.
- 11) Reflection of the commitment to act with integrity, credibility and the rules of profession.
- 12) Academic and professional self- development and ability for life-long learning and progress by studying new comparative anatomical cases.

#### **4-Programme outcomes [intended learning outcomes (ILOs)]**

##### **a. Knowledge and understanding:**

*On successful completion of this program the graduate will be able to:*

- a.1. Recognize basic principles of dissection, organs development and anatomy of skeleton among animal species.
- a.2. Identify mutual effect in anatomical practice and its impact on community for preservation of clean environment.
- a.3. Recognize scientific progress in the field of anatomy and embryology.
- a.4. Realize the principles and basics of quality assurance in the area of specialization.
- a.5. Apply the basics and ethics of scientific research specially the rules of using Lab animals in anatomy and embryology.
- a.6. Realize the legal and ethical basics in the field of anatomy & embryology specially keeping animals in good anatomical condition and free from any abnormalities.

##### **b. Intellectual skills:**

*At the end of the program, graduate must be able to:*

- b.1. Analyze and judge the information collected from the case history or by dissecting room investigations.
- b.2. Find clues for anatomical problems in diagnosing the cause of death or abnormalities even in scarcity of resources.
- b.3. Relate the anatomical facts with other related knowledge in order to reach



perfect diagnosis.

- b.4. Participate in preparing research plan in anatomy and embryology and/ or write scientific article on a research problem.
- b.5. Assess risks of professional practices in anatomy and embryology and their possible consequences.
- b.6. Create a plan for improvement of professional performance.
- b.7. Make professional decisions in dealing with anatomical cases problems.

**c. Practical and professional skills:**

*At the end of the programme, graduate must be able to:*

- c.1. Master basic and recent professional skills in dissection of different animal species.
- c.2. Write, conclude and evaluate a professional and conclusive report about the anatomical problem.
- c.3. Evaluate existing materials and methods in the area of comparative anatomy.

**d. General and transferable skills:**

*At the end of the programme, graduate must be able to:*

- d.1. Communicate effectively with his professors, collages and animal owner(s).
- d.2. Utilize different sources of knowledge and information.
- d.3. Assess himself and identify his personal educational needs.
- d.4. Demonstrate interpersonal skills and team working ability
- d.5. Demonstrate appropriate attitude and rules towards teaching staff and colleagues.
- d.6. Use information technology to serve the professional practice.
- d.7. Manage time efficiently.
- d.8. Set tools and indicators for assessment of the performance of others.

**5- Program structure**

a) Program duration (years): Master degree from 2-4 years

b) Premaster courses – at least one academic year

Course	Lecture (hours/week)	Practical (hours/week)
Fundamental (core) course	3	4
Research methodology	1	3
2-5 Elective Courses Offered by other departments and are selected from the list below	5-6	5-6



according to thesis topic (10-12 hours)

**c) Master of Veterinary Medicine Thesis (at least one academic year)**

- All Master-degree students should prepare a master thesis.
- The department and the ethical committees must approve the protocol of the research.
- The thesis should include a review part and a research part.
- The thesis is supervised by one or more senior staff members of the department responsible for the program and may include other specialties according to the nature of the research.
- The thesis should be evaluated and approved by a committee of three professors including one of the supervisors and an external professor.

The elective courses are selected from the list below according to thesis topic:

Subject	Code	Course title	No of hours/week	
			Lecture	Practical Lab
Histology	111/1	<b>11- cytology and cytochemistry</b>	1	2
	112/1	<b>12- general histology</b>	2	2
	113/1	<b>13- Histology and histochemistry of blood, lymph and cardiovascular system.</b>	1	1
	114/1	<b>14- Comparative histology and histochemistry of body muscles, heart and blood vessels</b>	1	1
	115/1	<b>15- Comparative histology and histochemistry of respiratory system</b>	1	1
	116/1	<b>16-Comparative histology and histochemistry of digestive system</b>	2	2
	117/1	<b>17- Comparative histology and histochemistry of uro-genital system</b>	2	2
	118/1	<b>18- Comparative histology and histochemistry of nervous and endocrine systems</b>	2	2
	119/1	<b>19- Histology and histochemistry of special sensors</b>	1	2
	120/1	<b>20-Histology and histochemistry of skin, hooves, claws and Nails</b>	2	2
	121/1	<b>21- Avian histology</b>	2	2
	122/1	<b>22- Fish histology</b>	1	2
Physiology	123/1	<b>23- Physiology of mammalian endocrine and reproduction</b>	2	2
	124/1	<b>24- poultry physiology (advanced)</b>	2	2



	125/1	<b>25- physiology of muscle and nerve</b>	1	2
	126/1	<b>26- physiology of ruminants</b>	2	2
	127/1	<b>27- physiology of environment, adaptation and cell</b>	2	2
	128/1	<b>28- physiology of blood</b>	2	2
	129/1	<b>29- physiology of digestion, metabolism and energy</b>	2	2
	130/1	<b>30- Physiology in pollution</b>	1	2
	131/1	<b>31- Radioactive isotopes and biological uses</b>	2	2
	132/1	<b>32- Physiology of heights</b>	1	1
	133/1	<b>33-Fish physiology.</b>	1	2
<b>Biochemistry</b>	134/1	<b>34- Basics of biochemistry</b>	2	3
	135/1	<b>35- Metabolism</b>	2	2
	136/1	<b>36- Biochemistry of tissue and body fluids .</b>	2	2
	137/1	<b>37- Biochemistry of hormones and reproduction</b>	2	2
	138/1	<b>38- Feeding biochemistry</b>	2	2
	139/1	<b>39- Clinical biochemistry</b>	2	2
	140/1	<b>40- Avian biochemistry</b>	2	2
	141/1	<b>41- Microbial biochemistry</b>	2	2
	142/1	<b>42- Biochemistry of radiation</b>	1	2
	143/1	<b>43- Fish biochemistry</b>		
<b>Animal behavior and management</b>	144/1	<b>44- Behavior and management of ruminants ( specific courses in cattle, buffalo, sheep, camels and goats)</b>	2	3
	145/1	<b>45- Behavior and management of horses</b>	2	3
	146/1	<b>46- Behavior and management of pet animals</b>	1	2
	147/1	<b>47- Behavior and management of laboratory animals</b>	1	2
	148/1	<b>48- Behavior and management of wild animals</b>	2	2
	149/1	<b>49- Behavior and management of poultry</b>	2	2
	150/1	<b>50- Behavior and management of rabbit</b>	1	2
	151/1	<b>51- Behavior of experimental animals</b>	1	2
<b>Nutrition and clinical nutrition</b>	152/1	<b>52- Basics of animal nutrition</b>	2	2
	153/1	<b>53- feedstuff</b>	2	2
	154/1	<b>54- nutrition of farm animals and fish specific courses in ( cattle and buffalo nutrition – sheep and goat nutrition – camel nutrition- equine nutrition – fish nutrition)</b>	2	2
	155/1	<b>55- poultry and rabbit nutrition( advanced)</b>	2	2
	156/1	<b>56- wild animal nutrition</b>	1	2
	157/1	<b>57- laboratory animal nutrition</b>	1	2
	158/1	<b>58- feed additives</b>	1	2
	159/1	<b>59- feedstuff analysis</b>	2	2



	160/1	<b>60- Quality control of feed and feed factories</b>	2	2
	161/1	<b>61- Clinical nutrition and malnutrition</b>	2	2
	162/1	<b>62- Fish nutrition</b>	1	2
<b>Pathology</b>	163/1	<b>63- General pathology and neoplasm( progressive)</b>	2	2
	164/1	<b>64-pathology of microbial and parasitic diseases in animal</b>	2	2
	165/1	<b>65- pathology of bad nutrition</b>	1	2
	166/1	<b>66- pathology of environmental pollution</b>	1	2
	167/1	<b>67- pathology of reproductive diseases</b>	1	2
	168/1	<b>68- Avian pathology</b>	2	2
	169/1	<b>69-Experimental pathology</b>	2	2
	170/1	<b>70- toxins pathology</b>	2	2
	171/1	<b>71- surgical pathology</b>	2	2
	172/1	<b>72- Pathology of experimental animals.</b>		
	173/1	<b>73- Pathology of genetics</b>		
	174/1	<b>74-- Fish pathology</b>	2	2
<b>Clinical pathology</b>	175/1	<b>75- Advanced clinical pathology</b>	2	2
	176/1	<b>76-Organ function tests and body and urine balance</b>	2	2
	177/1	<b>77- Clinical hematology and bone marrow examination</b>	1	2
<b>Bacteriology, immunology and mycology</b>	178/1	<b>78- General bacteriology(advanced)</b>	1	2
	179/1	<b>79-systemic bacteriology</b>	2	3
	182/1	<b>80- Advanced immunology</b>	2	2
	183/2	<b>81- Advanced mycology</b>	1	2
<b>Virology</b>	180/3	<b>82- General virology</b>	1	2
	181/4	<b>83-Systemic virology( specific courses)</b>	2	3
	182/5	<b>84- Advanced immunology</b>	2	2
<b>Mixed courses between Bacteriology and Virology</b>	184/1	<b>85- Microbiology of poultry</b>	2	2
	185/1	<b>86- Microbiology of ??????</b>	1	2
	186/1	<b>87- Microbiology of animal product</b>	2	2
	187/1	<b>88- Fish Microbiology</b>	1	2
		<b>81- Advanced immunology</b>	2	2
<b>Parasitology</b>	188/1	<b>89- Veterinary medical entomology and acarology</b>	2	2
	189/1	<b>90-helminthology</b>	2	2
	190/1	<b>91- protozoology</b>	2	2
	191/1	<b>92- Avian and rabbits parasitology</b>	2	2
	192/1	<b>93Malacology and its vet. Importance</b>	1	2
	193/1	<b>94- parasitic Immunology</b>	1	2
	194/1	<b>95- Clinical parasitology</b>	2	2
	195/1	<b>96-Wild life parasitology</b>	1	2



	196/1	97- Special Topics in Microbiology	-	-
	197/1	98- Physiology and biochemistry of parasites	2	2
	198/1	99- Fish parasitology	1	2
<b>Pharmacology</b>	199/1	100- Aeneral pharmacology ( advanced)	2	2
	200/1	101- pharmacology of autonomic nervous system and autocoid	2	2
	201/1	102- pharmacology of central nervous system	2	2
	202/1	103 pharmacology of anesthesia	2	2
	203/1	104- Systemic pharmacology	2	2
	204/1	105- pharmacology of metabolism	2	2
	205/1	106- pharmacology of hormones	2	2
	206/1	107- Chemotherapy	2	2
	207/1	108- Biological evolution of drug	1	1
<b>Hygiene and control of milk and dairy products</b>	208/1	108- Hygiene and control of milk and dairy products	2	2
	209	109- Microbiology of milk and dairy products	2	2
	210/1	110- Milk technology and preservation	2	2
	211/1	111- Food analysis	2	2
	212/1	112- Food poisoning	1	2
	213/1	113- Specific courses on sources of contamination, disturbances of milk production, milk born diseases, hygiene of table egg, edible fats and oils	1	1
	214/1	114- The sanitation of dairy plant	2	2
<b>Control of meat hygiene and their products</b>	215/1	115- Slaughter animal Hygiene	1	2
	216/1	116- Abattoir management and hygiene	2	2
	217/1	117- Hygienic control of meat and their product	2	2
	218/1	118 inspection of poultry meat.	1	2
	219/1	119- Food technology	1	2
	220/1	120- Microbiology of meat and fish meats and their product	2	1
	221/1	121- Chilled meal microbiology	1	2
	222/1	122- Analysis of meat and fish and their product	1	2
	223/1	123- Preservation of meat, poultry, fish and their products	1	2
	224/1	124- Sanitation affairs of meat and fish plants.	2	2
<b>Internal medicine</b>	225/1	125- advanced general medicine	2	2
	226/1	126- disease of ruminants( cattle, buffalo, camels, sheep and goats)	3	3
	227/1	127- diseases of equines	2	2
	228/1	128 diseases of pet animals	2	2



	229/1	<b>129- diseases of wild animals</b>	2	2
	230/1	<b>130- diseases of metabolic disorders</b>	2	2
	231/1	<b>131- nutritional deficiency diseases</b>	2	2
	232/1	<b>132- Skin diseases</b>	1	2
	233/1	<b>133 - diseases of newly born animals</b>	2	2
	234/ 1	<b>134- Stress diseases during animals transport.</b>		
<b>Infectious diseases</b>	235/ 1	<b>135- Infectious diseases of cattle</b>	2	2
	236/ 1	<b>136- Infectious diseases of sheep and goat</b>	2	2
	237/ 1	<b>137- Infectious diseases camel</b>	2	2
	238/ 1	<b>138 Infectious diseases of equine</b>	2	2
	239/ 1	<b>139- Infectious diseases of pet animals</b>	2	2
	240/ 1	<b>140- Infectious diseases lab animals</b>	1	2
	241/ 1	<b>141- Infectious diseases of udder and newly born animals</b>	2	2
	242/ 1	<b>142- Infectious diseases buffaloes</b>	2	1
	243/1	<b>143- Infectious diseases of wild animals.</b>		
<b>Forensic medicine and toxicology</b>	244/1	<b>144- Forensic medicine and veterinary procedures</b>	2	2
	245/1	<b>145- general toxicology</b>	2	2
	246/1	<b>146- environmental toxicology</b>	2	2
	247/1	<b>147- forensic toxicology</b>	2	2
	248/1	<b>148- laboratory diagnostic toxicology</b>	2	2
	249/1	<b>149- Drug toxicology</b>		
<b>Theriogenology</b>	250/1	<b>150- Female infertility (special specific courses in ruminants- equine- pet animals)</b>	2	2
	251/1	<b>151- Male infertility (special specific courses in ruminants- equine- pet animals)</b>	2	2
	252/1	<b>152- Genital diseases.</b>		
	253/1	<b>153 - obstetrics (special specific courses in farm and pet Animals)</b>	2	2
	254/1	<b>153- reproduction and immunity</b>	1	2
	255/1	<b>155- artificial insemination in ruminants</b>	2	2
	256/1	<b>156- artificial insemination in equine</b>	2	2
	257/1	<b>157- artificial insemination in pet animals</b>	1	2
	258/1	<b>158- embryo transfer</b>	1	2
<b>Veterinary Surgery</b>	259/1	<b>159- General surgery (advanced)</b>	2	2
	260/1	<b>160- Special surgery( organs)</b>	2	3
	261/1	<b>161- surgery of eye, ear, nose and larynx</b>	2	2
	262/1	<b>162 digestive system surgery</b>	2	2
	263/1	<b>163- surgery of the limbs, hoof and claws</b>	2	2
	264/1	<b>164- experimental surgery</b>	2	2



	265/1	<b>165- anesthesia</b>	1	1
	266/1	<b>166- radiology and ultrasonography</b>	2	2
<b>Poultry and rabbit diseases</b>	267/1	<b>167- bacterial diseases of poultry</b>	2	2
	268/1	<b>168- viral diseases of poultry</b>	2	2
	269/1	<b>169- fungal diseases of poultry</b>	2	2
	270/1	<b>170 parasitic diseases of poultry</b>	1	2
	271/1	<b>171 - nutritional diseases of poultry</b>	1	2
	272/1	<b>172-diseases of rabbit (advanced)</b>	2	2
	273/1	<b>173-Diseases of wild and migrating birds</b>	2	2
	274/1	<b>174- Preventive vaccines and their evaluation in poultry</b>	2	2
	275/1	<b>175- Laboratory diagnosis of poultry diseases.</b>		
<b>Animal and environmental hygiene</b>	276/1	<b>176- farm animal hygiene ( advanced)</b>	2	2
	277/1	<b>177- poultry hygiene ( advanced)</b>	2	2
	278/1	<b>178- environmental hygiene and pollution</b>	2	2
	279/1	<b>179- control of contagious diseases</b>	2	2
	280/1	<b>180- eradication of rodents and disease vector</b>	2	2
	281/1	<b>181- insecticides and public health</b>	2	2
	282/1	<b>182-hygiene of animal enclosures- specific courses in :- cattle houses – poultry houses – rabbit houses- pet animals house3s – experimental animals houses</b>	2	2
	283/1	<b>183-disinfections and disinfectants</b>	2	2
	284/1	<b>184- veterinary epidemiology – specific courses in animal environment</b>	2	-
<b>Zoonoses</b>	285/1	<b>185- advanced zoonoses ( specific courses in bacterial and Mycotic diseases – viral diseases – parasitic diseases)</b>	2	2
	286/1	<b>186- role of rodents in transmission of zoonoses</b>	2	2
	287/1	<b>187- role of wild animals in transmission of zoonoses</b>	2	2
	288/1	<b>188- role of birds (special courses in: poultry, wild migrating or pets) in transmission of zoonoses</b>		
<b>Genetics and genetic engineering</b>	289/1	<b>189- Genetics of microorganisms .</b>	1	2
	290/1	<b>190- Genetic engineering( advanced)</b>	1	2
	291/1	<b>191- Cytological genetics</b>	1	-
	292/1	<b>192- Genetics of genuses.</b>	2	-
	293/1	<b>193- physiological genetics</b>	2	-
	294/1	<b>194- Chemical and radiological genetics.</b>	1	2
<b>Animal</b>	295/1	<b>195- Animal breeding and improvement</b>	2	-





<b>production</b>		<b>(advanced).</b>		
	296/1	<b>196- Poultry breeding and improvement(advanced).</b>	2	-
	297/1	<b>197- Cattle and buffalo production (advanced).</b>	2	2
	298/1	<b>198- Sheep and goat production (advanced).</b>	2	2
	299/1	<b>199- Poultry production (advanced).</b>	2	2
	300	<b>200-Rabbit production (advanced).</b>	2	2
	301	<b>201-Improving by artificial insemination in poultry and rabbits.</b>	2	2
<b>Fish diseases and management</b>	302/1	<b>202- Biology of fish.</b>	2	2
	303/1	<b>203-Fish diseases (advanced)</b>	2	2
	304/1	<b>204-Fish farms.</b>	1	2
	305/1	<b>205-Fish breeding .</b>	2	2
<b>Economic and farms management</b>	306/1	<b>206- economics of animals and dairy production</b>	2	-
	307/1	<b>207- economics of poultry farms</b>	2	-
	308/1	<b>208-economics of fish farms</b>	2	-
	309/1	<b>209- feasibility studies</b>	2	-
	310/1	<b>210- farm management</b>	2	-
	311/1	<b>211- economics of beef production</b>	2	-
<b>Biostatistics</b>	312/1	<b>212- Biostatistics (advanced)</b>	2	-
	313/1	<b>213- Experimental design</b>	2	2
	314/1	<b>214- Computer and data processing</b>	2	1

## 6-Teaching and Learning Methods:

*The program features a variety of teaching approaches for different intended learning objectives including:*

- Lectures to gain knowledge and understanding skills
- Writing a review paper to gain the skills of self-learning and presentation
- Practical and lab sessions to gain practical skills
- Seminars

## 7- Students assessments:

The program depends on different assessment ways:

### a. Course assessment:

<b>1- Written examination</b>	<b>For assessment of knowledge, back calling and Intellectual skills</b>
<b>2- Practical examination</b>	<b>For assessment of practical and professional skill</b>
<b>3- Oral examination</b>	<b>For assessment of knowledge and Intellectual skills</b>



#### 4- Student activities

For assessment of knowledge and general and transferable skills

##### b. Master Thesis

- Annual reports adopted by the Faculty
- Finally, the assessment of thesis measure the individual student ability to work independently in the field specialization
- Final evaluation and approval by a judging committee of at least three professors including one or more of the supervisors and an external professor. This assesses the ability to write a review article, perform the needed practical steps and to present the results in tables and graphs. In addition, the skills of analysis of results and discussion with previous findings obtained by other authors are also assessed.

##### *Assessment of program intended learning outcomes*

	<b>Tool or method</b>	<b>ILOs</b>
1-	Written	a1,2,3; b1,2,3
2-	Oral	a1,2,5; b2,3,4,6
3-	Practical	b1,7; c1-3
4-	Assignments	a1,2; b4; d1-8
5-	Thesis	a4-7; b4-7, c1-5, d1-8

#### 8. Marking scale as follow:-

<b>Excellent</b>		> 90
<b>Very good</b>		>80
<b>Good</b>		>70
<b>Pass</b>		>60
<b>Fail</b>	<b>Weak</b>	45 to less than 60
	<b>very weak</b>	Less than 45

#### 9. Program evaluation methods

<b>Evaluator</b>	<b>Tool</b>	<b>Sample</b>
Postgraduate Student	Questioners	<b>20%</b>
	meeting	<b>1</b>
Postgraduate alumni	Questioners	<b>5</b>
Stakeholders (employers)	Questioners	<b>10</b>
	Meeting	<b>1</b>
External evaluator/External examiner	Reports	<b>1</b>



## 10. Program Admission Requirements:

The Applicant must normally satisfy the faculty of veterinary medicine- kafrelsheikh University general entrance and requirement. The normal minimum entrance qualification for registration at the faculty on a master's program

- 1- Bachelor degree in Veterinary Medical Sciences of one of the Egyptian Universities or hold a degree in Veterinary Medical Sciences equivalent through the Supreme Council of Universities with general grade at least "Good" and at least grade "Very Good" in specialization.
- 2- Diploma of general grade at least "Good" and at least grade "Very Good" in specialization. The total number of study hours must be not less than 3 weekly in that specialization.
- 3- After he has passed the courses studied during premaster he must perform a research work in a subject approved by the faculty council at least for one year. He must submit the results of this work in thesis that should be approved by the discussion committee.

## 11. Regulations for progression of program

- a) Registration period for the Master in veterinary medicine is at least 2 years after the approval date by the faculty council and it should not exceed a period of 4 years, an extension could be approved by the faculty council depending on the supervisor report that approved by the department council and postgraduate and research committee refers to the universities regulation law.
- b) The student should conduct the courses proposed by both department council and approved by postgraduate and research committee and faculty council and include, 2-5 courses of the postgraduates stated in article (28) in regulation law list and the student will entitled to apply for the exam only after meeting attendance rate for each courses.
- c) The student should pass written, practical and oral exams successfully in all courses, and the examination is held two times annually.
- d) The Faculty council should deprive the student from entering the exam if his attendance rate in the course is less than 75%.
- e) Failure or depriving from entering one or more course did not require reexamination of successful passed courses.
- f) The applicant should conduct an innovate research on the subject that has been registered for at least 2 years from the date of registration approved by the faculty council. And the faculty council depending on a request from the supervisor has the right to authorize the student to do scientific experiments at recognized scientific institute.
- g) The applicant should submit the thesis that accepted by the judging committee in an open discussion and the following policies should be met:



- h) Pass all courses.
- i) The applicant should submit 4 copies of his thesis concerned department council to form committee examining the thesis to be presented to the postgraduate studies committee and the faculty council, and in case of thesis approval by the department council, the applicant will submit 6 copies for the faculty library, 1 copy for public university library before introducing the report of examination committee to the post graduate studies committee and the faculty council.
- j) Registration will be during March and September of each year.
- k) The applicant should submit a request enrolment for the dean who forwards bit to the concerned department council to determine the research subject and the study program and then take calendar after complete documentation on the faculty council for approval.
- l) The thesis title should be identified before being submitted at least 2 months and the judging committee has the right to amend the title without prejudice the subject of research.
- m) The Faculty council has the right to suspend the student enrolment for a certain period if he has acceptable excuse preventing him from continuing his study or research, and his period will not counted within the period stated in article 25.
- n) The applicant should submit 5 hard copies and 10 electronic copies (CDs) of the thesis after its validity approved by the judging committee and head of department to be distributed to the committee members and faculty library and the judging committee can decide the exchange of the thesis with other universities or printing at the expense of the university.

#### **12. Registration will be cancelled in one of the following cases:**

1. If the supervisors report during the registration period is unsatisfactory (2 reports).
2. If he did not submit his thesis before the end of registration period.
3. If the judging committee rejected the thesis twice.

#### **13. Examination Regulations**

- a-** Time of written exam, 3 hours for each course that has 3 hours or more for lecture / practical /week. **If has less than 3 hours/week, the time of exam, is 2 hours only.**
- b-**The final degree of each course which has 3 hours (lecture and practical) per week is **100 and less than 3 hours is 50 degrees and divided into 50% for written exam, and 50% for practical and oral exam.**



**Kafrelsheikh University**  
Faculty of Veterinary Medicine



#### **14. Program completion:**

- Successfully completion of the required courses and submission of a thesis.

**Program Coordinator**

**Dr. Mahmoud Gewailly**

**Head of Department**

**Prof. Dr. Mohammed El-Ghannam**



## Matching program ILOs with ARS - Matrix

Program ILOs	K&U (a)						I.S. (b)							P.P. (c)			G.T. (d)							
	1	2	3	4	5	6	1	2	3	4	5	6	7	1	2	3	1	2	3	4	5	6	7	8
K&U	1	2	3	4	5	6																		
I.S.							1	2	3	4	5	6	7											
P.P.														1	2	3								
G.T.																	1	6	3	2	5	4	7	8





Kafrelsheikh University

Faculty of Veterinary Medicine



## ARS for Master in Veterinary Medical Sciences (Anatomy and Embryology)

### 1) **Graduate attributes**

*The graduate should have the ability for:*

- 1) Perfect application of the basics and methodologies of scientific research in Anatomy and Embryology with the use of its different dissecting tools.
- 2) Application and use of analytical methods and using them in different anatomical information in the area of Anatomy and Embryology.
- 3) Application of anatomical knowledge and combine it with the relevant knowledge in related department.
- 4) Awareness with the ongoing problems and modern concepts in the area of Anatomy and Embryology.
- 5) Identification of the anatomical problems and finding professional solutions to it.
- 6) Mastering special scope in professional anatomical practice using suitable techniques, basics and best methods to serve the practice of Anatomy and Embryology.
- 7) Communication and leading work team in the dissecting room.
- 8) Decision making under different professional anatomical situations
- 9) Employ the available resources in the related department serving the field of Anatomy and Embryology efficiently.
- 10) Awareness with role in society development and community preservation
- 11) Commitment to act with integrity, credibility, and the rules of profession.
- 12) Self and life-long learning and progress in the anatomical and embryological research.

#### A) **Knowledge and understanding**

<b>Adopted ARS</b>	<b>NARS (Master)</b>
<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and</i>





		<i>accommodate the following:</i>
1)	The principles and theories in the field of Anatomy and Embryology of domestic animals and birds, and related fields.	Theories and principles in the field of specialization and related fields.
2)	The impact of anatomical practice on Veterinary profession in general and on surgical interference in special.	Mutual effect between professional practice and its impact on environment
3)	Scientific progress in the field of Anatomy and Embryology.	Scientific progress in the field of specialization
4)	The basics and principles of quality assurance in the area of Anatomy and Embryology.	Legal and ethical basics in professional practice in the field of specialization
5)	Basics and ethics of scientific anatomical and embryological research.	Principles and basics of quality assurance in the area of specialization
6)	Legal and ethical basics in the field of Anatomy and Embryology.	Basics and ethics of scientific research

## B) Intellectual skills

<b>Adopted ARS</b>		<b>NARS (Master)</b>
	<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Interpreting the obtained data in the master experimental work to get the ideal information and relate different knowledge with the research results.	Analysis and judgment of information in the field of specialization and analog to solve problems.
2)	Solving problems in Anatomy and Embryology even in rarity of resources through contact with professional anatomical experts.	Solving professional problems even in scarcity of data.
3)	Combining between anatomy and related knowledge to solve professional anatomical problems.	Relating between different knowledge to solve professional problems.
4)	Contributing to preparing research plan in Anatomy and Embryology and/ or write scientific article on an anatomical problem.	Preparing research plan in specialization and/ or writing scientific article on a research problem.
5)	Evaluating risks of professional practices in Anatomy and Embryology and their possible consequences.	Risk-assessment of professional practices in specialization.
6)	Planning for improvement of professional dissecting performance.	Planning for improvement of professional performance.
7)	Making professional decisions in a variety of	Taking professional decisions in a



professional anatomical cases with the ability to meet new challenges.	variety of professional contexts.
--	-----------------------------------

### C) Professional and practical skills

Adopted ARS		NARS (Master)	
<i>By the end of this program the graduate should understand and accommodate the following:</i>		<i>By the end of this program the graduate should understand and accommodate the following:</i>	
1)	Conducting basic and recent professional dissections, staining with advanced methods and recording the needed images for further evaluation.	Mastering basic and recent professional skills in the field of specialization	
2)	Writing, concluding and evaluating professional and conclusive anatomical reports.	Writing and evaluating professional reports.	
3)	Assessment of existing materials and methods in the field of Anatomy and Embryology.	Evaluating existing materials and methods in the area of specialization.	

### D) General and transferable skill

Adopted ARS		NARS (Master)	
<i>By the end of this program the graduate should understand and accommodate the following:</i>		<i>By the end of this program the graduate should understand and accommodate the following:</i>	
1)	Communicating effectively with his professors, collages and students	Effective communication.	
2)	Using information technology to serve the professional practice.	Utilizing information technology to serve development of professional practice.	
3)	Self-assessment and identify his personal educational needs.	Self-assessment and determination of personal educational needs.	
4)	Utilizing different sources of knowledge and information.	Using different resources to obtain knowledge and information.	
5)	Using appropriate attitude and rules towards teaching staff and colleagues and use evidence based evaluations.	Establishing rules and indicators for assessment of the performance of others.	
6)	Demonstrating interpersonal skills and team working ability.	Team working and leading a team in familiar professional contexts.	
7)	Managing time efficiently.	Efficient time management.	
8)	Demonstrating an ability to learn independently for	Self and continuous learning.	

## ثانيا :برامج الماجستير

### ١- مواصفات الخريج

- خريج برنامج الماجستير في أي تخصص يجب أن يكون قادرا على:
١. إجادة تطبيق أساسيات و منهجيات البحث العلمي واستخدام أدواته المختلفة
  ٢. تطبيق المنهج التحليلي واستخدامه في مجال التخصص
  ٣. تطبيق المعارف المتخصصة و دمجها مع المعارف ذات العلاقة في ممارسته المهنية
  ٤. إظهار وعيا بالمشاكل الجارية و الرؤى الحديثة في مجال التخصص
  ٥. تحديد المشكلات المهنية و إيجاد حلول لها
  ٦. إتقان نطاق مناسب من المهارات المهنية المتخصصة، واستخدام الوسائل التكنولوجية المناسبة بما يخدم ممارسته المهنية
  ٧. التواصل بفاعلية و القدرة على قيادة فرق العمل
  ٨. اتخاذ القرار في سياقات مهنية مختلفة
  ٩. توظيف الموارد المتاحة بما يحقق أعلى استفادة و الحفاظ عليها
  ١٠. إظهار الوعي بدوره في تنمية المجتمع و الحفاظ على البيئة في ضوء المتغيرات العالمية و الإقليمية
  ١١. التصرف بما يعكس الالتزام بالنزاهة و المصداقية و الالتزام بقواعد المهنة
  ١٢. تنمية ذاته أكاديميا و مهنيا و قادرا علي التعلم المستمر

### ١٢ - المعايير القياسية العامة

#### ١ المعرفة و الفهم

- بانتهاء دراسة برنامج الماجستير يجب ان يكون الخريج على فهم و دراية بكل من:
- أ- النظريات و الأساسيات المتعلقة بمجال التعلم وكذا في المجالات ذات العلاقة
  - ب- التأثير المتبادل بين الممارسة المهنية وانعكاسها علي البيئة
  - ت- التطورات العلمية في مجال التخصص
  - ث- المبادئ الأخلاقية و القانونية للممارسة المهنية في مجال التخصص
  - ج- مبادئ و أساسيات الجودة في الممارسة المهنية في مجال التخصص

## ح - أساسيات وأخلاقيات البحث العلمي

### ٢ المهارات الذهنية

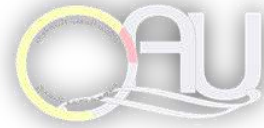
- بانتهاء دراسة برنامج الماجستير يجب ان يكون الخريج قادرا على:
- أ - تحليل و تقييم المعلومات في مجال التخصص و القياس عليها لحل المشاكل
  - ب - حل المشاكل المتخصصة مع عدم توافر بعض المعطيات
  - ت - الربط بين المعارف المختلفة لحل المشاكل المهنية
  - ث - إجراء دراسة بحثية و /أو كتابة دراسة علمية منهجية حول مشكلة بحثية
  - ج - تقييم المخاطر في الممارسات المهنية في مجال التخصص
  - ح - التخطيط لتطوير الأداء في مجال التخصص
  - خ - اتخاذ القرارات المهنية في سياقات مهنية متنوعة

### ٣ المهارات المهنية

- بانتهاء دراسة برنامج الماجستير يجب ان يكون الخريج قادرا على:
- أ - إتقان المهارات المهنية الأساسية و الحديثة في مجال التخصص
  - ب - كتابة و تقييم التقارير المهنية
  - ت - تقييم الطرق و الأدوات القائمة في مجال التخصص

### ٤ المهارات العامة و المنتقلة

- بانتهاء دراسة برنامج الماجستير يجب أن يكون الخريج قادرا على:
- أ - التواصل الفعال بأنواعه المختلفة
  - ب - استخدام تكنولوجيا المعلومات بما يخدم الممارسة المهنية
  - ت - التقييم الذاتي و تحديد احتياجاته التعليمية الشخصية
  - ث - استخدام المصادر المختلفة للحصول على المعلومات و المعارف
  - ج - وضع قواعد و مؤشرات تقييم أداء الآخرين
  - ح - العمل في فريق ، وقيادة فرق في سياقات مهنية مختلفة
  - خ - إدارة الوقت بكفاءة
  - د - التعلم الذاتي و المستمر



## Course specification (2021 / 2022)

### 1 - Basic Information:

Code number: --

Course title: Anatomy and Embryology – Basic Course

Academic Year: **Master of Veterinary Medicine Program**

Total teaching hours: 336 hrs.

Lectures: 144 hrs. (48 weeks- 3hrs/week)

Practical: 192 hrs. (48 weeks- 4hrs/week)

### 2 - OVERALL AIMS OF THE COURSE:

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

- Gain basic knowledge and detailed information about general anatomical characteristics of different systems and organs of the animal body and describe how they are developed.
- Know comparative anatomy of the different systems constructing the animals body and apply all anatomical information in the field of clinics via applied anatomy.
- Recognize the mechanism of embryogenesis and organogenesis, detect the abnormalities which may occur during these developmental stages.

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- a.1- Identify all the major structures of bones, muscles, joints, organs & viscera of the body.
- a.2- Clarify the anatomical landmarks via the applied anatomy.
- a.3- Recognize developmental aspects of the early stages of development, embryogenesis, organogenesis and fetal development, as well as the development of the extra embryonic membranes and placentation.
- a.4- Describe the anomalies and disturbance of organogenesis (teratology).
- a.5- Explain the major differences between mammals and avian embryogenesis.

#### 3-B: INTELLECTUAL SKILLS:

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

- b.1. Differentiate the specific organs in relation to the surface of the body.
- b.2. Interpret the cross-sectional anatomy of the animal body.
- b.3. Detect some clinical findings in relation to developmental basis
- b.4. Document independent research on the critical stages in the embryonic development and interpret the effects of common teratogens on development to complete assignments and able to make presentation to developmental stages in an effective manner.
- b.5. Distinguish the changes occurring during the different weeks and months of pregnancy among mammals.
- b.6. Diagnose by inspection, palpation and percussion, important bony landmarks, muscles, tendons, blood vessels, nerves and viscera on the living body.

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

- c.1- Investigate of the different regions of the animal body.
- c.2- Operate the anatomical techniques suitable for preserving each organ and / or structure.
- c.3- Manipulate subcutaneous positions of large nerves and vessels in relation to topographical anatomy.

- c.4- Discover the body cavity and sectioning of the head to investigate the internal organs.  
 c.5- Practice the skills of collecting, processing, cutting and sectioning of glass slides of different embryological specimens.  
 c.6- Demonstrate the different embryological structures in mammals and bird.  
 c.7- Apply embryological slides and models to different stages of prenatal & postnatal development.  
 c.8- Predict the common developmental defects in animal successfully.

### **3- D: GENERAL and transferable SKILLS:**

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

- d.1. Communicate effectively with his professors, and collages.  
 d.2. Utilize different sources of knowledge and information  
 d.3. Use information technology to serve the professional practice.  
 d.4. Manage time efficiently.

### **4 - COURSE CONTENTS:**

Topic	No. of hours		
	Lectures	Practical	Total
1. Osteology	12	16	28
2. Myology	6	20	26
3. Arthrology	6	20	26
4. Circulatory system	15	20	35
5. Respiratory system	12	12	24
6. Digestive system	18	28	46
7. Urogenital system	18	28	46
8. Nervous system and sense organs	18	16	34
9. Embryogenesis (from gametogenesis to placentation)	18	-	18
10. Organogenesis (development of body systems)	21	-	21
11. Dissection of the whole body and surface anatomy (head & neck, fore & hind limbs, thoracic & abdominal & pelvic wall)	-	32	32
<b>Total</b>	144	192	336

### **5- TEACHING & LEARNING METHODS:**

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
 Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library  
 Making individual reports

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures *	a1 to a5	b1 to b6		d1, d4
Practical sessions		b1 to b6	c1 to c8	d2, d4



<b>Self-Learning activities</b>				d2, d3, d4
<b>Distance Teaching and Learning</b>	a1 to a5	b1 to b6	c1 to c8	d1 to d4

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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 the academic year	At the end of the academic year	following the end of academic year	All over the academic year
7.c. Grades	50	20	20	10

6.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a5	b1 to b6		d4
Practical exams			c1 to c8	d2, d3
Oral exams	a1 to a5	b1 to b6		d1
Student activities	a1, a5,			d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

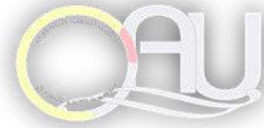
## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Essential Books

- Veterinary Anatomy of Domestic Mammals, König, H.E., Liebich, H. Manson Publishing Ltd; 5<sup>th</sup> Edition (2020).
- Essentials of Clinical Anatomy of the Equine Locomotor System. Jean-Marie Denoix. CRC Press; 1st edition (2019).
- Miller and Evan's Anatomy of the Dog. John W. Hermanson, Alexander de Lahunta. Saunders, 5th Edition (2019).
- Text book of Veterinary Anatomy. Dyce, K.M; Sack, W.O. and Wensing C.J.G. 5<sup>th</sup> Ed., (2017). Saunders Publ. Co.
- Nickel, R., Schummer, A., Seiferle, E. / Parey, P. (1987). The Anatomy of the Domestic animals part 3 (circulatory system), Berlin, Germany
- Getty, R (1975). Sisson and Grossman's The Anatomy of the Domestic Animals volume 1 & 2. 5th edition, W B Saunders.

### 8-2: Recommended books:

- Veterinary Medical Terminology. Dawn E. Christenson. Saunders, 3rd Edition (2019).
- Essentials of Clinical Anatomy of the Equine Locomotor System. Jean-Marie Denoix. CRC Press; 1st edition (2019).



- Saunders Veterinary Anatomy Flash Cards, Saunders; 1 Crds edition (2009).
- Avian Anatomy: Textbook and Colour Atlas. Horst E. Koenig, Ruediger Korbelt, Hans-Georg Liebich, Corinna Klupiec. 5m Publishing, 2nd edition (2016).
- An Illustrated Guide to Veterinary Medical Terminology, Janet Amundson Romich, Delmar Cengage Learning; 3rd edition (2008).
- Boyd, J.S. (1991): Color Atlas Of Clinical Anatomy Of The Dog and Cat. St. Louis, Mosby. Year book

### **8.3: Egyptian Knowledge Bank, Scientific websites and journals**

- The Egyptian Knowledge Bank: <https://www.ekb.eg/web/guest/home>
- World Association of Veterinary Anatomists
- Anatomia Histologia Embryologia
- Anatomical Record
- Journal of Anatomy
- Journal of Veterinary Anatomy
- Cells, tissues and organs
- Journal of Developmental Biology
- Journal of Morphology

**Course Coordinator**

**Head of Department**

**Dr. Mahmoud Gewailly**

**Prof. Mohammed El-Ghannam**



### Course Matrix for achievement of Intended Learning Outcomes

Topics	Hrs.	Knowledge & Understanding					Intellectual Skills						Practical & Professional Skills								General & Transferable Skills				
		1	2	3	4	5	1	2	3	4	5	6	1	2	3	4	5	6	7	8	1	2	3	4	
Osteology	28	✓	✓					✓				✓	✓								✓	✓	✓	✓	
Myology	26	✓						✓				✓	✓								✓	✓	✓	✓	
Arthrology	26	✓	✓					✓				✓	✓								✓	✓	✓	✓	
Circulatory system	35						✓	✓				✓				✓	✓				✓	✓	✓	✓	
Respiratory system	24	✓					✓	✓				✓					✓				✓	✓	✓	✓	
Digestive system	46	✓					✓	✓				✓					✓				✓	✓	✓	✓	
Urogenital system	46	✓					✓	✓				✓					✓				✓	✓	✓	✓	
Nervous system and sense organs	34						✓	✓				✓				✓	✓				✓	✓	✓	✓	
Embryogenesis	18			✓	✓	✓			✓	✓	✓							✓	✓	✓	✓	✓	✓	✓	✓
Organogenesis	21			✓	✓	✓			✓	✓	✓							✓	✓	✓	✓	✓	✓	✓	✓
Dissection of the whole body and surface anatomy	32		✓				✓	✓				✓	✓	✓	✓	✓	✓					✓	✓	✓	✓



## Course specification (2021 / 2022)

### 1 - Basic Information:

**Code number:** 101/1

**Course title:** Applied and surface Anatomy

**Academic Year:** Master of Veterinary Medicine Program

**Total teaching hours:** 192 hrs.

Lectures: 96 hrs.

Practical: 96 hrs.

### 2 - OVERALL AIMS OF THE COURSE:

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

- Gain basic knowledge and detailed information about the applied and surface anatomy in domestic animals with reference to the structures that can be examined through body surface in addition to the nerves associated topographically to surface anatomy.
- Establish advanced methods to use these anatomical information in clinics (medicine, surgery, obstetrics.....etc.).

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- a1- Define the anatomical terms used in nerve supply and surface anatomy.
- a2- Identify the different regions of the body in relation to the surface of the body.
- a3- Memorize the sites of the important bony landmarks.
- a4- Describe the normal areas of percussion and auscultation.

#### 3-B: INTELLECTUAL SKILLS:

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

- b1- Determine the specific organs in relation to the surface of the body.
- b2- Compare the areas of percussion and auscultation in different animal species.
- b3- Relate the surface arterial and nerve supply to the physiological functions.

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

- c1- Employ recent techniques and tools adopted to evaluate the different body region through surface anatomy knowledge on the living animals.
- c2- Apply techniques associated with determination of sites of bony landmarks and emergence of nerves.
- c3- Dissect skin and superficial nerve supply.
- c4- Detect the area for percussion, auscultation and the area of heart beat measure in animal successfully.

#### 3- D: GENERAL and transferable SKILLS:

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

- d.1. Communicate effectively with his professors, and collages.
- d.2. Utilize different sources of knowledge and information
- d.3. Use information technology to serve the professional practice.



d.4. Manage time efficiently.

#### 4 - COURSE CONTENTS:

Topic	No. of hours		
	Lectures	Practical	Total
11. Applied and surface anatomy of the head and neck	25	25	50
12. Applied and surface anatomy of the thorax	24	22	46
13. Applied and surface anatomy of the abdomen	22	24	46
14. Applied and surface anatomy of the limbs	25	25	50
<b>Total</b>	96	96	192

#### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library  
Making individual reports

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures *	a1 to a4	b1 to b3		d1, d4
Practical sessions		b1 to b3	c1 to c4	d2, d4
Self-Learning activities				d2, d3, d4
Distance Teaching and Learning	a1 to a4	b1 to b3	c1 to c4	d1 to d4

#### 6. METHODS FOR STUDENTS With limited capabilities:-

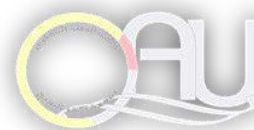
- No disabled students until now, but if present the methods are:-
- \*Activation of office hours.
- \*Discussion with them during practical session.

#### 7. STUDENT ASSESSMENT:-

7.a. Used methods	Written examination	oral examination	Practical examination	Activities
7.b. Time	At the end of the academic year	At the end of the academic year	following the end of academic year	Allover the academic year
7.c. Grades	50	20	20	10

6.1. Methods

7. Student Assessment



	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a4	b1 to b3		d4
Practical exams			c1 to c4	d2, d3
Oral exams	a1 to a4	b1 to b3		d1
Student activities	a1, a4,			d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Essential Books

- Veterinary Anatomy of Domestic Mammals, König, H.E., Liebich, H. Manson Publishing Ltd; 5<sup>th</sup> Edition (2020).
- Essentials of Clinical Anatomy of the Equine Locomotor System. Jean-Marie Denoix. CRC Press; 1st edition (2019).
- Miller and Evan's Anatomy of the Dog. John W. Hermanson, Alexander de Lahunta. Saunders, 5th Edition (2019).
- Text book of Veterinary Anatomy. Dyce, K.M; Sack, W.O. and Wensing C.J.G. 5<sup>th</sup> Ed., (2017). Saunders Publ. Co.
- Nickel, R., Schummer, A., Seiferle, E. / Parey, P. (1987). The Anatomy of the Domestic animals part 3 (circulatory system), Berlin, Germany
- Getty, R (1975). *Sisson and Grossman's The Anatomy of the Domestic Animals* volume 1& 2. 5th edition, W B Saunders.

### 8-2: Recommended books:

- Veterinary Medical Terminology. Dawn E. Christenson. Saunders, 3rd Edition (2019).
- Essentials of Clinical Anatomy of the Equine Locomotor System. Jean-Marie Denoix. CRC Press; 1st edition (2019).
- Saunders Veterinary Anatomy Flash Cards, Saunders; 1 Crds edition (2009).
- Avian Anatomy: Textbook and Colour Atlas. Horst E. Koenig, Ruediger Korbel, Hans-Georg Liebich, Corinna Klupiec. 5m Publishing, 2nd edition (2016).
- An Illustrated Guide to Veterinary Medical Terminology, Janet Amundson Romich, Delmar Cengage Learning; 3rd edition (2008).
- Boyd, J.S. (1991): Color Atlas Of Clinical Anatomy Of The Dog and Cat. St. Louis, Mosby. Year book

### 8.3: Egyptian Knowledge Bank, Scientific websites and journals

- The Egyptian Knowledge Bank: <https://www.ekb.eg/web/guest/home>
- World Association of Veterinary Anatomists
- Anatomia Histologia Embryologia
- Anatomical Record
- Journal of Anatomy
- Journal of Veterinary Anatomy



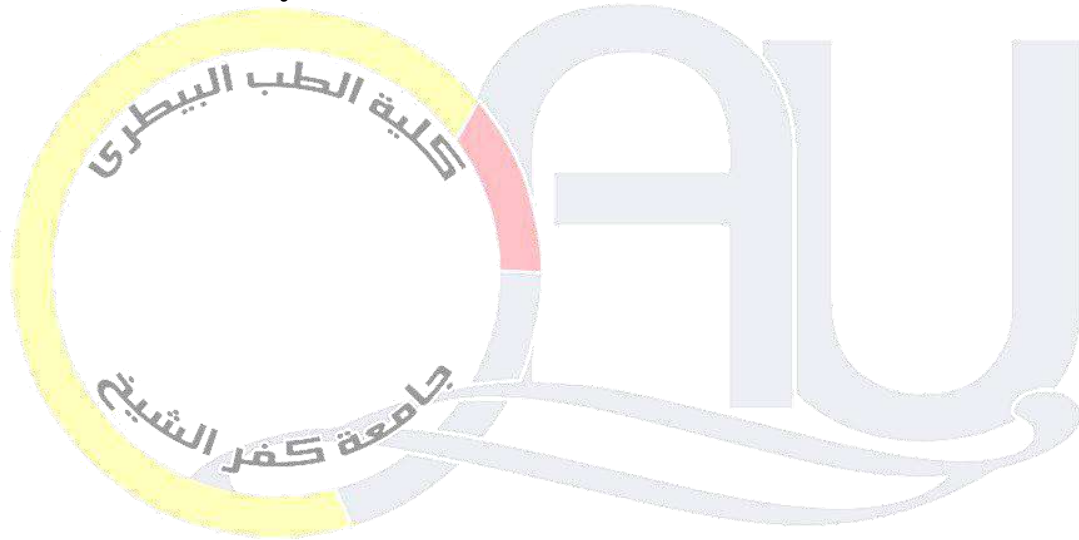
- Cells, tissues and organs
- Journal of Developmental Biology
- Journall of Morphology

**Course Coordinator**

**Head of Department**

**Dr. Mahmoud Gewailly**

**Prof. Mohammed El-Ghannam**





### Course Matrix for achievement of Intended Learning Outcomes

Topics	Hrs.	Knowledge & Understanding				Intellectual Skills			Practical & Professional Skills				General & Transferable Skills			
		1	2	3	4	1	2	3	1	2	3	4	1	2	3	4
Applied and surface anatomy of the head and neck	50	✓	✓	✓		✓		✓	✓	✓	✓		✓	✓	✓	✓
Applied and surface anatomy of the thorax	46	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Applied and surface anatomy of the abdomen	46	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Applied and surface anatomy of the limbs	50	✓	✓	✓		✓		✓	✓	✓	✓		✓	✓	✓	✓



## Course specification (2021 / 2022)

### 1 - Basic Information:

**Code number:** 102/1

**Course title:** Anatomical techniques and Superficial Anatomy

**Academic Year:** Master of Veterinary Medicine Program

**Total teaching hours:** 192 hrs.

Lectures: 96 hrs.

Practical: 96 hrs.

### 2 - OVERALL AIMS OF THE COURSE:

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

- Gain basic knowledge and detailed information about anatomical techniques and superficial anatomy in domestic animals.
- Establish advanced methods to use these anatomical information in clinics (medicine, surgery, obstetrics.....etc).

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- a1- Describe the different body regions in the domestic animals.
- a2- Be aware with the suitable site for nerve block and epidural anesthesia.
- a3- Identify the sites of the important bony landmarks which used as a guide for surgical operations.
- a4- Know the different anatomical techniques used in animal dissection and preservation of carcass and different body organs.

#### 3-B: INTELLECTUAL SKILLS:

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

- b1- Interpret the problems of casting and dissection and how to approach and deal with them.
- b2- Construct the appropriate technique for preservation and preparation of carcass and organs.
- b3- Analyze the photographs of recent techniques (radiograph, C.T. ultrasonography) for better understanding of applied anatomy.
- b4- Determine the suitable sites for anesthesia or nerve block.
- b.5 Analyze the anatomical features of all body organs and superficial lymph nodes to aid in future surgery and medicine such as (endoscopy, cesarian section, laparotomy, castration).

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

- c1- Dissect the limbs, head, wall of the thorax, and abdomen, pelvis, the para lumbar fossa and the perineum and site of the nerve block of each region.
- c2- Employ recent techniques and tools adopted to evaluate the different body region through anatomical techniques and superficial anatomy knowledge on the living animals.
- c3- Apply techniques associated with determination of sites of bony landmarks, superficial lymph nodes and emergence of nerves.
- c4- Demonstrate laboratory skills related to determination of the sites of, paravertebral and epidural anesthesia in the animal body.

- c5- Discover the normal and abnormal anatomical features of paranasal sinuses and the urogenital organs in domestic animals by palpation per rectum.
- c6- Examine the gravid uterus for cesarean section in the cow and to make the uterine incision where it can be sutured after contraction.
- c7- Investigate the performing of the gastrostomy on the small domestic animals with proper precautions regarding the blood and nerve supply.

### 3- D: GENERAL and transferable SKILLS:

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

- d.1. Communicate effectively with his professors, and collages.
- d.2. Utilize different sources of knowledge and information
- d.3. Use information technology to serve the professional practice.
- d.4. Manage time efficiently

### 4 - COURSE CONTENTS:

Topic	No. of hours		
	Lectures	Practical	Total
1. Anatomical techniques	25	25	50
2. Superficial anatomy of head and neck	24	22	46
3. Superficial anatomy of trunk	22	24	46
4. Superficial anatomy of limbs	25	25	50
<b>Total</b>	96	96	192

### 5- TEACHING & LEARNING METHODS:

**\* Advanced lectures:**

- PowerPoint presentations including videos, and whiteboard
- Discussion and brain storming

**\* Practical sessions:**

**\* Self-Learning activities:**

- Mini reviews from the web and the library
- Making individual reports

**\* Distance Teaching and Learning:**

Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

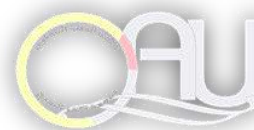
Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a4	b1 to b5		d1, d4
Practical sessions		b1 to b5	c1 to c7	d2, d4
Self-Learning activities				d2, d3, d4
Distance Teaching and Learning	a1 to a4	b1 to b5	c1 to c7	d1 to d4

### 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 the academic year	At the end of the academic year	following the end of the academic year	Allover the academic year
7.c. Grades	50	20	20	10

7. Student Assessment				
Intended Learning Outcomes Covered				
6.1. Methods	KU	IS	PPS	GTS
Written exams	a1 to a4	b1 to b5		d4
Practical exams			c1 to c7	d2, d3
Oral exams	a1 to a4	b1 to b5		d1
Student activities	a1, a4,			d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Essential Books

- Veterinary Anatomy of Domestic Mammals, König, H.E., Liebich, H. Manson Publishing Ltd; 5<sup>th</sup> Edition (2020).
- Essentials of Clinical Anatomy of the Equine Locomotor System. Jean-Marie Denoix. CRC Press; 1st edition (2019).
- Miller and Evan's Anatomy of the Dog. John W. Hermanson, Alexander de Lahunta. Saunders, 5th Edition (2019).
- Text book of Veterinary Anatomy. Dyce, K.M; Sack, W.O. and Wensing C.J.G. 5<sup>th</sup> Ed., (2017). Saunders Publ. Co.
- Nickel, R., Schummer, A., Seiferle, E. / Parey, P. (1987). The Anatomy of the Domestic animals part 3 (circulatory system), Berlin, Germany
- Getty, R (1975). Sisson and Grossman's The Anatomy of the Domestic Animals volume 1 & 2. 5th edition, W B Saunders.

### 8-2: Recommended books:

- Veterinary Medical Terminology. Dawn E. Christenson. Saunders, 3rd Edition (2019).
- Essentials of Clinical Anatomy of the Equine Locomotor System. Jean-Marie Denoix. CRC Press; 1st edition (2019).
- Saunders Veterinary Anatomy Flash Cards, Saunders; 1 Crds edition (2009).
- Avian Anatomy: Textbook and Colour Atlas. Horst E. Koenig, Ruediger Korbel, Hans-Georg Liebich, Corinna Klupiec. 5m Publishing, 2nd edition (2016).
- An Illustrated Guide to Veterinary Medical Terminology, Janet Amundson Romich, Delmar Cengage Learning; 3rd edition (2008).



- Boyd, J.S. (1991): Color Atlas Of Clinical Anatomy Of The Dog and Cat. St. Louis, Mosby. Year book

### **8.3: Egyptian Knowledge Bank, Scientific websites and journals**

- The Egyptian Knowledge Bank: <https://www.ekb.eg/web/guest/home>
- World Association of Veterinary Anatomists
- Anatomia Histologia Embryologia
- Anatomical Record
- Journal of Anatomy
- Journal of Veterinary Anatomy
- Cells, tissues and organs
- Journal of Developmental Biology
- Journall of Morphology
- Advances in Veterinary Anatomy Journal
- <http://vanat.cvm.umn.edu/>
- <http://www.vet.cornell.edu/oed/horsedissection/search.asp>
- <http://bibliodyssey.blogspot.com/2007/10/handbook-of-animal-anatomy.html>
- [www.ivis.com](http://www.ivis.com)
- American Veterinary Medical Association.
- PubMed

**Course Coordinator**

**Head of Department**

**Dr. Mahmoud Gewailly**

**Prof. Mohammed El-Ghannam**



### Course Matrix for achievement of Intended Learning Outcomes

Topics	Hr	Knowledge & Understanding				Intellectual Skills					Practical & Professional Skills							General & Transferable Skills			
		1	2	3	4	1	2	3	4	5	1	2	3	4	5	6	7	1	2	3	4
Anatomical techniques	50				✓	✓	✓	✓			✓	✓	✓					✓	✓	✓	✓
Superficial anatomy of head and neck	46	✓	✓	✓				✓	✓	✓	✓	✓	✓	✓				✓	✓	✓	✓
Superficial anatomy of trunk	46	✓	✓	✓				✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓
Superficial anatomy of limbs	50	✓	✓	✓				✓	✓	✓	✓	✓	✓					✓	✓	✓	✓



## Course specification (2021 / 2022)

### 1 - Basic Information:

**Code number:** 103/1

**Course title:** Osteology and Arthrology

**Academic Year:** Master of Veterinary Medicine Program

**Total teaching hours:** 192 hrs.

Lectures: 96 hrs.

Practical: 96 hrs.

### 2 - OVERALL AIMS OF THE COURSE:

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

- Gain basic knowledge and detailed information about structure and types of bones and joints in domestic animals.
- Establish advanced methods to use these anatomical information in clinics (medicine, surgery, etc.).

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- a1- Explain the structure of bones of domestic animals.
- a2- Identify the differences in bones of different domestic animals.
- a3- Contrast the different anatomical features and types of joints in different domestic animals.
- a4- Describe the surgical approach for each joint and the best sites for injection.

#### 3-B: INTELLECTUAL SKILLS:

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

- b1- Interpret the problems of joint dislocation and bones malformations.
- b2- Construct the appropriate technique for joints dissection and bone preparation.
- b3- Differentiate between various animal species depending upon differences in bone and joints.
- b4- Determine the synovial bursa in limb joints for future treatment of arthritis.

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

- c1- Employ recent techniques and tools adopted to evaluate the normal and abnormal structure of bones and joints.
- c2- Apply techniques associated with determination of synovial bursae and have the skill to inject the joints.
- c3- Palpate and identify the skeletal prominence of the regions in different animals that aid the diagnosis of the fracture and dislocation.



### 3- D: GENERAL and transferable SKILLS:

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

- d.1. Communicate effectively with his professors, and collages.
- d.2. Utilize different sources of knowledge and information
- d.3. Use information technology to serve the professional practice.
- d.4. Manage time efficiently.

### 4 - COURSE CONTENTS:

Topic	No. of hours		
	Lectures	Practical	Total
1. General Osteology and Arthrology	25	25	50
2. Bones and joints of the thoracic limb	24	22	46
3. Bones and joints of the pelvic limb	22	24	46
4. Bones and joints of the axial skeleton	25	25	50
<b>Total</b>	96	96	192

### 5- TEACHING & LEARNING METHODS:

**\* Advanced lectures:**

- PowerPoint presentations including videos, and whiteboard
- Discussion and brain storming

**\* Practical sessions:**

**\* Self-Learning activities:**

- Mini reviews from the web and the library
- Making individual reports

**\* Distance Teaching and Learning:**

Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a4	b1 to b4		d1, d4
Practical sessions		b1 to b4	c1 to c3	d2, d4
Self-Learning activities				d2, d3, d4
Distance Teaching and Learning	a1 to a4	b1 to b4	c1 to c3	d1 to d4

### 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 the academic year	At the end of the academic year	following the end of academic year	Allover the academic year
7.c. Grades	50	20	20	10

6.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a4	b1 to b4		d4
Practical exams			c1 to c3	d2, d3
Oral exams	a1 to a4	b1 to b4		d1
Student activities	a1, a4,			d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Essential Books

- Veterinary Anatomy of Domestic Mammals, König, H.E., Liebich, H. Manson Publishing Ltd; 5<sup>th</sup> Edition (2020).
- Essentials of Clinical Anatomy of the Equine Locomotor System. Jean-Marie Denoix. CRC Press; 1st edition (2019).
- Miller and Evan's Anatomy of the Dog. John W. Hermanson, Alexander de Lahunta. Saunders, 5th Edition (2019).
- Text book of Veterinary Anatomy. Dyce, K.M; Sack, W.O. and Wensing C.J.G. 5<sup>th</sup> Ed., (2017). Saunders Publ. Co.
- Nickel, R., Schummer, A., Seiferle, E. / Parey, P. (1987). The Anatomy of the Domestic animals part 3 (circulatory system), Berlin, Germany
- Getty, R (1975). Sisson and Grossman's The Anatomy of the Domestic Animals volume 1& 2. 5th edition, W B Saunders.

### 8-2: Recommended books:

- Veterinary Medical Terminology. Dawn E. Christenson. Saunders, 3rd Edition (2019).



- Essentials of Clinical Anatomy of the Equine Locomotor System. Jean-Marie Denoix. CRC Press; 1st edition (2019).
- Saunders Veterinary Anatomy Flash Cards, Saunders; 1 Crds edition (2009).
- Avian Anatomy: Textbook and Colour Atlas. Horst E. Koenig, Ruediger Korbel, Hans-Georg Liebich, Corinna Klupiec. 5m Publishing, 2nd edition (2016).
- An Illustrated Guide to Veterinary Medical Terminology, Janet Amundson Romich, Delmar Cengage Learning; 3rd edition (2008).
- Boyd, J.S. (1991): Color Atlas Of Clinical Anatomy Of The Dog and Cat. St. Louis, Mosby. Year book

### **8.3: Egyptian Knowledge Bank, Scientific websites and jouranls**

- The Egyptian Knowledge Bank: <https://www.ekb.eg/web/guest/home>
- World Association of Veterinary Anatomists
- Anatomia Histologia Embryologia
- Anatomical Record
- Journal of Anatomy
- Journal of Veterinary Anatomy
- Cells, tissues and organs
- Journal of Developmental Biology
- Journall of Morphology
- Advances in Veterinary Anatomy Journal
- <http://vanat.cvm.umn.edu/>
- <http://www.vet.cornell.edu/oed/horsedissection/search.asp>
- <http://bibliodyssey.blogspot.com/2007/10/handbook-of-animal-anatomy.html>
- [www.ivis.com](http://www.ivis.com)
- American Veterinary Medical Association.
- PubMed

**Course Coordinator**

**Head of Department**

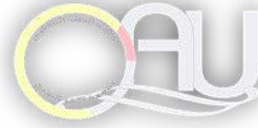
**Dr. Mahmoud Gewailly**

**Prof. Mohammed El-Ghannam**

### Course Matrix for achievement of Intended Learning Outcomes

Topics	Hr	Knowledge & Understanding				Intellectual Skills				Practical & Professional Skills			General & Transferable Skills			
		1	2	3	4	1	2	3	4	1	2	3	1	2	3	4
General		✓		✓			✓			✓			✓	✓	✓	✓
Osteology and Arthrology	50															
Bones and joints of the thoracic limb	46		✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓
Bones and joints of the pelvic limb	46					✓		✓	✓	✓	✓	✓	✓	✓	✓	✓
Bones and joints of the axial skeleton	50					✓		✓		✓	✓	✓	✓	✓	✓	✓





## Course specification (2021 / 2022)

### 1 - Basic Information:

**Code number:** 104/1

**Course title:** Comparative Digestive System

**Academic Year:** Master of Veterinary Medicine Program

**Total teaching hours:** 192 hrs.

Lectures: 96 hrs.

Practical: 96 hrs.

### 2 - OVERALL AIMS OF THE COURSE:

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

- Gain basic knowledge and detailed information about structure and components of digestive system in domestic animals and how these organs adapted with their prospective function (structure-function relationship).
- Identify the comparative features of digestive organs of different animal species.
- Establish advanced methods to use these anatomical information in clinics (medicine, surgery, etc.).

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- a1- Outline the structure of digestive system forming organs in domestic animals.
- a2- Identify the main comparative features in the different organs of the digestive system among different domestic animals.
- a3- Recognize how these organs adapted with their prospective function (structure-function relationship).
- a4- Describe how can palpate organs which contact with abdominal wall in live animals.

#### 3-B: INTELLECTUAL SKILLS:

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

- b1- Analyze the anatomical changes in digestive tract and glands in relation to age of animals.
- b2- Construct the appropriate technique for external palpation of digestive organs which lie in contact to body wall and floor.
- b3- Differentiate between different parts of the digestive system in different animal species.
- b4- Recognize the anatomical basics about digestive system to be used in future in surgical interference such as using stomach tube or applying rumenotomy.

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:



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

- c1- Employ recent techniques and tools adopted to evaluate the normal and abnormal structure of digestive system.
- c2- Implement surface anatomy of the digestive tract on the living animals and in approaching some field cases.
- c3- Dissect the abdominal viscera, the wall of the abdomen, and pelvis and recognize the comparative anatomy of the digestive organs.

**3- D: GENERAL and transferable SKILLS:**

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

- d.1. Communicate effectively with his professors, and collages.
- d.2. Utilize different sources of knowledge and information
- d.3. Use information technology to serve the professional practice.
- d.4. Manage time efficiently.

**4 - COURSE CONTENTS:**

Topic	No. of hours		
	Lectures	Practical	Total
1. Oral cavity and pharynx	30	30	60
2. Abdominal cavity and esophagus	18	18	36
3. Monolocular Stomach, Ruminant Stomach	18	18	36
4. Intestine, Liver, pancreas and salivary glands	30	30	60
<b>Total</b>	96	96	192

**5- TEACHING & LEARNING METHODS:**

\* **Advanced lectures:**

- PowerPoint presentations including videos, and whiteboard
- Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:**

- Mini reviews from the web and the library
- Making individual reports

\* **Distance Teaching and Learning:**

Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.



Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a4	b1 to b4		d1, d4
Practical sessions		b1 to b4	c1 to c3	d2, d4
Self-Learning activities				d2, d3, d4
Distance Teaching and Learning	a1 to a4	b1 to b4	c1 to c3	d1 to d4

### 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 the academic year	At the end of the academic year	following the end of academic year	Allover the academic year
7.c. Grades	50	20	20	10

6.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a4	b1 to b4		d4
Practical exams			c1 to c3	d2, d3
Oral exams	a1 to a4	b1 to b4		d1
Student activities	a1, a4,			d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

### 8. LEARNING AND REFERENCE MATERIALS:

#### 8-1: Essential Books



- Veterinary Anatomy of Domestic Mammals, König, H.E., Liebich, H. Manson Publishing Ltd; 5<sup>th</sup> Edition (2020).
- Essentials of Clinical Anatomy of the Equine Locomotor System. Jean-Marie Denoix. CRC Press; 1st edition (2019).
- Miller and Evan's Anatomy of the Dog. John W. Hermanson, Alexander de Lahunta. Saunders, 5th Edition (2019).
- Text book of Veterinary Anatomy. Dyce, K.M; Sack, W.O. and Wensing C.J.G. 5<sup>th</sup> Ed., (2017). Saunders Publ. Co.
- Nickel, R., Schummer, A., Seiferle, E. / Parey, P. (1987). The Anatomy of the Domestic animals part 3 (circulatory system), Berlin, Germany
- Getty, R (1975). Sisson and Grossman's The Anatomy of the Domestic Animals volume 1& 2. 5th edition, W B Saunders.

#### **8-2: Recommended books:**

- Veterinary Medical Terminology. Dawn E. Christenson. Saunders, 3rd Edition (2019).
- Essentials of Clinical Anatomy of the Equine Locomotor System. Jean-Marie Denoix. CRC Press; 1st edition (2019).
- Saunders Veterinary Anatomy Flash Cards, Saunders; 1 Crds edition (2009).
- Avian Anatomy: Textbook and Colour Atlas. Horst E. Koenig, Ruediger Korbel, Hans-Georg Liebich, Corinna Klupiec. 5m Publishing, 2nd edition (2016).
- An Illustrated Guide to Veterinary Medical Terminology, Janet Amundson Romich, Delmar Cengage Learning; 3rd edition (2008).
- Boyd, J.S. (1991): Color Atlas Of Clinical Anatomy Of The Dog and Cat. St. Louis, Mosby. Year book

#### **8.3: Egyptian Knowledge Bank, Scientific websites and jouranls**

- The Egyptian Knowledge Bank: <https://www.ekb.eg/web/guest/home>
- World Association of Veterinary Anatomists
- Anatomia Histologia Embryologia
- Anatomical Record
- Journal of Anatomy
- Journal of Veterinary Anatomy
- Cells, tissues and organs
- Journal of Developmental Biology
- Journal of Morphology
- Advances in Veterinary Anatomy Journal
- <http://vanat.cvm.umn.edu/>
- <http://www.vet.cornell.edu/oed/horsedissection/search.asp>



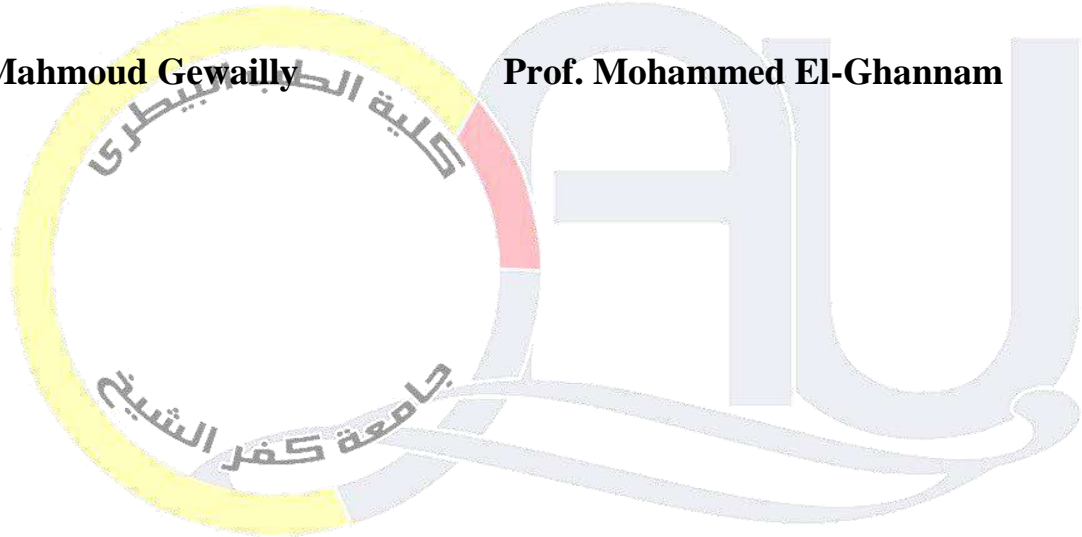
- <http://bibliodyssey.blogspot.com/2007/10/handbook-of-animal-anatomy.html>
- [www.ivis.com](http://www.ivis.com)
- American Veterinary Medical Association.
- PubMed

**Course Coordinator**

**Head of Department**

**Dr. Mahmoud Gewailly**

**Prof. Mohammed El-Ghannam**







**Kafrelsheikh University**  
Faculty of Veterinary Medicine



**Kafrelsheikh University**

**Faculty of Veterinary Medicine**

**Department of Hygiene and Preventive Medicine**

# **Program Specification for Master Degree (2021 - 2022)**

**Program Title:**

**Master of The Veterinary Science  
(Animal and Poultry Behavior and  
Management)**



### **A- Administrative information:**

- 1- **Awarding Body: Kafrelsheikh University**
- 2- **Teaching Body:** Faculty of Veterinary Medicine
- 3- **Department(s) responsible: Hygiene and Preventive Med.**
- 4- **Programme Title: Animal and Poultry Behavior and Management**
- 5- **Final award:** Master Degree
- 6- **Registration period: 2-4 years**
- 7- **Program Coordinator: Prof. Dr. Tarek Mahmoud Mousa**

### **B- Professional information:**

#### **1-Educational aims of the Program:**

- Provides graduates the opportunity to develop communication and teaching skills and the experience of scientific research.
- Develops the ability of graduate to engage critically with recent techniques and tools in the field of Animal, Poultry and Fish Behavior and Management.
- Supplies the graduates with the most recent knowledge in science and technological applications in Animal, Poultry and Fish Animal, Poultry and Fish Behavior and Management.
- Demonstrates an awareness of the connections between disciplines and develop the ability to engage critically with scientific literature and to critically review and present their own research data for the protection and promotion of the Animal, Poultry and Fish Behavior and Management.
- Allows graduates to develop practical research project.
- Enables graduates to achieve competency in modern Animal and Poultry Behavior and Management technology.

#### **2- Academic standards:**

**Academic reference standards (ARS) adopted by the faculty committee No 1 (14-9-2014)**

#### **3-Graduate attributes:**

*Upon successful completion of the program, the graduate has the ability for:*

- 1) Perfect application of scientific research basics and methodologies in Animal, Poultry and Fish Behavior and Management, and using its various tools.
- 2) Application and use of analytical methodology in the field of Animal, Poultry and Fish Behavior and Management.
- 3) Application of gained specialized knowledge and integrating them with the relevant knowledge in Animal, Poultry and Fish Behavior and Management.
- 4) Awareness with current problems and recent visions in Animal, Poultry





and Fish Behavior and Management.

- 5) Identification of animal, poultry and fish behavioral and managerial problems suggesting suitable and economic solutions.
- 6) Mastering an appropriate scale of specific professional skills, and using suitable technological means to serve professional practice.
- 7) Effective communication with students, animal breeders and owners of animal, poultry and fish farms and leading work team.
- 8) Decision making in various animal and poultry production contexts.
- 9) Employment of the available resources efficiently to improve animal, poultry and fish performance and solving their behavioral problems.
- 10) Awareness with his role in society development and to understand animal, poultry and fish behavior and their proper management to achieve high productivity as well as animal welfare, with preservation of a clean environment..
- 11) Reflection of the commitment to act with integrity, credibility and the rules of profession.
- 12) Academic and professional self- development and ability for life-long learning and progress.

#### **4-Programme outcomes:**

##### **a) Knowledge and understanding**

*By the end of this program the graduate should be able to:*

- a.1. Explain different theories and principles in the field of animal, poultry and fish behavior and management and related fields.
- a.2. Identify the impact of different management systems on animal, poultry and fish behavior and performance and its reflection on the environment
- a.3. Distinguish the scientific developments in the field of animal, poultry and fish behavior and management.
- a.4. Demonstrate the ethical and legal principles for professional practice in the field of animal, poultry and fish behavior and management.
- a.5. Realize the principles and basics of quality assurance in the area of animal, poultry and fish behavior and management.
- a.6. Apply the basics and ethics of scientific research in the field of animal, poultry and fish behavior and management
- a.7. Realize the legal and ethical basics in the field of animal, poultry and fish behavior and management

##### **b) Intellectual skills**

*By the end of this program the graduate should be able to:*

- b.1.** Analyze and judge the methods of behavior measuring, information collected from animal, poultry and fish farms on the basis of behavioral and



performance indices.

- b.2. Determine an accurate approach to behavioral and managerial problems and find the solution based on the available data.
- b.3. Relate between the various sources of knowledge to solve abnormal animal behavior and management problems in different animal, poultry and fish systems.
- b.4. Develop a research proposal in the field of animal, poultry and fish behavior and management and/ or write scientific article on a research problem.
- b.5. Assess risks of professional practices in animal, poultry and fish behavior and management and their possible consequences.
- b.6. Plan to maximize welfare as well as performance of animal, poultry and fish in different management systems.
- b.7. Make professional decisions and suggestions in dealing with behavioral and productive problems in animals, poultry and fish.

c) **Professional and practical skills**

*By the end of this program the graduate should be able to:*

- c.1. Master the fundamental and recent professional skills in the field of animal, poultry and fish behavior and management.
- c.2. Write and assess professional and conclusive report about the animal, poultry and fish behavior and management.
- c.3. Assess the existing methods and tools in the field of animal, poultry and fish behavior and management.
- c.4. Plan a research project in the field of animal, poultry and fish behavior and management with a consideration to the technical, ethical and safety issues and associated costs..
- c.5. Perform essential skills that underpin techniques associated with experimental design, collecting, summarizing, organizing, presenting and analyzing data

d) **General and transferable skill**

*By the end of this program, the graduate should be able to:*

- d.1. Communicate effectively with his professors, collages and animal owner(s).
- d.2. Utilize different sources of knowledge and information.
- d.3. Assess him-self and identify his personal educational needs.
- d.4. Demonstrate interpersonal skills and team working ability
- d.5. Demonstrate an ability to learn independently for a career of lifelong learning.
- d.6. Use information technology to serve the professional practice.
- d.7. Manage time efficiently.
- d.8. Set tools and indicators for assessment of the performance of others.



## 5-Program structure:

a) Program duration (years): Master degree from 2-4 years

b) Premaster courses – at least one academic year

Course	Lecture (hours/week)	Practical (hours/week)
Fundamental (core) course	3	4
Research methodology	1	3
2-5 Elective Courses Offered by other departments and are selected from the list below according to thesis topic (10-12 hours)	5-6	5-6

c) Master of Veterinary Medicine Thesis (at least one academic year)

- All master-degree students should prepare a master thesis.
- The department and the ethical committees must approve the protocol of the research.
- The thesis should include a review part and a research part.
- The thesis is supervised by one or more senior staff members of the department responsible for the program and may include other specialties according to the nature of the research.
- The thesis should be evaluated and approved by a committee of three professors including one of the supervisors and an external professor.

*A number of subsidiary courses are selected from the following list according to the title of the research work:*

	Code	Course title	No of hours/week	
			Lecture	Practical Lab
Anatomy and embryology	101/1	<b>1- Applied anatomy</b>	2	2
	102/1	<b>2- Anatomical techniques and surface anatomy</b>	2	2
	103/1	<b>3- Osteology and arthrology</b>	2	2
	104/1	<b>4- Comparative digestive system</b>	2	2



	105/1	<b>5- Comparative uro-genital system</b>	2	2
	106/1	<b>6-Comparative respiratory system</b>	2	2
	107/1	<b>7- Comparative cardiovascular system</b>	2	2
	108/1	<b>8- Comparative nervous system and endocrine glands</b>	2	2
	109/1	<b>9- General and special embryology</b>	2	2
	110/1	<b>10- Avian anatomy</b>	1	2
<b>Histology</b>	111/1	<b>11- cytology and cytochemistry</b>	1	2
	112/1	<b>12- general histology</b>	2	2
	113/1	<b>13- Histology and histochemistry of blood, lymph and cardiovascular system.</b>	1	1
	114/1	<b>14- Comparative histology and histochemistry of body muscles, heart and blood vessels</b>	1	1
	115/1	<b>15- Comparative histology and histochemistry of respiratory system</b>	1	1
	116/1	<b>16-Comparative histology and histochemistry of digestive system</b>	2	2
	117/1	<b>17- Comparative histology and histochemistry of uro-genital system</b>	2	2
	118/1	<b>18- Comparative histology and histochemistry of nervous and endocrine systems</b>	2	2
	119/1	<b>19- Histology and histochemistry of special sensors</b>	1	2
	120/1	<b>20-Histology and histochemistry of skin, hooves, claws and Nails</b>	2	2
	121/1	<b>21- Avian histology</b>	2	2
122/1	<b>22- Fish histology</b>	1	2	
<b>Physiology</b>	123/1	<b>23- Physiology of mammalian endocrine and reproduction</b>	2	2
	124/1	<b>24- poultry physiology (advanced)</b>	2	2
	125/1	<b>25- physiology of muscle and nerve</b>	1	2
	126/1	<b>26- physiology of ruminants</b>	2	2
	127/1	<b>27- physiology of environment, adaptation and cell</b>	2	2
	128/1	<b>28- physiology of blood</b>	2	2
	129/1	<b>29- physiology of digestion, metabolism and energy</b>	2	2
	130/1	<b>30- Physiology in pollution</b>	1	2
	131/1	<b>31- Radioactive isotopes and biological uses</b>	2	2
	132/1	<b>32- Physiology of heights</b>	1	1
	133/1	<b>33-Fish physiology.</b>	1	2



<b>Biochemistry</b>	134/1	<b>34- Basics of biochemistry</b>	2	3
	135/1	<b>35- Metabolism</b>	2	2
	136/1	<b>36- Biochemistry of tissue and body fluids .</b>	2	2
	137/1	<b>37- Biochemistry of hormones and reproduction</b>	2	2
	138/1	<b>38- Feeding biochemistry</b>	2	2
	139/1	<b>39- Clinical biochemistry</b>	2	2
	140/1	<b>40- Avian biochemistry</b>	2	2
	141/1	<b>41- Microbial biochemistry</b>	2	2
	142/1	<b>42- Biochemistry of radiation</b>	1	2
143/1	<b>43- Fish biochemistry</b>			
<b>Nutrition and clinical nutrition</b>	152/1	<b>52- Basics of animal nutrition</b>	2	2
	153/1	<b>53- feedstuff</b>	2	2
	154/1	<b>54- nutrition of farm animals and fish specific courses in ( cattle and buffalo nutrition – sheep and goat nutrition – camel nutrition- equine nutrition – fish nutrition)</b>	2	2
	155/1	<b>55- poultry and rabbit nutrition( advanced)</b>	2	2
	156/1	<b>56- wild animal nutrition</b>	1	2
	157/1	<b>57- laboratory animal nutrition</b>	1	2
	158/1	<b>58- feed additives</b>	1	2
	159/1	<b>59- feedstuff analysis</b>	2	2
	160/1	<b>60- Quality control of feed and feed factories</b>	2	2
	161/1	<b>61- Clinical nutrition and malnutrition</b>	2	2
	162/1	<b>62- Fish nutrition</b>	1	2
<b>Pathology</b>	163/1	<b>63- General pathology and neoplasm( progressive)</b>	2	2
	164/1	<b>64-pathology of microbial and parasitic diseases in animal</b>	2	2
	165/1	<b>65- pathology of bad nutrition</b>	1	2
	166/1	<b>66- pathology of environmental pollution</b>	1	2
	167/1	<b>67- pathology of reproductive diseases</b>	1	2
	168/1	<b>68- Avian pathology</b>	2	2
	169/1	<b>69-Experimental pathology</b>	2	2
	170/1	<b>70- toxins pathology</b>	2	2
	171/1	<b>71- surgical pathology</b>	2	2
	172/1	<b>72- Pathology of experimental animals.</b>		
	173/1	<b>73- Pathology of genetics</b>		
	174/1	<b>74-- Fish pathology</b>	2	2
<b>Clinical pathology</b>	175/1	<b>75- Advanced clinical pathology</b>	2	2
	176/1	<b>76-Organ function tests and body and urine balance</b>	2	2



	177/1	<b>77- Clinical hematology and bone marrow examination</b>	1	2
<b>Bacteriology, immunology and mycology</b>	178/1	<b>78- General bacteriology(advanced)</b>	1	2
	179/1	<b>79-systemic bacteriology</b>	2	3
	182/1	<b>80- Advanced immunology</b>	2	2
	183/2	<b>81- Advanced mycology</b>	1	2
<b>Virology</b>	180/3	<b>82- General virology</b>	1	2
	181/4	<b>83-Systemic virology( specific courses)</b>	2	3
	182/5	<b>84- Advanced immunology</b>	2	2
<b>Mixed courses between Bacteriology and Virology</b>	184/1	<b>85- Microbiology of poultry</b>	2	2
	185/1	<b>86- Microbiology of ??????</b>	1	2
	186/1	<b>87- Microbiology of animal product</b>	2	2
	187/1	<b>88- Fish Microbiology</b>	1	2
		<b>81- Advanced immunology</b>	2	2
<b>Parasitology</b>	188/1	<b>89- Veterinary medical entomology and acarology</b>	2	2
	189/1	<b>90-helminthology</b>	2	2
	190/1	<b>91- protozoology</b>	2	2
	191/1	<b>92- Avian and rabbits parasitology</b>	2	2
	192/1	<b>93Malacology and its vet. Importance</b>	1	2
	193/1	<b>94- parasitic Immunology</b>	1	2
	194/1	<b>95- Clinical parasitology</b>	2	2
	195/1	<b>96-Wild life parasitology</b>	1	2
	196/1	<b>97-Special vet. Parasitology</b>	2	2
	197/1	<b>98- Physiology and biochemistry of parasites</b>	2	2
	198/1	<b>99- Fish parasitology</b>	1	2
<b>Pharmacology</b>	199/1	<b>100- Aeneral pharmacology ( advanced)</b>	2	2
	200/1	<b>101- pharmacology of autonomic nervous system and autocoid</b>	2	2
	201/1	<b>102- pharmacology of central nervous system</b>	2	2
	202/1	<b>103 pharmacology of anesthesia</b>	2	2
	203/1	<b>104- Systemic pharmacology</b>	2	2
	204/1	<b>105- pharmacology of metabolism</b>	2	2
	205/1	<b>106- pharmacology of hormones</b>	2	2
	206/1	<b>107-Chemotherapy</b>	2	2
	207/1	<b>108-Biological evolution of drug</b>	1	1
<b>Hygiene and control of milk and dairy products</b>	208/1	<b>108- Hygiene and control of milk and dairy products</b>	2	2
	209	<b>109- Microbiology of milk and dairy products</b>	2	2
	210/1	<b>110- Milk technology and preservation</b>	2	2
	211/1	<b>111- Food analysis</b>	2	2
	212/1	<b>112- Food poisoning</b>	1	2



	213/1	<b>113- Specific courses on sources of contamination, disturbances of milk production, milk born diseases, hygiene of table egg, edible fats and oils</b>	1	1
	214/1	<b>114- The sanitation of dairy plant</b>	2	2
<b>Control of meat hygiene and their products</b>	215/1	<b>115- Slaughter animal Hygiene</b>	1	2
	216/1	<b>116- Abattoir management and hygiene</b>	2	2
	217/1	<b>117- Hygienic control of meat and their product</b>	2	2
	218/1	<b>118 inspection of poultry meat.</b>	1	2
	219/1	<b>119- Food technology</b>	1	2
	220/1	<b>120- Microbiology of meat and fish meats and their product</b>	2	1
	221/1	<b>121- Chilled meal microbiology</b>	1	2
	222/1	<b>122- Analysis of meat and fish and their product</b>	1	2
	223/1	<b>123- Preservation of meat, poultry, fish and their products</b>	1	2
	224/1	<b>124- Sanitation affairs of meat and fish plants.</b>	2	2
<b>Internal medicine</b>	225/1	<b>125- advanced general medicine</b>	2	2
	226/1	<b>126- disease of ruminants( cattle, buffalo, camels, sheep and goats)</b>	3	3
	227/1	<b>127- diseases of equines</b>	2	2
	228/1	<b>128 diseases of pet animals</b>	2	2
	229/1	<b>129- diseases of wild animals</b>	2	2
	230/1	<b>130- diseases of metabolic disorders</b>	2	2
	231/1	<b>131- nutritional deficiency diseases</b>	2	2
	232/1	<b>132- Skin diseases</b>	1	2
	233/1	<b>133 - diseases of newly born animals</b>	2	2
	234/ 1	<b>134- Stress diseases during animals transport.</b>		
<b>Infectious diseases</b>	235/ 1	<b>135- Infectious diseases of cattle</b>	2	2
	236/ 1	<b>136- Infectious diseases of sheep and goat</b>	2	2
	237/ 1	<b>137- Infectious diseases camel</b>	2	2
	238/ 1	<b>138 Infectious diseases of equine</b>	2	2
	239/ 1	<b>139- Infectious diseases of pet animals</b>	2	2
	240/ 1	<b>140- Infectious diseases lab animals</b>	1	2
	241/ 1	<b>141- Infectious diseases of udder and newly born animals</b>	2	2
	242/ 1	<b>142- Infectious diseases buffaloes</b>	2	1
	243/1	<b>143- Infectious diseases of wild animals.</b>		
<b>Forensic medicine and toxicology</b>	244/1	<b>144- Forensic medicine and veterinary procedures</b>	2	2
	245/1	<b>145- general toxicology</b>	2	2
	246/1	<b>146- environmental toxicology</b>	2	2



	247/1	<b>147- forensic toxicology</b>	2	2
	248/1	<b>148- laboratory diagnostic toxicology</b>	2	2
	249/1	<b>149- Drug toxicology</b>		
<b>Theriogenology</b>	250/1	<b>150- Female infertility (special specific courses in ruminants- equine- pet animals)</b>	2	2
	251/1	<b>151- Male infertility (special specific courses in ruminants- equine- pet animals)</b>	2	2
	252/1	<b>152- Genital diseases.</b>		
	253/1	<b>153 - obstetrics (special specific courses in farm and pet Animals)</b>	2	2
	254/1	<b>153- reproduction and immunity</b>	1	2
	255/1	<b>155- artificial insemination in ruminants</b>	2	2
	256/1	<b>156- artificial insemination in equine</b>	2	2
	257/1	<b>157- artificial insemination in pet animals</b>	1	2
	258/1	<b>158- embryo transfer</b>	1	2
<b>Veterinary Surgery</b>	259/1	<b>159- General surgery (advanced)</b>	2	2
	260/1	<b>160- Special surgery( organs)</b>	2	3
	261/1	<b>161- surgery of eye, ear, nose and larynx</b>	2	2
	262/1	<b>162 digestive system surgery</b>	2	2
	263/1	<b>163- surgery of the limbs, hoof and claws</b>	2	2
	264/1	<b>164- experimental surgery</b>	2	2
	265/1	<b>165- anesthesiology</b>	1	1
	266/1	<b>166- radiology and ultrasonography</b>	2	2
<b>Poultry and rabbit diseases</b>	267/1	<b>167- bacterial diseases of poultry</b>	2	2
	268/1	<b>168- viral diseases of poultry</b>	2	2
	269/1	<b>169- fungal diseases of poultry</b>	2	2
	270/1	<b>170 parasitic diseases of poultry</b>	1	2
	271/1	<b>171 - nutritional diseases of poultry</b>	1	2
	272/1	<b>172-diseases of rabbit (advanced)</b>	2	2
	273/1	<b>173-Diseases of wild and migrating birds</b>	2	2
	274/1	<b>174- Preventive vaccines and their evaluation in poultry</b>	2	2
	275/1	<b>175- Laboratory diagnosis of poultry diseases.</b>		
<b>Animal and environmental hygiene</b>	276/1	<b>176- farm animal hygiene ( advanced)</b>	2	2
	277/1	<b>177- poultry hygiene ( advanced)</b>	2	2
	278/1	<b>178- environmental hygiene and pollution</b>	2	2
	279/1	<b>179- control of contagious diseases</b>	2	2
	280/1	<b>180- eradication of rodents and disease vector</b>	2	2
	281/1	<b>181- insecticides and public health</b>	2	2
	282/1	<b>182-hygiene of animal enclosures- specific courses in :- cattle houses – poultry houses –</b>	2	2



		<b>rabbit houses- pet animals house3s – experimental animals houses</b>		
	283/1	<b>183-disinfections and disinfectants</b>	2	2
	284/1	<b>184- veterinary epidemiology – specific courses in animal environment</b>	2	-
<b>Zoonoses</b>	285/1	<b>185- advanced zoonoses ( specific courses in bacterial and Mycotic diseases – viral diseases – parasitic diseases)</b>	2	2
	286/1	<b>186- role of rodents in transmission of zoonoses</b>	2	2
	287/1	<b>187- role of wild animals in transmission of zoonoses</b>	2	2
	288/1	<b>188- role of birds (special courses in: poultry, wild migrating or pets) in transmission of zoonoses</b>		
<b>Genetics and genetic engineering</b>	289/1	<b>189- Genetics of microorganisms .</b>	1	2
	290/1	<b>190- Genetic engineering( advanced)</b>	1	2
	291/1	<b>191- Cytological genetics</b>	1	-
	292/1	<b>192- Genetics of genuses.</b>	2	-
	293/1	<b>193- physiological genetics</b>	2	-
	294/1	<b>194- Chemical and radiological genetics.</b>	1	2
<b>Animal production</b>	295/1	<b>195- Animal breeding and improvement (advanced).</b>	2	-
	296/1	<b>196- Poultry breeding and improvement(advanced).</b>	2	-
	297/1	<b>197- Cattle and buffalo production (advanced).</b>	2	2
	298/1	<b>198- Sheep and goat production (advanced).</b>	2	2
	299/1	<b>199- Poultry production (advanced).</b>	2	2
	300	<b>200-Rabbit production (advanced).</b>	2	2
	301	<b>201-Improving by artificial insemination in poultry and rabbits.</b>	2	2
<b>Fish diseases and management</b>	302/1	<b>202- Biology of fish.</b>	2	2
	303/1	<b>203-Fish diseases (advanced)</b>	2	2
	304/1	<b>204-Fish farms.</b>	1	2
	305/1	<b>205-Fish breeding .</b>	2	2
<b>Economic and farms management</b>	306/1	<b>206- economics of animals and dairy production</b>	2	-
	307/1	<b>207- economics of poultry farms</b>	2	-
	308/1	<b>208-economics of fish farms</b>	2	-
	309/1	<b>209- feasibility studies</b>	2	-
	310/1	<b>210- farm management</b>	2	-
	311/1	<b>211- economics of beef production</b>	2	-



<b>Biostatistics</b>	312/1	212- <b>Biostatistics (advanced)</b>	2	-
	313/1	213- <b>Experimental design</b>	2	2
	314/1	214- <b>Computer and data processing</b>	2	1

## 6-Teaching and Learning Methods:

*The program features a variety of teaching approaches for different intended learning objectives including:*

- Lectures to gain knowledge and understanding skills
- Writing a review paper to gain the skills of self-learning and presentation
- Practical and lab sessions to gain practical skills
- Seminars

## 7- Students assessments:

The program depends on different assessment ways:

### a. Course assessment:

1- Written examination	For assessment of knowledge, back calling and Intellectual skills
2- Practical examination	For assessment of practical and professional skill
3- Oral examination	For assessment of knowledge and Intellectual skills
4- Student activities	For assessment of knowledge and general and transferable skills

### b. Master Thesis

- Annual reports adopted by the Faculty
- Finally, the assessment of thesis measure the individual student ability to work independently in the field specialization
- Final evaluation and approval by a judging committee of at least three professors including one or more of the supervisors and an external professor. This assesses the ability to write a review article, perform the needed practical steps and to present the results in tables and graphs. In addition, the skills of analysis of results and discussion with previous findings obtained by other authors are also assessed.

### Assessment of program intended learning outcomes

Tool or method	ILOs
1- Written	a1,2,3; b1,2,3
2- Oral	a1,2,5; b2,3,4,6



3-	Practical	b1,7; c1-3
4-	Assignments	a1,2; b4; d1-8
5-	Thesis	a4-7; b4-7, c1-5, d1-8

### 8. Marking scale as follow:-

<b>Excellent</b>		> 90
<b>Very good</b>		>80
<b>Good</b>		>70
<b>Pass</b>		>60
<b>Fail</b>	<b>Weak</b>	45 to less than 60
	<b>very weak</b>	Less than 45

### 9. Program evaluation methods

Evaluator	Tool	Sample
Postgraduate Student	Questioners	20%
	meeting	1
Postgraduate alumni	Questioners	5
Stakeholders (employers)	Questioners	10
	Meeting	1
External evaluator/External examiner	Reports	1

### 10. Program Admission Requirements:

The Applicant must normally satisfy the faculty of veterinary medicine- kafrelsheikh University general entrance and requirement. The normal minimum entrance qualification for registration at the faculty on a master's program

- 1- Bachelor degree in Veterinary Medical Sciences of one of the Egyptian Universities or hold a degree in Veterinary Medical Sciences equivalent through the Supreme Council of Universities with general grade at least "Good" and at least grade "Very Good" in specialization.
- 2- Diploma of general grade at least "Good" and at least grade "Very Good" in specialization. The total number of study hours must be not less than 3 weekly in that specialization.
- 3- After he has passed the courses studied during premaster he must perform a research work in a subject approved by the faculty council at least for one year. He must submit the results of this work in thesis that should be approved by the discussion committee.

### 11. Regulations for progression of program



- a) Registration period for the Master in veterinary medicine is at least 2 years after the approval date by the faculty council and it should not exceed a period of 4 years, an extension could be approved by the faculty council depending on the supervisor report that approved by the department council and postgraduate and research committee refers to the universities regulation law.
- b) The student should conduct the courses proposed by both department council and approved by postgraduate and research committee and faculty council and include, 2-5 courses of the postgraduates stated in article (28) in regulation law list and the student will entitled to apply for the exam only after meeting attendance rate for each courses.
- c) The student should pass written, practical and oral exams successfully in all courses, and the examination is held two times annually.
- d) The Faculty council should deprive the student from entering the exam if his attendance rate in the course is less than 75%.
- e) Failure or depriving from entering one or more course did not require reexamination of successful passed courses.
- f) The applicant should conduct an innovate research on the subject that has been registered for at least 2 years from the date of registration approved by the faculty council. And the faculty council depending on a request from the supervisor has the right to authorize the student to do scientific experiments at recognized scientific institute.
- g) The applicant should submit the thesis that accepted by the judging committee in an open discussion and the following policies should be met:
- h) Pass all courses.
- i) The applicant should submit 4 copies of his thesis concerned department council to form committee examining the thesis to be presented to the postgraduate studies committee and the faculty council, and in case of thesis approval by the department council, the applicant will submit 6 copies for the faculty library, 1 copy for public university library before introducing the report of examination committee to the post graduate studies committee and the faculty council.
- j) Registration will be during March and September of each year.
- k) The applicant should submit a request enrolment for the dean who forwards bit to the concerned department council to determine the research subject and the study program and then take calendar after complete documentation on the faculty council for approval.



- l) The thesis title should be identified before being submitted at least 2 months and the judging committee has the right to amend the title without prejudice the subject of research.
- m) The Faculty council has the right to suspend the student enrolment for a certain period if he has acceptable excuse preventing him from continuing his study or research, and his period will not counted within the period stated in article 25.
- n) The applicant should submit 5 hard copies and 10 electronic copies (CDs) of the thesis after its validity approved by the judging committee and head of department to be distributed to the committee members and faculty library and the judging committee can decide the exchange of the thesis with other universities or printing at the expense of the university.

### **12. Registration will be cancelled in one of the following cases:**

If the supervisors report during the registration period is unsatisfactory (2 reports).

1. If he did not submit his thesis before the end of registration period.
2. If the judging committee rejected the thesis twice.

### **13. Examination Regulations**

- a- Time of written exam, 3 hours for each course that has 3 hours or more for lecture / practical /week. **If has less than 3 hours/week, the time of exam, is 2 hours only.**
- b- The final degree of each course which has 3 hours (lecture and practical) per week is **100 and less than 3 hours is 50 degrees and divided into 50% for written exam, and 50% for practical and oral exam.**

### **14. Program completion:**

- Successfully completion of the required courses and submission of a thesis.

**Program Coordinator**

**Head of Department**

**Prof. Dr. Tarek Mahmoud Mousa**

**Prof. Dr. Tarek Mahmoud Mousa**



## Matching program ILOs with ARS - Matrix

Program ILOs	ARS																								
	K&U (a)						I.S. (b)							P.P. (c)				G.T. (d)							
	1	2	3	4	5	6	1	2	3	4	5	6	7	1	2	3	4	1	2	3	4	5	6	7	8
<b>K&amp;U</b>	1 2	3	4	5	6	7																			
<b>I.S.</b>							1	2	3	4	5	6	7												
<b>P.P.</b>														1	3	4	5								
<b>G.T.</b>																		1	2	3	4	5	6	7	8



## Program Specification Matrix

### Master in Veterinary Medical Sciences (Animal and Poultry Behavior)

Courses		Total Contact hours/course	No. of hours / week			K.U (a)							I.S (b)							P.P (c)					G.T (d)						
Code	Name		Lect.	Lab.	Total	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	1	2	3	4	5	6	7
-	Fundamental (core) course	308	3	4	7	x	x						x	x	x					x	x	x			x	x	x	x	x	x	x
-	Research methodology	176	1	3	4			x		x			x		x							x	x		x			x			
	Elective courses	10-12 hours/ week				x	x						x	x	x										x	x	x	x	x	x	x
<b>Total</b>																															
<b>Thesis</b>								x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

Kafrelsheikh University  
Faculty of Veterinary Medicine  
Department of Hygiene and Preventive Medicine



## ARS for Master in Veterinary Medicine (Animal and Poultry Behavior and Management)

### 1) Graduate attributes

*The graduate should have the ability for:*

- 1) Perfect applying scientific research basics and methodology, and using of its varied tools.
- 2) Apply and use the analytical methodology in area of specialization
- 3) Apply the gained specific knowledge and the relevant ones in professional practice.
- 4) Aware with current problems and recent visions in area of specialization
- 5) Identify the professional problems and suggest the solutions.
- 6) Mastery of an appropriate scale of specific professional skills and the use of an appropriate technological means to serve the professional practice.
- 7) Communicate effectively and able to lead team work
- 8) Decision-making in various professional contexts
- 9) Employment the available resources to achieve the highest benefit and preserve them.
- 10) Aware obviously of his role in the society development and safe society in the light of the global and regional changes.
- 11) Deposit in a manner reflecting the commitment to integrity, credibility, and the professional rules.
- 12) Continuous self-learning in both academic and professional practice.





## A) Knowledge and understanding

<b>Adopted ARS</b>		<b>NARS (Master)</b>
	<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Theories and principles in the field of animal, poultry and fish behavior and management and related fields.	Theories and principles in the field of specialization and related fields.
2)	The impact of different management systems on animal, poultry and fish behavior and performance and its reflection on the environment	Mutual effect between professional practice and its impact on environment
3)	Application of his knowledge of animal, poultry and fish behavior and management research methods by evaluating the utility of those techniques to specific research question improvement of animal, poultry and fish welfare and management	Scientific progress in the field of specialization
4)	Applying legal and ethical basics in animal, poultry and fish behavior and welfare and production improvement practice.	Legal and ethical basics in professional practice in the field of specialization
5)	Recognizing basics and principles of quality assurance in the field of animal, poultry and fish behavior and management.	Principles and basics of quality assurance in the area of specialization
6)	Basics and ethics of scientific research especially that associated with animal behavior.	Basics and ethics of scientific research

## B) Intellectual skills

<b>Adopted ARS</b>		<b>NARS (Master)</b>
	<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Integration of the available record information, methods of behavior measuring, analysis of data and judgment of animal, poultry and fish on the basis of behavioral and performance indices.	Analysis and judgment of information in the field of specialization and analog to solve problems.
2)	Solving behavioral and managerial problems based on the available data	Solving professional problems even in scarcity of data.
3)	Connectivity between the various sources of knowledge to solve abnormal animal behavior and management problems in different animal, poultry and fish systems.	Relating between different knowledge to solve professional problems.



4)	demonstration insight into research and scientific methods, experimental design, formulating research questions that are relevant to animal, poultry and fish behavior and management and writing scientific article on a research problem.	Preparing research plan in specialization and/ or writing scientific article on a research problem.
5)	Assessing professional risk in the field of animal, poultry and fish behavior and management.	Risk-assessment of professional practices in specialization.
6)	Development of plans to maximize welfare as well as performance of animal, poultry and fish in different management systems.	Planning for improvement of professional performance.
7)	Making decisions and suggestions for improvement of animal, poultry and fish welfare and productivity in different contexts	Taking professional decisions in a variety of professional contexts.

### C) Professional and practical skills

Adopted ARS		NARS (Master)
	<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Efficient mastering of information technology and using of available data and recent tools to improve animal, poultry and fish welfare and diagnose causes of abnormal behavior.	Mastering basic and recent professional skills in the field of specialization
2)	-Writing and evaluation of behavioral and productive reports - Analysis of data given in animal records and evaluate welfare and performance status	Writing and evaluating professional reports.
3)	Planning a research project in the field of animal, poultry and fish behavior and management with a consideration to the technical, ethical and safety issues and associated costs.	Evaluating existing materials and methods in the area of specialization.
4)	Performing essential skills that underpin techniques associated with experimental design, animal observation and behavioral recording, collecting, summarizing, organizing, presenting and analyzing data	

### D) General and transferable skill

Adopted ARS	NARS (Master)
-------------	---------------



	<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Communicating effectively with teaching staff, colleagues and animal, poultry and fish producers.	Effective communication.
2)	Using information technology in scientific research and publications.	Utilizing information technology to serve development of professional practice.
3)	Demonstrating appropriate attitude towards teaching staff and colleagues.	Self-assessment and determination of personal educational needs.
4)	Identifying and use different sources of information and knowledge.	Using different resources to obtain knowledge and information.
5)	Using appropriate attitude and rules towards teaching staff and colleagues and use evidence based evaluations.	Establishing rules and indicators for assessment of the performance of others.
6)	Respecting the importance of team work.	Team working and leading a team in familiar professional contexts.
7)	Doing good control of timing.	Efficient time management.
8)	Performing continuous self-learning.	Self and continuous learning.

## ثانياً: برامج الماجستير

### ١- مواصفات الخريج

- خريج برنامج الماجستير في أي تخصص يجب أن يكون قادراً على:
١. إجادة تطبيق أساسيات و منهجيات البحث العلمي واستخدام أدواته المختلفة
  ٢. تطبيق المنهج التحليلي واستخدامه في مجال التخصص
  ٣. تطبيق المعارف المتخصصة و دمجها مع المعارف ذات العلاقة في ممارسته المهنية
  ٤. إظهار وعيا بالمشاكل الجارية و الرؤى الحديثة في مجال التخصص
  ٥. تحديد المشكلات المهنية و إيجاد حلول لها
  ٦. إتقان نطاق مناسب من المهارات المهنية المتخصصة، واستخدام الوسائل التكنولوجية المناسبة بما يخدم ممارسته المهنية
  ٧. التواصل بفاعلية و القدرة على قيادة فرق العمل
  ٨. اتخاذ القرار في سياقات مهنية مختلفة
  ٩. توظيف الموارد المتاحة بما يحقق أعلى استفادة و الحفاظ عليها
  ١٠. إظهار الوعي بدوره في تنمية المجتمع و الحفاظ على البيئة في ضوء المتغيرات



## العالمية و الإقليمية

- ١١ . التصرف بما يعكس الالتزام بالنزاهة و المصادقية و الالتزام بقواعد المهنة
- ١٢ . تنمية ذاته أكاديميا و مهنيا و قادرا علي التعلم المستمر

## ١٢ - المعايير القياسية العامة

### ١ المعرفة و الفهم

- بانتهاء دراسة برنامج الماجستير يجب ان يكون الخريج على فهم و دراية بكل من:
- أ - النظريات و الأساسيات المتعلقة بمجال التعلم وكذا في المجالات ذات العلاقة
  - ب - التأثير المتبادل بين الممارسة المهنية وانعكاسها علي البيئة
  - ت - التطورات العلمية في مجال التخصص
  - ث - المبادئ الأخلاقية و القانونية للممارسة المهنية في مجال التخصص
  - ج - مبادئ و أساسيات الجودة في الممارسة المهنية في مجال التخصص
  - ح - أساسيات و أخلاقيات البحث العلمي

### ٢ المهارات الذهنية

- بانتهاء دراسة برنامج الماجستير يجب ان يكون الخريج قادرا على:
- أ - تحليل و تقييم المعلومات في مجال التخصص و القياس عليها لحل المشاكل
  - ب - حل المشاكل المتخصصة مع عدم توافر بعض المعطيات
  - ت - الربط بين المعارف المختلفة لحل المشاكل المهنية
  - ث - إجراء دراسة بحثية و /أو كتابة دراسة علمية منهجية حول مشكلة بحثية
  - ج - تقييم المخاطر في الممارسات المهنية في مجال التخصص
  - ح - التخطيط لتطوير الأداء في مجال التخصص
  - خ - اتخاذ القرارات المهنية في سياقات مهنية متنوعة

### ٣ المهارات المهنية

- بانتهاء دراسة برنامج الماجستير يجب ان يكون الخريج قادرا على:
- أ - إتقان المهارات المهنية الأساسية و الحديثة في مجال التخصص
  - ب - كتابة و تقييم التقارير المهنية
  - ت - تقييم الطرق و الأدوات القائمة في مجال التخصص

### ٤ المهارات العامة و المنتقلة

- بانتهاء دراسة برنامج الماجستير يجب أن يكون الخريج قادرا على:
- أ - التواصل الفعال بأنواعه المختلفة
  - ب - استخدام تكنولوجيا المعلومات بما يخدم الممارسة المهنية



Kafrelsheikh University  
Faculty of Veterinary Medicine



- ت -التقييم الذاتي وتحديد احتياجاته التعليمية الشخصية  
ث -استخدام المصادر المختلفة للحصول على المعلومات و المعارف  
ج -وضع قواعد ومؤشرات تقييم أداء الآخرين  
ح -العمل في فريق ، وقيادة فرق في سياقات مهنية مختلفة  
خ -إدارة الوقت بكفاءة  
د -التعلم الذاتي و المستمر

## Course Specification (2021 / 2022)

### 1 - Basic Information:

**Code number:** .....

**Course title:** Animal and Poultry Behavior and Management (Basic) أساسى سلوكيات الحيوان والدواجن ورعايتها

**Program on which the course is given:** **Master of Veterinary Medicine**

**Total teaching hours:** 336 hrs.

Lectures: 144 hrs. (48 weeks- 3hrs/week)

Practical: 192 hrs. (48 weeks- 4hrs/week)

### 2 - Overall Aims of the Course:

To provide student with basic knowledge and skills concerning the achievement of basic knowledge of normal and abnormal farm animal behavior and their management to improve their productivity.

### 3 - Intended Learning Outcomes (ILOs):

#### 3-A: Knowledge and Understanding:

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

- a1 List normal behaviors in different farm animal species.
- a2 Determine the most suitable method of management for each farm animal species at different ages.
- a3 Recognize the causes of abnormal behavior and Describe appropriate managerial control for the most important animal vices.

#### 3-B: Intellectual Skills:

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

- b1 Interpret the most important farm animal behaviors and signs of healthy and sound animals.
- b2 Decide the managerial plans for each farm animal species.
- b3 Solve the common clinical abnormal farm animal behavior problems associated with animal management.

#### 3- C: Practical and Professional Skills:

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

- c1 Perform the right methods used for securing and casting of farm animals during difficult examination.
- c2 Collect vital signs for soundness in young and adult farm animals.
- c3 Apply an adequate clinical examination of diseased farm animal with care

#### 3- D: General Skills:

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

- d1 Collect any data about the animal's behavior in an organized and informative manner.
- d2 Communicate effectively with the farm's owners using appropriate communication skills.
- d3 Present the important managerial practices that increase animal welfare and its productivity.
- d4 Work in a teamwork and under pressure.

### 4 - Course Contents:

	Topics	Total hours (Semester)	Hours of lecture	Hours of practical
1	General Ethology, transportation & euthanasia	20	20	--
2	Behavior of farm animals (equine,	24	24	--



	cattle and buffaloes, sheep and goat and camel)			
3	Management of farm animals (equine, cattle and buffaloes, sheep and goat and camel)	40	40	--
4	Abnormal Behavior farm animals (equine, cattle and buffaloes, sheep and goat and camel)	10	10	--
5	Behavior of poultry (fowl & water fowl)	10	10	--
6	Management of poultry (fowl & water fowl)	20	20	--
7	Behavior of dogs, cats, rabbits, fish and Lab animals	10	10	--
8	Management of dogs, cats, rabbits, fish and Lab animals	10	10	--
9	Signs of health & Administration of medicine	40	--	40
10	Dentition	40	--	40
11	Shoeing	20	--	20
12	Body conformation and its defects	20	--	20
13	Points and restraint of animals	20	--	20
14	Stable management (Grooming, fastening, clipping, shearing, washing and dipping) of farm animals	40	--	40
15	Clothing, bedding and identification of farm animals	12	--	12
	Total	336	144	192

## 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library  
Making individual reports about Animal and Poultry Behavior and Management

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a3	b1, b2, b3		d1,d3



<b>Practical sessions</b>		b1 to b3	c1 to c3	d2, d4
<b>Self-Learning activities</b>				d2, d3, d4
<b>Distance Teaching and Learning</b>	a1 to a3	b1 to b3	c1 to c3	d1 to d4

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:-

<b>7.a Used methods</b>	Written exam	Oral exam	Practical exam
<b>7.b Time</b>	At the end of each semester	At the end of each semester	At the end of each semester
<b>7.c Marks</b>	50	20	30

Methods	Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a3	b1 to b3		
Practical exams			c1 to c3	
Oral exams	a1 to a3	b1 to b3		d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. Learning and Reference Materials:

### 8-1: Basic Materials:

- The department notes: E-Book available for students.

### 8-2: Recmoned Books:

- Animal Behavior by Keller Breland, Marian Breland, et al. | Aug 27, 2018
- Animal Behavior: Concepts, Methods, and Applications, by Shawn E. Nordell and Thomas J. Valone | Jul 21, 2020
- Color Atlas of Animal and Poultry Behavior, by Mohamed Mohamed and Salah Al-Shami | Mar 1, 2020
- Understanding Animal Behaviour (What to Measure and Why), by Sergio Pellis | May 20, 2021

### 10.3: Web sites and journals..... and so on

- [WWW.PubMed.com](http://WWW.PubMed.com)
- International of Veterinary Information Services (IVIS)
- [www.Vet.net.com](http://www.Vet.net.com)
- Journal of Hormone and Behavior
- Journal of applied Animal Ethology
- Journal of applied Animal behavior





**Kafrelsheikh University**  
Faculty of Veterinary Medicine



- Journal of Dairy Sciences

**Course Coordinator:**

**Prof. Dr. Tarek Balabel**

**Signature**

**Head of Department**

**Prof. Dr. Tarek Balabel**

**Signature**

• Course Matrix for achievement of Intended Learning Outcomes

	Topics	Hours	Knowledge & Understanding			Intellectual Skills			Practical & Professional Skills			General & Transferable Skills			
			1	2	3	1	2	3	1	2	3	1	2	3	4
1	General Ethology, transportation & euthanasia	20	X			X						X			
2	Behavior of farm animals (equine, cattle and buffaloes, sheep and goat and camel)	24	X			X						X			
3	Management of farm animals (equine, cattle and buffaloes, sheep and goat and camel)	40		X			X						X	X	
4	Abnormal Behavior farm animals (equine, cattle and buffaloes, sheep and goat and camel)	10			X			X							X
5	Behavior of poultry (fowl & water fowl)	10	X		X	X		X				X			
6	Management of poultry (fowl & water fowl)	20		X			X						X	X	
7	Behavior of dogs, cats, rabbits, fish and Lab animals	10	X		X	X		X				X	X		
8	Management of dogs, cats, rabbits, fish and Lab animals	10		X			X						X	X	X
9	Signs of health & Administration of medicine	40							X						
10	Dentition	40									X				
11	Shoeing	20									X				
12	Body conformation and its defects	20								X					
13	Points and restraint of animals	20								X	X				



Kafrelsheikh University  
Faculty of Veterinary Medicine



14	Stable management (Grooming, fastening, clipping, shearing, washing and dipping) of farm animals	40									X	X				
15	Clothing, bedding and identification of farm animals	12									X					



## COURSE SPECIFICATION (2021 / 2022)

### 1-Basic information

Course code: 144 /1

Course title: Behavior and Management of Ruminant Animals (سلوكيات ورعاية المجترات)

Program on which the course is given: **Master of Veterinary Medicine**

The department offers the course: Department of Hygiene and Preventive Med.

Total teaching hours: 240 hrs.

Lectures: 96 hrs. (48 weeks- 2hrs./week)

Practical: 144 hrs. (48 weeks- 3hrs./week)

### 2-Overall aims of the course:

After completing the course the postgraduates are expected to be able to acquire broad knowledge about behavior & management of Ruminant (cattle, buffalo, sheep, Goat and camel)

### 3- Intended Learning Outcomes of Course (ILOs).

#### **a. Knowledge and understanding:**

*After completing this course the student will be able to:*

- a1 Comprehend the basic of normal behaviors, management and health maintenance of Ruminant (cattle, buffalo, sheep, Goat and camel)
- a2 Enumerate and summarizes the actual etiological factors which can induce behavioral disorders of Ruminant (cattle, buffalo, sheep, Goat and camel)
- a3 Realize the proper management of Ruminant (cattle, buffalo, sheep, Goat and camel) which in turn will be reflected in the form of high performance and productivity of the animals

#### **b- Intellectual skills:**

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

- b1 - Assess the diagnosis of abnormal behavior by judging the body language of Ruminant (cattle, buffalo, sheep, Goat and camel)
- b2- Modify the management systems of Ruminant in order to obtain high performance and productivity.
- b3- Assess and criticize, how data given in Ruminant behavior are derived.

#### **c- Professional and practical skills:**

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

- c.1. Restrain the animals for examination safely, correctly and humanely.
- c.2. Obtain the history of the case and perform a physical examination whether it is an individual animal or a group of animals.
- c.3. Write a report about soundness of animals.



c.4). Solve the different behavior disorder or vices in Ruminant (cattle, buffalo, sheep, Goat and camel)

**d-General and transferable skills:**

*After successful completion of the course, the students should be able to:*

- d.1. Work under pressure and or in a team work.
- d.2. Utilize computer and the Internet to search for information
- d.3. Conduct research papers and project.

**4- Course topics:**

	Topics	Total hours (Semester)	Hours of lecture	Hours of practical
1	General introduction of ruminant behavior	20	20	--
2	Behavior of ruminant	20	20	--
3	Management of ruminant	40	40	--
4	Vices of ruminant	16	16	--
5	Points and restraint of ruminant	30		30
6	Housing management (Grooming, fastening, clipping, shearing, washing and dipping) of the ruminant	30		30
7	Signs of health & Administration of medicine	40		40
8	Dentition and Animal identification	44		44
	<b>Total</b>	<b>240</b>	<b>96</b>	<b>144</b>

**5- TEACHING & LEARNING METHODS:**

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library

Making individual reports about Behavior and Management of Ruminant Animals

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a3	b1, b2, b3		d1,d3
Practical sessions			c1 to c4	d2, d3
Self-Learning activities				d2, d33
Distance Teaching and Learning	a1 to a3	b1 to b3	c1 to c4	d1 to d3

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination
<b>7.b Time</b>	At the end of 48 weeks	At the end of 48 weeks	After the end of 48 weeks
<b>7.c Grads</b>	50	20	30

Methods	Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a3	b1 to b3		
Practical exams			c1 to c4	
Oral exams	a1 to a3	b1 to b3		d1 to d3

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. Learning and Reference Materials:

### 8-1: Basic Materials:

- **The department notes:** E-Book available for students.

### 8-2: Recmended Books:

- **Animal Behavior** by Keller Breland, Marian Breland, et al. | Aug 27, 2018
- **Animal Behavior: Concepts, Methods, and Applications**, by Shawn E. Nordell and Thomas J. Valone | Jul 21, 2020
- **Color Atlas of Animal and Poultry Behavior**, by Mohamed Mohamed and Salah Al-Shami | Mar 1, 2020
- **Understanding Animal Behaviour (What to Measure and Why)**, by Sergio Pellis | May 20, 2021

### 8.3: Web sites and journals..... and so on

- [WWW.PubMed.com](http://WWW.PubMed.com)
- International of Veterinary Information Services (IVIS)
- [www.Vet.net.com](http://www.Vet.net.com)
- Journal of Hormone and Behavior
- Journal of applied Animal Ethology
- Journal of applied Animal behavior
- Journal of Dairy Sciences

Course Coordinator:

Prof. Dr. Tarek Balabel

Signature

Head of Department

Prof. Dr. Tarek Balabel

Signature

Date: 29/8/2021



• Course Matrix for achievement of Intended Learning Outcomes

	Topics	Hours	Knowledge & Understanding			Intellectual skills			Practical & Professional Skills				General Skills		
			A1	A2	A3	B1	B2	B3	C1	C2	C3	C4	D1	D2	D3
1	General introduction of ruminant behavior	20	X		X	X		X					X		
2	Behavior of ruminant	20		X			X							X	X
3	Management of ruminant	40	X		X	X		X					X	X	
4	Vices of ruminant	16		X			X							X	X
5	Points and restraint of animals	30							X	X					
6	Housing management (Grooming, fastening, clipping, shearing, washing and dipping) of ruminant	30								X	X				
7	Signs of health & Administration of medicine	40								X	X				
8	Dentition and Animal identification	44							X	X		X			



## COURSE SPECIFICATION (2021 / 2022)

### 1-Basic information

Course code: 145 /1

Course title: Behavior and Management of Equine (سلوكيات ورعاية الخيول)

Program on which the course is given: **Master of Veterinary Medicine**

The department offers the course: Department of Hygiene and Preventive Med.

Total teaching hours: 240 hrs.

Lectures: 96 hrs. (48 weeks- 2hrs./week)

Practical: 144 hrs. (48 weeks- 3hrs./week)

### 2-Overall aims of the course:

After completing the course the postgraduates are expected to be able to acquire broad knowledge about behavior & management of equine

### 3- Intended Learning Outcomes of Course (ILOs).

#### **a-Knowledge and understanding:**

*After completing this course the student will be able to:*

- a1) Comprehend the basic of normal behaviors, management and health maintenance of equine
- a2) Enumerate and summarizes the actual etiological factors which can induce behavioral disorders of equine
- a3) Realize the proper management of equine which in turn will be reflected in the form of high performance and productivity of the animals

#### **b- Intellectual skills:**

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

- b1- Assess the diagnosis of abnormal behavior by judging the body language of equine
- b2- Modify the management systems of equine in order to obtain high performance and productivity.
- b3- Assess and criticize, how data given in equine behavior are derived.

#### **c- Professional and practical skills:**

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

- c.1). Restrain the animals for examination safely, correctly and humanely.
- c.2). Obtain the history of the case and perform a physical examination whether it is an individual animal or a group of animals.
- c.3). Write a report about soundness of animals.
- c.4). Solve the different behavior disorder or vices in equine

#### **d-General and transferable skills:**





After successful completion of the course, the students should be able to:

- d.1. Work under pressure and or in a team work.
- d.2. Utilize computer and the Internet to search for information
- d.3. Conduct research papers and project.

#### 4- Course topics:

	Topics	Total hours (Semester)	Hours of lecture	Hours of practical
1	General introduction of equine behavior	20	20	--
2	Behavior of equine	20	20	--
3	Management of equine	40	40	--
4	Vices of equine	16	16	--
5	Points and restraint of equine	30		30
6	Stable management (Grooming, fastening, clipping, bedding, clothing and washing) of equine	30		30
7	Signs of health & Administration of medicine	40		40
8	Dentition and Animal identification	44		44
	<b>Total</b>	<b>240</b>	<b>96</b>	<b>144</b>

#### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library

Making individual reports about Behavior and Management of equines

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures *	a1 to a3	b1, b2, b3		d1,d3
Practical sessions			c1 to c4	d2, d3
Self-Learning activities				d2, d33
Distance Teaching and Learning	a1 to a3	b1 to b3	c1 to c4	d1 to d3

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:-



<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination
<b>7.b Time</b>	At the end of 48 weeks	At the end of 48 weeks	After the end of 48 weeks
<b>7.c Grads</b>	50	20	30

Methods	Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	A1 to A3	B1 to B3		
Practical exams			C1 to C4	
Oral exams	A1 to A3	B1 to B3		D1 to D3

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. Learning and Reference Materials:

### 8-1: Basic Materials:

- The department notes: E-Book available for students.

### 8-2: Recmended Books:

- Animal Behavior by Keller Breland, Marian Breland, et al. | Aug 27, 2018
- Animal Behavior: Concepts, Methods, and Applications, by Shawn E. Nordell and Thomas J. Valone | Jul 21, 2020
- Color Atlas of Animal and Poultry Behavior, by Mohamed Mohamed and Salah Al-Shami | Mar 1, 2020
- Understanding Animal Behavior (What to Measure and Why), by Sergio Pellis | May 20, 2021

### 8.3: Web sites and journals..... and so on

- [WWW.PubMed.com](http://WWW.PubMed.com)
- International of Veterinary Information Services (IVIS)
- [www.Vet.net.com](http://www.Vet.net.com)
- Journal of Hormone and Behavior
- Journal of applied Animal Ethology
- Journal of applied Animal behavior
- Journal of Dairy Sciences

Course Coordinator:

Prof. Dr. Tarek Balabel

Signature

Head of Department

Prof. Dr. Tarek Balabel

Signature

Date: 29/8/2021



● **Course Matrix for achievement of Intended Learning Outcomes**

	Topics	Hours	Knowledge & Understanding			Intellectual skills			Practical & Professional Skills				General Skills		
			A1	A2	A3	B1	B2	B3	C1	C2	C3	C4	D1	D2	D3
1	<b>General introduction of equine behavior</b>	20	X		X	X		X					X		
2	<b>Behavior of equine</b>	20		X			X							X	X
3	<b>Management of equine</b>	40	X		X	X		X					X	X	
4	<b>Vices of equine</b>	16		X			X							X	X
5	<b>Points and restraint of equine</b>	30							X	X					
6	<b>Stable management (Grooming, fastening, clipping, bedding, clothing and washing) of equine</b>	30								X	X				
7	<b>Signs of health &amp; Administration of medicine</b>	40								X	X				
8	<b>Dentition and Animal identification</b>	44							X	X		X			



Kafrelsheikh University  
Faculty of veterinary medicine  
Department of Hygiene and Preventive Medicine

## Course Specifications for M.V.Sc (2021 / 2022)

### 1-Basic information

Course code: 146 /1

Course title: Behavior and Management of Pet Animals (سلوكيات ورعاية الحيوانات المنزلية)

Program on which the course is given: **Master of Veterinary Medicine**

The department offers the course: Department of Hygiene and Preventive Med.

Total teaching hours: 144 hrs

Lectures: 48 hrs (48 weeks- 1hrs/week)

Practical: 96 hrs (48 weeks- 2hrs/week)

### 2-Overall aims of the course:

After completing the course the postgraduates are expected to be able to acquire broad knowledge about behavior & management of pets

### 3- Intended Learning Outcomes of Course (ILOs).

#### **A-Knowledge and understanding:**

After completing this course the student will be able to:

- A1) Comprehend the basic of normal behaviors, management and health maintenance of pets
- A2) Enumerate and summarizes the actual etiological factors which can induce behavioral disorders of pets
- A3) Realize the proper management of pets which in turn will be reflected in the form of high performance and productivity of the animals

#### **B- Intellectual skills:**

- B1 - Assess the diagnosis of abnormal behavior by judging the body language of pets
- B2- Modify the management systems of pets in order to obtain high performance and productivity.
- B3- Assess and criticize, how data given in pets behavior are derived.

#### **C- Professional and practical skills:**

- C.1). Restrain the animals for examination safely, correctly and humanely.
- C.2). Obtain the history of the case and perform a physical examination whether it is an individual animal or a group of animals.
- C.3). Write a report about soundness of animals.
- C.4). Solve the different behavior disorder or vices in pets

#### **D-General and transferable skills:**

After successful completion of the course, the students should be able to:

- D.1. Work under pressure and or in a team work.
- D.2. Utilize computer and the Internet to search for information
- D.3. Conduct research papers and project.

**4- Course topics: (Behavior and Management of pet animals ):**

:

	Topics	Total hours (Semester)	Hours of lecture	Hours of practical
1	General introduction of pets' behavior	8	8	--
2	Behavior of pets	16	16	--
3	Management of pets	16	16	--
4	Vices of pets	8	8	--
5	Points and restraint of pets	20		20
6	Housing management (Grooming, fastening, clipping, bedding, clothing and washing) of pets	30		30
7	Signs of health & Administration of medicine	20		20
8	Dentition and Animal identification	26		26
	<b>Total</b>	<b>144</b>	<b>48</b>	<b>96</b>

**1-Advanced Lectures** (Using data show to display slides, photos and videos, white board and brainstorming)

**2-Discussion and class activities**

**3- Practical training** (Practical demonstrations and discussions)

**4- Internet researches and faculty library visits to prepare essays and presentations.**

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
1-Advanced lectures	A1 to A3	B1, B2, B3		D1,D3
2- Discussion and class activities		B1 to B3		D1 to D3
3- Internet researches and assays		B1 to B3		D2, D4
4- Practical training			C1 to C4	

**During the Corona pandemic**, emphasis was placed on following precautionary measures such as social distancing, wearing a face mask and gloves, and using disinfectants. Also, if there is a case of infection among students, faculty members, or their contacts with infected people, they are

prevented from attending until the end of the isolation period to ensure that the epidemic does not spread among students.

**Lectures:** The students will be subdivided into groups The on-site lectures will be given for each group beside online lectures. Teaching tools include Data show, and a blackboard and online videos.

**Practical:** Students are divided into 8 groups, each group in one session (two hour / week). The students practice demand, supply and elasticity problem solving. Teaching tools include Data show, overhead projector and whiteboard.

### • 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:-

<u>7.a Used methods</u>	Written examination	Oral examination	Practical examination
<u>7.b Time</u>	At the end of 48 weeks	At the end of 48 weeks	After the end of 48 weeks
<u>7.c Grads</u>	50	20	30

Methods	Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	A1 to A3	B1 to B3		
Practical exams			C1 to C4	
Oral exams	A1 to A3	B1 to B3		D1 to D3

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. Learning and Reference Materials:

### 8-1: Basic Materials:

- **The department notes:** E-Book available for students.

### 8-2: Recmended Books:

- **Animal Behavior** by Keller Breland, Marian Breland, et al. | Aug 27, 2018
- **Animal Behavior: Concepts, Methods, and Applications**, by Shawn E. Nordell and Thomas J. Valone | Jul 21, 2020
- **Color Atlas of Animal and Poultry Behavior**, by Mohamed Mohamed and Salah Al-Shami | Mar 1, 2020
- **Understanding Animal Behavior (What to Measure and Why)**, by Sergio Pellis | May 20, 2021

### 8.3: Web sites and journals..... and so on

- [WWW.PubMed.com](http://WWW.PubMed.com)
- International of Veterinary Information Services (IVIS)



**Kafrelsheikh University**  
Faculty of Veterinary Medicine



- [www.Vet.net.com](http://www.Vet.net.com)
- Journal of Hormone and Behavior
- Journal of applied Animal Ethology
- Journal of applied Animal behavior
- Journal of Dairy Sciences

**Course Coordinator:**

**Prof. Dr. Tarek Balabel**

**Signature**

**Head of Department**

**Prof. Dr. Tarek Balabel**

**Signature**

**Date: 29/8/2021**



• **Course Matrix for achievement of Intended Learning Outcomes**

	Topics	Hours	Knowledge & Understanding			Intellectual skills			Practical & Professional Skills				General Skills		
			A1	A2	A3	B1	B2	B3	C1	C2	C3	C4	D1	D2	D3
1	General introduction of pets' behavior	8	X		X	X		X					X		
2	Behavior of pets	16		X			X							X	X
3	Management of pets	16	X		X	X		X					X	X	
4	Vices of pets	8		X			X							X	X
5	Points and restraint of pets	20							X	X					
6	Housing management (Grooming, fastening, clipping, bedding, clothing and washing) of pets	30								X	X				
7	Signs of health & Administration of medicine	20								X	X				
8	Dentition and Animal identification	26							X	X		X			





Kafrelsheikh University  
Faculty of veterinary medicine  
Department of Hygiene and Preventive Medicine

## Course Specifications for M.V.Sc (2021 / 2022)

### 1-Basic information

Course code: 147 /1

Course title: Behavior and Management of laboratory animals (سلوكيات ورعاية الحيوانات المعملية)

Program on which the course is given: **Master of Veterinary Medicine**

The department offers the course: Department of Hygiene and Preventive Med.

Total teaching hours: 144 hrs

Lectures: 48 hrs (48 weeks- 1hrs/week)

Practical: 96 hrs (48 weeks- 2hrs/week)

### 2-Overall aims of the course:

After completing the course the postgraduates are expected to be able to acquire broad knowledge about behavior & management of laboratory animals

### 3- Intended Learning Outcomes of Course (ILOs).

#### **A-Knowledge and understanding:**

After completing this course the student will be able to:

- A1) Comprehend the basic of normal behaviors, management and health maintenance of laboratory animals
- A2) Enumerate and summarizes the actual etiological factors which can induce behavioral disorders of laboratory animals
- A3) Realize the proper management of laboratory animals which in turn will be reflected in the form of high performance and productivity of the animals

#### **B- Intellectual skills:**

- B1- Assess the diagnosis of abnormal behavior by judging the body language of laboratory animals
- B2- Modify the management systems of laboratory animals in order to obtain high performance and productivity.
- B3- Assess and criticize, how data given in laboratory animals behavior are derived.

#### **C- Professional and practical skills:**

- C.1). Restrain the animals for examination safely, correctly and humanely.
- C.2). Obtain the history of the case and perform a physical examination whether it is an individual animal or a group of animals.
- C.3). Write a report about soundness of animals.

C.4). Solve the different behavior disorder or vices in laboratory animals

**D-General and transferable skills:**

After successful completion of the course, the students should be able to:

- D.1. Work under pressure and or in a team work.
- D.2. Utilize computer and the Internet to search for information
- D.3. Conduct research papers and project.

**4- Course topics: (Behavior and Management of laboratory animals ):**

:

	Topics	Total hours (Semester)	Hours of lecture	Hours of practical
1	General introduction of laboratory animal behaviors	8	8	--
2	Behavior of laboratory animals	16	16	--
3	Management of laboratory animals	16	16	--
4	Vices of laboratory animals	8	8	--
5	Points and restraint of laboratory animals	20		20
6	Bedding and housing management of laboratory animals	30		30
7	Signs of health & Administration of medicine	20		20
8	Animal identification	26		26
	<b>Total</b>	<b>144</b>	<b>48</b>	<b>96</b>

**1-Advanced Lectures** (Using data show to display slides, photos and videos, white board and brainstorming)

**2-Discussion and class activities**

**3- Practical training** (Practical demonstrations and discussions)

**4- Internet researches and faculty library visits to prepare essays and presentations.**

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
1-Advanced lectures	A1 to A3	B1, B2, B3		D1,D3
2- Discussion and class activities		B1 to B3		D1 to D3
3- Internet researches and essays		B1 to B3		D2, D4
4- Practical training			C1 to C4	

**During the Corona pandemic**, emphasis was placed on following precautionary measures such as social distancing, wearing a face mask and gloves, and using disinfectants. Also, if there is a case of



infection among students, faculty members, or their contacts with infected people, they are prevented from attending until the end of the isolation period to ensure that the epidemic does not spread among students.

**Lectures:** The students will be subdivided into groups The on-site lectures will be given for each group beside online lectures. Teaching tools include Data show, and a blackboard and online videos.

**Practical:** Students are divided into 8 groups, each group in one session (two hour / week). The students practice demand, supply and elasticity problem solving. Teaching tools include Data show, overhead projector and whiteboard.

• **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:-**

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination
<b>7.b Time</b>	At the end of 48 weeks	At the end of 48 weeks	After the end of 48 weeks
<b>7.c Grads</b>	50	20	30

Methods	Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	A1 to A3	B1 to B3		
Practical exams			C1 to C4	
Oral exams	A1 to A3	B1 to B3		D1 to D3

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

**8. Learning and Reference Materials:**

**8-1: Basic Materials:**

- **The department notes:** E-Book available for students.

**8-2: Recmonded Books:**

- **Animal Behavior** by Keller Breland, Marian Breland, et al. | Aug 27, 2018
- **Animal Behavior: Concepts, Methods, and Applications**, by Shawn E. Nordell and Thomas J. Valone | Jul 21, 2020
- **Color Atlas of Animal and Poultry Behavior**, by Mohamed Mohamed and Salah Al-Shami | Mar 1, 2020
- **Understanding Animal Behavior (What to Measure and Why)**, by Sergio Pellis | May 20, 2021

**8.3: Web sites and journals..... and so on**

- [WWW.PubMed.com](http://WWW.PubMed.com)



**Kafrelsheikh University**  
Faculty of Veterinary Medicine



- International of Veterinary Information Services (IVIS)
- [www.Vet.net.com](http://www.Vet.net.com)
- Journal of Hormone and Behavior
- Journal of applied Animal Ethology
- Journal of applied Animal behavior
- Journal of Dairy Sciences

**Course Coordinator:**

**Prof. Dr. Tarek Balabel**

**Signature**

**Head of Department**

**Prof. Dr. Tarek Balabel**

**Signature**

**Date: 29/8/2021**



• Course Matrix for achievement of Intended Learning Outcomes

	Topics	Hours	Knowledge & Understanding			Intellectual skills			Practical & Professional Skills				General Skills		
			A1	A2	A3	B1	B2	B3	C1	C2	C3	C4	D1	D2	D3
1	General introduction of laboratory animal behaviors	8	X		X	X		X					X		
2	Behavior of laboratory animals	16		X			X							X	X
3	Management of laboratory animals	16	X		X	X		X					X	X	
4	Vices of laboratory animals	8		X			X							X	X
5	Points and restraint of laboratory animals	20							X	X					
6	Bedding and housing management of laboratory animals	30								X	X				
7	Signs of health & Administration of medicine	20								X	X				
8	Animal identification	26							X	X		X			



Kafrelsheikh University  
Faculty of veterinary medicine  
Department of Hygiene and Preventive Medicine

## Course Specifications for M.V.Sc (2021 / 2022)

### 1-Basic information

Course code: 148 /1

Course title: Behavior and Management of wild Animals (سلوكيات ورعاية الحيوانات البرية)

Program on which the course is given: **Master of Veterinary Medicine**

The department offers the course: Department of Hygiene and Preventive Med.

Total teaching hours: 192 hrs

Lectures: 96 hrs (48 weeks- 2hrs/week)

Practical: 96 hrs (48 weeks- 2hrs/week)

### 2-Overall aims of the course:

After completing the course the postgraduates are expected to be able to acquire broad knowledge about behavior & management of wild animals

### 3- Intended Learning Outcomes of Course (ILOs).

#### **A-Knowledge and understanding:**

After completing this course the student will be able to:

- A1) Comprehend the basic of normal behaviors, management and health maintenance of wild animals
- A2) Enumerate and summarizes the actual etiological factors which can induce behavioral disorders of wild animals
- A3) Realize the proper management of wild animals which in turn will be reflected in the form of high performance and productivity of the animals

#### **B- Intellectual skills:**

- B1- Assess the diagnosis of abnormal behavior by judging the body language of wild animals
- B2- Modify the management systems of wild animals in order to obtain high performance and productivity.
- B3- Assess and criticize, how data given in wild animals behavior are derived.

#### **C- Professional and practical skills:**

- C.1). Restrain the animals for examination safely, correctly and humanely.
- C.2). Obtain the history of the case and perform a physical examination whether it is an individual animal or a group of animals.
- C.3). Write a report about soundness of animals.
- C.4). Solve the different behavior disorder or vices in wild animals

### D-General and transferable skills:

After successful completion of the course, the students should be able to:

- D.1. Work under pressure and or in a team work.
- D.2. Utilize computer and the Internet to search for information
- D.3. Conduct research papers and project.

### 4- Course topics: (Behavior and Management of wild animals ):

:

	Topics	Total hours (Semester)	Hours of lecture	Hours of practical
1	General introduction of wild animal behaviors	20	20	--
2	Behavior of wild animals	20	20	--
3	Management of wild animals	30	30	--
4	Vices of wild animals	26	26	--
5	Points and restraint of wild animals	20		20
6	Bedding and housing management of wild animals	30		30
7	Signs of health & Administration of medicine	20		20
8	Animal identification	26		26
	<b>Total</b>	<b>192</b>	<b>96</b>	<b>96</b>

**1-Advanced Lectures** (Using data show to display slides, photos and videos, white board and brainstorming)

**2-Discussion and class activities**

**3- Practical training** (Practical demonstrations and discussions)

**4- Internet researches and faculty library visits to prepare essays and presentations.**

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
1-Advanced lectures	A1 to A3	B1, B2, B3		D1,D3
2- Discussion and class activities		B1 to B3		D1 to D3
3- Internet researches and assays		B1 to B3		D2, D4
4- Practical training			C1 to C4	

**During the Corona pandemic**, emphasis was placed on following precautionary measures such as social distancing, wearing a face mask and gloves, and using disinfectants. Also, if there is a case of infection among students, faculty members, or their contacts with infected people, they are



prevented from attending until the end of the isolation period to ensure that the epidemic does not spread among students.

**Lectures:** The students will be subdivided into groups The on-site lectures will be given for each group beside online lectures. Teaching tools include Data show, and a blackboard and online videos.

**Practical:** Students are divided into 8 groups, each group in one session (two hour / week). The students practice demand, supply and elasticity problem solving. Teaching tools include Data show, overhead projector and whiteboard.

• **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:-**

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination
<b>7.b Time</b>	At the end of 48 weeks	At the end of 48 weeks	After the end of 48 weeks
<b>7.c Grads</b>	50	25	25

Methods	Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	A1 to A3	B1 to B3		
Practical exams			C1 to C4	
Oral exams	A1 to A3	B1 to B3		D1 to D3

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

**8. Learning and Reference Materials:**

**8-1: Basic Materials:**

- **The department notes:** E-Book available for students.

**8-2: Recmonded Books:**

- **Animal Behavior** by Keller Breland, Marian Breland, et al. | Aug 27, 2018
- **Animal Behavior: Concepts, Methods, and Applications**, by Shawn E. Nordell and Thomas J. Valone | Jul 21, 2020
- **Color Atlas of Animal and Poultry Behavior**, by Mohamed Mohamed and Salah Al-Shami | Mar 1, 2020
- **Understanding Animal Behavior (What to Measure and Why)**, by Sergio Pellis | May 20, 2021

**8.3: Web sites and journals..... and so on**

- **WWW.PubMed.com**
- International of Veterinary Information Services (IVIS)





**Kafrelsheikh University**  
Faculty of Veterinary Medicine



- [www.Vet.net.com](http://www.Vet.net.com)
- Journal of Hormone and Behavior
- Journal of applied Animal Ethology
- Journal of applied Animal behavior
- Journal of Dairy Sciences

**Course Coordinator:**

**Prof. Dr. Tarek Balabel**

**Signature**

**Head of Department**

**Prof. Dr. Tarek Balabel**

**Signature**

**Date: 29/8/2021**



• **Course Matrix for achievement of Intended Learning Outcomes**

	Topics	Hours	Knowledge & Understanding			Intellectual skills			Practical & Professional Skills				General Skills		
			A1	A2	A3	B1	B2	B3	C1	C2	C3	C4	D1	D2	D3
1	General introduction of wild animal behaviors	20	X		X	X		X					X		
2	Behavior of wild animals	20		X			X							X	X
3	Management of wild animals	30	X		X	X		X					X	X	
4	Vices of wild animals	26		X			X							X	X
5	Points and restraint of wild animals	20							X	X					
6	Bedding and housing management of wild animals	30								X	X				
7	Signs of health & Administration of medicine	20								X	X				
8	Animal identification	26							X	X		X			



Kafrelsheikh University  
Faculty of veterinary medicine  
Department of Hygiene and Preventive Medicine

## Course Specifications for M.V.Sc (2021 / 2022)

### 1-Basic information

Course code: 149 /1

Course title: Behavior and Management of poultry (سلوكيات ورعاية الطيور)

Program on which the course is given: **Master of Veterinary Medicine**

The department offers the course: Department of Hygiene and Preventive Med.

Total teaching hours: 192 hrs

Lectures: 96 hrs (48 weeks- 2hrs/week)

Practical: 96 hrs (48 weeks- 2hrs/week)

### 2-Overall aims of the course:

After completing the course the postgraduates are expected to be able to acquire broad knowledge about behavior & management of poultry

### 3- Intended Learning Outcomes of Course (ILOs).

#### **A-Knowledge and understanding:**

After completing this course the student will be able to:

- A1) Comprehend the basic of normal behaviors, management and health maintenance of poultry
- A2) Enumerate and summarizes the actual etiological factors which can induce behavioral disorders of poultry
- A3) Realize the proper management of poultry which in turn will be reflected in the form of high performance and productivity of the poultry

#### **B- Intellectual skills:**

- B1- Assess the diagnosis of abnormal behavior by judging the body language of poultry
- B2- Modify the management systems of poultry in order to obtain high performance and productivity.
- B3- Assess and criticize, how data given in poultry behavior are derived.

#### **C- Professional and practical skills:**

- C.1). Catch the poultry for examination safely, correctly and humanely.
- C.2). Obtain the history of the case and perform a physical examination whether it is an individual bird or a group of birds.
- C.3). Write a report about soundness of poultry.
- C.4). Solve the different behavior disorder or vices in poultry



### D-General and transferable skills:

After successful completion of the course, the students should be able to:

- D.1. Work under pressure and or in a team work.
- D.2. Utilize computer and the Internet to search for information
- D.3. Conduct research papers and project.

### 4- Course topics: (Behavior and Management of poultry):

:

	Topics	Total hours (Semester)	Hours of lecture	Hours of practical
1	General introduction of poultry behaviors	20	20	--
2	Behavior of poultry	24	24	--
3	Management of poultry	30	30	--
4	Vices of poultry	22	22	--
5	Points and catching of poultry	20		20
6	Bedding and housing management of poultry	30		30
7	Signs of health & Administration of medicine	20		20
8	Poultry identification	26		26
	<b>Total</b>	<b>192</b>	<b>96</b>	<b>96</b>

**1-Advanced Lectures** (Using data show to display slides, photos and videos, white board and brainstorming)

**2-Discussion and class activities**

**3- Practical training** (Practical demonstrations and discussions)

**4- Internet researches and faculty library visits to prepare essays and presentations.**

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
1-Advanced lectures	A1 to A3	B1, B2, B3		D1,D3
2- Discussion and class activities		B1 to B3		D1 to D3
3- Internet researches and assays		B1 to B3		D2, D4
4- Practical training			C1 to C4	

**During the Corona pandemic**, emphasis was placed on following precautionary measures such as social distancing, wearing a face mask and gloves, and using disinfectants. Also, if there is a case of infection among students, faculty members, or their contacts with infected people, they are



prevented from attending until the end of the isolation period to ensure that the epidemic does not spread among students.

**Lectures:** The students will be subdivided into groups The on-site lectures will be given for each group beside online lectures. Teaching tools include Data show, and a blackboard and online videos.

**Practical:** Students are divided into 8 groups, each group in one session (two hour / week). The students practice demand, supply and elasticity problem solving. Teaching tools include Data show, overhead projector and whiteboard.

• **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:-**

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination
<b>7.b Time</b>	At the end of 48 weeks	At the end of 48 weeks	After the end of 48 weeks
<b>7.c Grads</b>	50	25	25

Methods	Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	A1 to A3	B1 to B3		
Practical exams			C1 to C4	
Oral exams	A1 to A3	B1 to B3		D1 to D3

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

**8. Learning and Reference Materials:**

**8-1: Basic Materials:**

- **The department notes:** E-Book available for students.

**8-2: Recmonded Books:**

- **Animal Behavior** by Keller Breland, Marian Breland, et al. | Aug 27, 2018
- **Animal Behavior: Concepts, Methods, and Applications**, by Shawn E. Nordell and Thomas J. Valone | Jul 21, 2020
- **Color Atlas of Animal and Poultry Behavior**, by Mohamed Mohamed and Salah Al-Shami | Mar 1, 2020
- **Understanding Animal Behavior (What to Measure and Why)**, by Sergio Pellis | May 20, 2021

**8.3: Web sites and journals..... and so on**

- **WWW.PubMed.com**
- International of Veterinary Information Services (IVIS)



**Kafrelsheikh University**  
Faculty of Veterinary Medicine



- [www.Vet.net.com](http://www.Vet.net.com)
- Journal of Hormone and Behavior
- Journal of applied Animal Ethology
- Journal of applied Animal behavior
- Journal of Dairy Sciences

**Course Coordinator:**

**Prof. Dr. Tarek Balabel**

**Signature**

**Head of Department**

**Prof. Dr. Tarek Balabel**

**Signature**

**Date: 29/8/2021**



• Course Matrix for achievement of Intended Learning Outcomes

	Topics	Hours	Knowledge & Understanding			Intellectual skills			Practical & Professional Skills				General Skills		
			A1	A2	A3	B1	B2	B3	C1	C2	C3	C4	D1	D2	D3
1	General introduction of poultry behaviors	20	X		X	X		X					X		
2	Behavior of poultry	24		X			X							X	X
3	Management of poultry	30	X		X	X		X					X	X	
4	Vices of poultry	22		X			X							X	X
5	Points and catching of poultry	20							X	X					
6	Bedding and housing management of poultry	30								X	X				
7	Signs of health & Administration of medicine	20								X	X				
8	Poultry identification	26							X	X		X			



Kafrelsheikh University  
Faculty of veterinary medicine  
Department of Hygiene and Preventive Medicine

## Course Specifications for M.V.Sc (2021 / 2022)

### 1-Basic information

Course code: 150 /1

Course title: Behavior and Management of rabbits (سلوكيات ورعاية الارانب)

Program on which the course is given: **Master of Veterinary Medicine**

The department offers the course: Department of Hygiene and Preventive Med.

Total teaching hours: 144 hrs

Lectures: 48 hrs (48 weeks- 1hrs/week)

Practical: 96 hrs (48 weeks- 2hrs/week)

### 2-Overall aims of the course:

After completing the course the postgraduates are expected to be able to acquire broad knowledge about behavior & management of rabbits

### 3- Intended Learning Outcomes of Course (ILOs).

#### **A-Knowledge and understanding:**

After completing this course the student will be able to:

- A1) Comprehend the basic of normal behaviors, management and health maintenance of rabbits
- A2) Enumerate and summarizes the actual etiological factors which can induce behavioral disorders of rabbits
- A3) Realize the proper management of rabbits which in turn will be reflected in the form of high performance and productivity of the animals

#### **B- Intellectual skills:**

- B1 - Assess the diagnosis of abnormal behavior by judging the body language of rabbits
- B2- Modify the management systems of rabbits in order to obtain high performance and productivity.
- B3- Assess and criticize, how data given in rabbits behavior are derived.

#### **C- Professional and practical skills:**

- C.1). Restrain the animals for examination safely, correctly and humanely.
- C.2). Obtain the history of the case and perform a physical examination whether it is an individual animal or a group of animals.
- C.3). Write a report about soundness of animals.
- C.4). Solve the different behavior disorder or vices in rabbits

#### **D-General and transferable skills:**



After successful completion of the course, the students should be able to:

- D.1. Work under pressure and or in a team work.
- D.2. Utilize computer and the Internet to search for information
- D.3. Conduct research papers and project.

#### 4- Course topics: (Behavior and Management of rabbits ):

:

	Topics	Total hours (Semester)	Hours of lecture	Hours of practical
1	General introduction of rabbits behaviors	8	8	--
2	Behavior of rabbits	16	16	--
3	Management of rabbits	16	16	--
4	Vices of rabbits	8	8	--
5	Points and restraint of rabbits	20		20
6	Bedding and housing management of rabbits	30		30
7	Signs of health & Administration of medicine	20		20
8	Animal identification	26		26
	<b>Total</b>	<b>144</b>	<b>48</b>	<b>96</b>

**1-Advanced Lectures** (Using data show to display slides, photos and videos, white board and brainstorming)

**2-Discussion and class activities**

**3- Practical training** (Practical demonstrations and discussions)

**4- Internet researches and faculty library visits to prepare essays and presentations.**

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
1-Advanced lectures	A1 to A3	B1, B2, B3		D1,D3
2- Discussion and class activities		B1 to B3		D1 to D3
3- Internet researches and assays		B1 to B3		D2, D4
4- Practical training			C1 to C4	

**During the Corona pandemic**, emphasis was placed on following precautionary measures such as social distancing, wearing a face mask and gloves, and using disinfectants. Also, if there is a case of infection among students, faculty members, or their contacts with infected people, they are prevented from attending until the end of the isolation period to ensure that the epidemic does not spread among students.



**Lectures:** The students will be subdivided into groups The on-site lectures will be given for each group beside online lectures. Teaching tools include Data show, and a blackboard and online videos.

**Practical:** Students are divided into 8 groups, each group in one session (two hour / week). The students practice demand, supply and elasticity problem solving. Teaching tools include Data show, overhead projector and whiteboard.

• **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:-**

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination
<b>7.b Time</b>	At the end of 48 weeks	At the end of 48 weeks	After the end of 48 weeks
<b>7.c Grads</b>	50	20	30

Methods	Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	A1 to A3	B1 to B3		
Practical exams			C1 to C4	
Oral exams	A1 to A3	B1 to B3		D1 to D3

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

**8. Learning and Reference Materials:**

**8-1: Basic Materials:**

- The department notes: E-Book available for students.

**8-2: Recmended Books:**

- Animal Behavior by Keller Breland, Marian Breland, et al. | Aug 27, 2018
- Animal Behavior: Concepts, Methods, and Applications, by Shawn E. Nordell and Thomas J. Valone | Jul 21, 2020
- Color Atlas of Animal and Poultry Behavior, by Mohamed Mohamed and Salah Al-Shami | Mar 1, 2020
- Understanding Animal Behavior (What to Measure and Why), by Sergio Pellis | May 20, 2021

**8.3: Web sites and journals..... and so on**

- [WWW.PubMed.com](http://WWW.PubMed.com)
- International of Veterinary Information Services (IVIS)
- [www.Vet.net.com](http://www.Vet.net.com)
- Journal of Hormone and Behavior
- Journal of applied Animal Ethology



**Kafrelsheikh University**  
Faculty of Veterinary Medicine



- Journal of applied Animal behavior
- Journal of Dairy Sciences

**Course Coordinator:**

**Prof. Dr. Tarek Balabel**

**Signature**

**Head of Department**

**Prof. Dr. Tarek Balabel**

**Signature**

**Date: 29/8/2021**



• Course Matrix for achievement of Intended Learning Outcomes

	Topics	Hours	Knowledge & Understanding			Intellectual skills			Practical & Professional Skills				General Skills		
			A1	A2	A3	B1	B2	B3	C1	C2	C3	C4	D1	D2	D3
1	General introduction of rabbits behaviors	8	X		X	X		X					X		
2	Behavior of rabbits	16		X			X							X	X
3	Management of rabbits	16	X		X	X		X					X	X	
4	Vices of rabbits	8		X			X							X	X
5	Points and restraint of rabbits	20							X	X					
6	Bedding and housing management of rabbits	30								X	X				
7	Signs of health & Administration of medicine	20								X	X				
8	Animal identification	26							X	X		X			



Kafrelsheikh University  
Faculty of veterinary medicine  
Department of Hygiene and Preventive Medicine

## Course Specifications for M.V.Sc (2021 / 2022)

### 1-Basic information

Course code: 151 /1

Course title: Behavior and Management of experimental Animals (سلوكيات ورعاية حيوانات التجارب)

Program on which the course is given: **Master of Veterinary Medicine**

The department offers the course: Department of Hygiene and Preventive Med.

Total teaching hours: 144 hrs

Lectures: 48 hrs (48 weeks- 1hrs/week)

Practical: 96 hrs (48 weeks- 2hrs/week)

### 2-Overall aims of the course:

After completing the course the postgraduates are expected to be able to acquire broad knowledge about behavior & management of experimental animals

### 3- Intended Learning Outcomes of Course (ILOs).

#### **A-Knowledge and understanding:**

After completing this course the student will be able to:

- A1) Comprehend the basic of normal behaviors, management and health maintenance of experimental animals
- A2) Enumerate and summarizes the actual etiological factors which can induce behavioral disorders of experimental animals
- A3) Realize the proper management of experimental animals which in turn will be reflected in the form of high performance and productivity of the animals

#### **B- Intellectual skills:**

- B1 - Assess the diagnosis of abnormal behavior by judging the body language of experimental animals
- B2- Modify the management systems of experimental animals in order to obtain high performance and productivity.
- B3- Assess and criticize, how data given in experimental animals behavior are derived.

#### **C- Professional and practical skills:**

- C.1). Restrain the animals for examination safely, correctly and humanely.
- C.2). Obtain the history of the case and perform a physical examination whether it is an individual animal or a group of animals.
- C.3). Write a report about soundness of animals.

C.4). Solve the different behavior disorder or vices in experimental animals

#### D-General and transferable skills:

After successful completion of the course, the students should be able to:

- D.1. Work under pressure and or in a team work.
- D.2. Utilize computer and the Internet to search for information
- D.3. Conduct research papers and project.

#### 4- Course topics: (Behavior and Management of experimental animals) :

:

	Topics	Total hours (Semester)	Hours of lecture	Hours of practical
1	General introduction of experimental animal behaviors	8	8	--
2	Behavior of experimental animals	16	16	--
3	Management of experimental animals	16	16	--
4	Vices of experimental animals	8	8	--
5	Points and restraint of experimental animals	20		20
6	Bedding and housing management of experimental animals	30		30
7	Signs of health & Administration of medicine	20		20
8	Animal identification	26		26
	<b>Total</b>	<b>144</b>	<b>48</b>	<b>96</b>

1-Advanced Lectures (Using data show to display slides, photos and videos, white board and brainstorming)

2-Discussion and class activities

3- Practical training (Practical demonstrations and discussions)

4- Internet researches and faculty library visits to prepare essays and presentations.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
1-Advanced lectures	A1 to A3	B1, B2, B3		D1,D3
2- Discussion and class activities		B1 to B3		D1 to D3
3- Internet researches and assays		B1 to B3		D2, D4
4- Practical training			C1 to C4	

During the Corona pandemic, emphasis was placed on following precautionary measures such as social distancing, wearing a face mask and gloves, and using disinfectants. Also, if there is a case of



infection among students, faculty members, or their contacts with infected people, they are prevented from attending until the end of the isolation period to ensure that the epidemic does not spread among students.

**Lectures:** The students will be subdivided into groups The on-site lectures will be given for each group beside online lectures. Teaching tools include Data show, and a blackboard and online videos.

**Practical:** Students are divided into 8 groups, each group in one session (two hour / week). The students practice demand, supply and elasticity problem solving. Teaching tools include Data show, overhead projector and whiteboard.

• **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:-**

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination
<b>7.b Time</b>	At the end of 48 weeks	At the end of 48 weeks	After the end of 48 weeks
<b>7.c Grads</b>	50	20	30

Methods	Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	A1 to A3	B1 to B3		
Practical exams			C1 to C4	
Oral exams	A1 to A3	B1 to B3		D1 to D3

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

**8. Learning and Reference Materials:**

**8-1: Basic Materials:**

- **The department notes:** E-Book available for students.

**8-2: Recmonded Books:**

- **Animal Behavior** by Keller Breland, Marian Breland, et al. | Aug 27, 2018
- **Animal Behavior: Concepts, Methods, and Applications**, by Shawn E. Nordell and Thomas J. Valone | Jul 21, 2020
- **Color Atlas of Animal and Poultry Behavior**, by Mohamed Mohamed and Salah Al-Shami | Mar 1, 2020
- **Understanding Animal Behavior (What to Measure and Why)**, by Sergio Pellis | May 20, 2021

**8.3: Web sites and journals..... and so on**

- [WWW.PubMed.com](http://WWW.PubMed.com)



**Kafrelsheikh University**  
Faculty of Veterinary Medicine



- International of Veterinary Information Services (IVIS)
- [www.Vet.net.com](http://www.Vet.net.com)
- Journal of Hormone and Behavior
- Journal of applied Animal Ethology
- Journal of applied Animal behavior
- Journal of Dairy Sciences

**Course Coordinator:**

**Prof. Dr. Tarek Balabel**

**Signature**

**Head of Department**

**Prof. Dr. Tarek Balabel**

**Signature**

**Date: 29/8/2021**





• Course Matrix for achievement of Intended Learning Outcomes

	Topics	Hours	Knowledge & Understanding			Intellectual skills			Practical & Professional Skills				General Skills		
			A1	A2	A3	B1	B2	B3	C1	C2	C3	C4	D1	D2	D3
1	General introduction of experimental animal behaviors	8	X		X	X		X					X		
2	Behavior of experimental animals	16		X			X							X	X
3	Management of experimental animals	16	X		X	X		X					X	X	
4	Vices of experimental animals	8		X			X							X	X
5	Points and restraint of experimental animals	20							X	X					
6	Bedding and housing management of experimental animals	30								X	X				
7	Signs of health & Administration of medicine	20								X	X				
8	Animal identification	26							X	X		X			



**Kafrelsheikh University**  
Faculty of Veterinary Medicine





**Kafrelsheikh University**  
Faculty of Veterinary Medicine



**Kafrelsheikh University**  
**Faculty of veterinary medicine**  
**Department of Clinical Pathology**

# **Program Specification for Master Degree**

## **(2021 - 2022)**

**Program Title:**

**Master of The Veterinary Medicine**  
**(Clinical Pathology)**



## **A- Administrative information:**

- 1- **Awarding Body:** Kafrelsheikh University
- 2- **Teaching Body:** Faculty of Veterinary Medicine
- 3- **Department responsible:** Clinical Pathology
- 4- **Programme Title:** Master of Veterinary Medicine (Clinical Pathology)
- 5- **Final award:** Master Degree
- 6- **Registration period:** 2-4 years
- 7- **Program Co- coordinator:** Prof. Dr. Emad Wadeed

## **B- Professional information:**

### **1-Educational aims of the Programme:**

- Provides master graduates with the theoretical and practical skills relevant to the science of clinical pathology necessary for diagnosis and differential diagnosis of animal diseases based on good interpretation and correlation of laboratory findings.
- Allows graduates to critically review scientific literature to present their own research data for the protection and promotion of the animal health.
- Provides graduates the opportunity to develop communication and teaching skills and the experience of scientific research.
- Allows graduates to develop practical research project
- Enables graduates to achieve competency in modern laboratory technology.

### **2- Academic standards:**

**Academic reference standards (ARS) adopted by the faculty committee No 1 on 14/9/2014**

### **3-Graduate attributes:**

*At the end of the program, graduate must be able to:*

- 1) Perfect application the basics and methodologies of scientific research in Clinical Pathology with the use of its different tools.
- 2) Application and use of analytical methods in evaluating laboratory results.
- 3) Application of the gained knowledge in Clinical Pathology to interpret the laboratory data.
- 4) Awareness with the ongoing problems and modern concepts in the Clinical Pathology laboratory regarding instruments and techniques.
- 5) Identification of problems facing laboratory diagnosis and suggesting solutions for them.
- 6) Mastering an appropriate domain in specialized professional skills regarding the laboratory work and use modern technology in the Clinical Pathology laboratory.



- 7) Effective communication with students, clinical pathologists and laboratory staff and leading work team through professional scale.
- 8) Decision making under different professional situations based on laboratory results.
- 9) Employing the available resources efficiently including history, clinical signs and laboratory findings.
- 10) Awareness with the role of laboratory medicine in maintenance of animal and human health and thus the society development and community preservation.
- 11) Reflection of the commitment to act with the integrity and credibility according to the ethical rules of laboratory work.
- 12) Academic and professional self- development and ability for life-long learning and progress by studying new aspects in Clinical Pathology

#### **4-Programme outcomes:**

##### **A. Knowledge and understanding:**

*By the end of this program the graduate should be able to:*

- a.1. Recognize theories, concepts and principles of common disorders involving hematopoietic system and various body system and organ functions in relation to their etiology, Pathophysiological concepts, and associated laboratory findings.
- a.2. Realize the scientific principles of methods, equipments and instruments and sources of errors in all tests performed in clinical pathology laboratory.
- a.3. Identify mutual effect between the veterinary medicine and the laboratory diagnosis and its role in making critical decisions concerning the animal and human health.
- a.4. Recognize scientific progress in the field of clinical pathology especially such as immunohematology and tumor and inflammatory biomarkers.
- a.5. Realize the legal and ethical basics in the field of laboratory diagnosis such as keeping laboratory environment clean, risk assessments accurate laboratory work and accurate interpretation of results and efficient laboratory report.
- a.6. Realize the principles and basics of quality assurance in the clinical pathology laboratory including laboratory safety, laboratory regulations, instrumentation, calibration and automation.
- a.7. Apply the basics and ethics of scientific research regarding laboratory environment, care of using of hazardous instruments and hygienic discardation of samples and euthanized laboratory animals.
- a.8. Recognize the diversity of his or her research, research needs, context and outcomes.

##### **B. Intellectual skills:**

*By the end of this program the graduate should be able to:*

- b.1. Analyze and judge laboratory results considering principles, procedures techniques, physiological situations and individual variations for proper interpretation.
- b.2. Find clues for problems in the laboratory diagnosing of variety of disease conditions in scarcity of resources via selecting appropriate and reasoned approaches and contact with



- professional experts to solve problems.
- b.3. Relate signs, symptoms and pathological lesions of the diseases with the presence of certain laboratory findings to make proper diagnosis.
  - b.4. Design research plan in in clinical pathology and/ or write scientific article on a research problem.
  - b.5. Assess risks of professional practices in laboratory work and their possible consequences such as improper use of some hazardous instruments or handling samples of zoonotic diseases.
  - b.6. Plan to improve performance in the field of laboratory diagnosis.
  - b.7. Select the appropriate safe clinical decisions under complex and unpredictable situations based on laboratory data.

### **C. Practical and professional skills:**

*By the end of this program the graduate should be able to:*

- c.1. Master basic and recent professional skills in collecting samples, recognizing indications for use of whole blood or plasma and giving instructions on specimen transport and processing.
- c.2. Perform all routine and some specialized tests in the field of hematology and clinical chemistry and analyze data statistically.
- c.3. Use different routine and some specific instruments in clinical pathology laboratory and some instruments of fields related to his/her research.
- c.4. Write and evaluate medical laboratory report about complete blood count and clinical biochemistry analysis.
- c.5. Evaluate existing materials including laboratory instruments, methods and techniques of clinical hematology and clinical biochemistry and related fields.
- c.6. Design and carry out an individual research project that will normally include laboratory experiments.
- c.7. Conduct appropriate scientific practical steps required to work safely and effectively in a laboratory environment.
- c.8.

### **D. General and transferable skills:**

*By the end of this program, the graduate should be able to:*

- d.1. Communicate effectively with his professors, collages and animal owner(s).
- d.2. Utilize different sources of knowledge and information.
- d.3. Assess himself and identify his personal educational needs.
- d.4. Demonstrate interpersonal skills and team working ability.
- d.5. Set tools and indicators for assessment of the performance of others.
- d.6. Manage time efficiently.
- d.7. Demonstrate an ability to learn independently for a career of lifelong learning.

## **5- Program structure**



a) Program duration (years): Master degree from 2-4 years

b) Premaster courses – at least one academic year

Course	Lecture (hours/week)	Practical (hours/week)
Fundamental (core) course	3	4
Research methodology	1	3
2-5 Elective Courses Offered by other departments and are selected from the list below according to thesis topic (10-12 hours)	5-6	5-6

c) Master of Veterinary Medicine Thesis (at least one academic year)

- All master-degree students should prepare a master thesis.
- The department and the ethical committees must approve the protocol of the research.
- The thesis should include a review part and a research part.
- The thesis is supervised by one or more senior staff members of the department responsible for the program and may include other specialties according to the nature of the research.
- The thesis should be evaluated and approved by a committee of three professors including one of the supervisors and an external professor.

*A number of subsidiary courses are selected from the following list according to the title of the research work:*

Subject	Code	Course title	No of hours/week	
			Lecture	Practical Lab
Anatomy and embryology	101/1	<b>1- Applied anatomy</b>	2	2
	102/1	<b>2- Anatomical techniques and surface anatomy</b>	2	2
	103/1	<b>3- Osteology and arthrology</b>	2	2
	104/1	<b>4- Comparative digestive system</b>	2	2
	105/1	<b>5- Comparative uro-genital system</b>	2	2
	106/1	<b>6-Comparative respiratory system</b>	2	2
	107/1	<b>7- Comparative cardiovascular system</b>	2	2
	108/1	<b>8- Comparative nervous system and endocrine glands</b>	2	2
	109/1	<b>9- General and special embryology</b>	2	2
	110/1	<b>10- Avian anatomy</b>	1	2
<b>Histology</b>	111/1	<b>11- cytology and cytochemistry</b>	1	2



	112/1	<b>12- general histology</b>	2	2
	113/1	<b>13- Histology and histochemistry of blood, lymph and cardiovascular system.</b>	1	1
	114/1	<b>14- Comparative histology and histochemistry of body muscles, heart and blood vessels</b>	1	1
	115/1	<b>15- Comparative histology and histochemistry of respiratory system</b>	1	1
	116/1	<b>16-Comparative histology and histochemistry of digestive system</b>	2	2
	117/1	<b>17- Comparative histology and histochemistry of uro-genital system</b>	2	2
	118/1	<b>18- Comparative histology and histochemistry of nervous and endocrine systems</b>	2	2
	119/1	<b>19- Histology and histochemistry of special sensors</b>	1	2
	120/1	<b>20-Histology and histochemistry of skin, hooves, claws and Nails</b>	2	2
	121/1	<b>21- Avian histology</b>	2	2
	122/1	<b>22- Fish histology</b>	1	2
<b>Physiology</b>	123/1	<b>23- Physiology of mammalian endocrine and reproduction</b>	2	2
	124/1	<b>24- poultry physiology (advanced)</b>	2	2
	125/1	<b>25- physiology of muscle and nerve</b>	1	2
	126/1	<b>26- physiology of ruminants</b>	2	2
	127/1	<b>27- physiology of environment, adaptation and cell</b>	2	2
	128/1	<b>28- physiology of blood</b>	2	2
	129/1	<b>29- physiology of digestion, metabolism and energy</b>	2	2
	130/1	<b>30- Physiology in pollution</b>	1	2
	131/1	<b>31- Radioactive isotopes and biological uses</b>	2	2
	132/1	<b>32- Physiology of heights</b>	1	1
	133/1	<b>33-Fish physiology.</b>	1	2
<b>Biochemistry</b>	134/1	<b>34- Basics of biochemistry</b>	2	3
	135/1	<b>35- Metabolism</b>	2	2
	136/1	<b>36- Biochemistry of tissue and body fluids .</b>	2	2
	137/1	<b>37- Biochemistry of hormones and reproduction</b>	2	2
	138/1	<b>38- Feeding biochemistry</b>	2	2
	139/1	<b>39- Clinical biochemistry</b>	2	2
	140/1	<b>40- Avian biochemistry</b>	2	2





	141/1	<b>41- Microbial biochemistry</b>	2	2
	142/1	<b>42- Biochemistry of radiation</b>	1	2
	143/1	<b>43- Fish biochemistry</b>		
<b>Animal behavior and management</b>	144/1	<b>44- Behavior and management of ruminants ( specific courses in cattle, buffalo, sheep, camels and goats)</b>	2	3
	145/1	<b>45- Behavior and management of horses</b>	2	3
	146/1	<b>46- Behavior and management of pet animals</b>	1	2
	147/1	<b>47- Behavior and management of laboratory animals</b>	1	2
	148/1	<b>48- Behavior and management of wild animals</b>	2	2
	149/1	<b>49- Behavior and management of poultry</b>	2	2
	150/1	<b>50- Behavior and management of rabbit</b>	1	2
	151/1	<b>51- Behavior of experimental animals</b>	1	2
<b>Nutrition and clinical nutrition</b>	152/1	<b>52- Basics of animal nutrition</b>	2	2
	153/1	<b>53- feedstuff</b>	2	2
	154/1	<b>54- nutrition of farm animals and fish specific courses in ( cattle and buffalo nutrition – sheep and goat nutrition – camel nutrition- equine nutrition – fish nutrition)</b>	2	2
	155/1	<b>55- poultry and rabbit nutrition( advanced)</b>	2	2
	156/1	<b>56- wild animal nutrition</b>	1	2
	157/1	<b>57- laboratory animal nutrition</b>	1	2
	158/1	<b>58- feed additives</b>	1	2
	159/1	<b>59- feedstuff analysis</b>	2	2
	160/1	<b>60- Quality control of feed and feed factories</b>	2	2
	161/1	<b>61- Clinical nutrition and malnutrition</b>	2	2
	162/1	<b>62- Fish nutrition</b>	1	2
<b>Pathology</b>	163/1	<b>63- General pathology and neoplasm( progressive)</b>	2	2
	164/1	<b>64-pathology of microbial and parasitic diseases in animal</b>	2	2
	165/1	<b>65- pathology of bad nutrition</b>	1	2
	166/1	<b>66- pathology of environmental pollution</b>	1	2
	167/1	<b>67- pathology of reproductive diseases</b>	1	2
	168/1	<b>68- Avian pathology</b>	2	2
	169/1	<b>69-Experimental pathology</b>	2	2
	170/1	<b>70- toxins pathology</b>	2	2
	171/1	<b>71- surgical pathology</b>	2	2
	172/1	<b>72- Pathology of experimental animals.</b>		
	173/1	<b>73- Pathology of genetics</b>		
	174/1	<b>74-- Fish pathology</b>	2	2



<b>Bacteriology, immunology and mycology</b>	178/1	<b>78- General bacteriology(advanced)</b>	1	2
	179/1	<b>79-systemic bacteriology</b>	2	3
	182/1	<b>80- Advanced immunology</b>	2	2
	183/2	<b>81- Advanced mycology</b>	1	2
<b>Virology</b>	180/3	<b>82- General virology</b>	1	2
	181/4	<b>83-Systemic virology( specific courses)</b>	2	3
	182/5	<b>84- Advanced immunology</b>	2	2
<b>Mixed courses between Bacteriology and Virology</b>	184/1	<b>85- Microbiology of poultry</b>	2	2
	185/1	<b>86- Microbiology of ??????</b>	1	2
	186/1	<b>87- Microbiology of animal product</b>	2	2
	187/1	<b>88- Fish Microbiology</b>	1	2
<b>81- Advanced immunology</b>			2	2
<b>Parasitology</b>	188/1	<b>89- Veterinary medical entomology and acarology</b>	2	2
	189/1	<b>90-helminthology</b>	2	2
	190/1	<b>91- protozoology</b>	2	2
	191/1	<b>92- Avian and rabbits parasitology</b>	2	2
	192/1	<b>93Malacology and its vet. Importance</b>	1	2
	193/1	<b>94- parasitic Immunology</b>	1	2
	194/1	<b>95- Clinical parasitology</b>	2	2
	195/1	<b>96-Wild life parasitology</b>	1	2
	196/1	<b>97-Special vet. Parasitology</b>	2	2
	197/1	<b>98- Physiology and biochemistry of parasites</b>	2	2
198/1	<b>99- Fish parasitology</b>	1	2	
<b>Pharmacology</b>	199/1	<b>100- Aeneral pharmacology ( advanced)</b>	2	2
	200/1	<b>101- pharmacology of autonomic nervous system and autocoid</b>	2	2
	201/1	<b>102- pharmacology of central nervous system</b>	2	2
	202/1	<b>103 pharmacology of anesthesia</b>	2	2
	203/1	<b>104- Systemic pharmacology</b>	2	2
	204/1	<b>105- pharmacology of metabolism</b>	2	2
	205/1	<b>106- pharmacology of hormones</b>	2	2
	206/1	<b>107-Chemotherapy</b>	2	2
	207/1	<b>108-Biological evolution of drug</b>	1	1
<b>Hygiene and control of milk and dairy products</b>	208/1	<b>108- Hygiene and control of milk and dairy products</b>	2	2
	209	<b>109- Microbiology of milk and dairy products</b>	2	2
	210/1	<b>110- Milk technology and preservation</b>	2	2
	211/1	<b>111- Food analysis</b>	2	2
	212/1	<b>112- Food poisoning</b>	1	2
	213/1	<b>113- Specific courses on sources of</b>	1	1



		contamination, disturbances of milk production, milk born diseases, hygiene of table egg, edible fats and oils		
	214/1	<b>114- The sanitation of dairy plant</b>	2	2
<b>Control of meat hygiene and their products</b>	215/1	<b>115- Slaughter animal Hygiene</b>	1	2
	216/1	<b>116- Abattoir management and hygiene</b>	2	2
	217/1	<b>117- Hygienic control of meat and their product</b>	2	2
	218/1	<b>118 inspection of poultry meat.</b>	1	2
	219/1	<b>119- Food technology</b>	1	2
	220/1	<b>120- Microbiology of meat and fish meats and their product</b>	2	1
	221/1	<b>121- Chilled meal microbiology</b>	1	2
	222/1	<b>122- Analysis of meat and fish and their product</b>	1	2
	223/1	<b>123- Preservation of meat, poultry, fish and their products</b>	1	2
224/1	<b>124- Sanitation affairs of meat and fish plants.</b>	2	2	
<b>Internal medicine</b>	225/1	<b>125- advanced general medicine</b>	2	2
	226/1	<b>126- disease of ruminants( cattle, buffalo, camels, sheep and goats)</b>	3	3
	227/1	<b>127- diseases of equines</b>	2	2
	228/1	<b>128 diseases of pet animals</b>	2	2
	229/1	<b>129- diseases of wild animals</b>	2	2
	230/1	<b>130- diseases of metabolic disorders</b>	2	2
	231/1	<b>131- nutritional deficiency diseases</b>	2	2
	232/1	<b>132- Skin diseases</b>	1	2
	233/1	<b>133 - diseases of newly born animals</b>	2	2
234/ 1	<b>134- Stress diseases during animals transport.</b>			
<b>Infectious diseases</b>	235/ 1	<b>135- Infectious diseases of cattle</b>	2	2
	236/ 1	<b>136- Infectious diseases of sheep and goat</b>	2	2
	237/ 1	<b>137- Infectious diseases camel</b>	2	2
	238/ 1	<b>138 Infectious diseases of equine</b>	2	2
	239/ 1	<b>139- Infectious diseases of pet animals</b>	2	2
	240/ 1	<b>140- Infectious diseases lab animals</b>	1	2
	241/ 1	<b>141- Infectious diseases of udder and newly born animals</b>	2	2
	242/ 1	<b>142- Infectious diseases buffaloes</b>	2	1
	243/1	<b>143- Infectious diseases of wild animals.</b>		
<b>Forensic medicine and toxicology</b>	244/1	<b>144- Forensic medicine and veterinary procedures</b>	2	2
	245/1	<b>145- general toxicology</b>	2	2
	246/1	<b>146- environmental toxicology</b>	2	2
	247/1	<b>147- forensic toxicology</b>	2	2



	248/1	<b>148- laboratory diagnostic toxicology</b>	2	2
	249/1	<b>149- Drug toxicology</b>		
<b>Theriogenology</b>	250/1	<b>150- Female infertility (special specific courses in ruminants- equine- pet animals)</b>	2	2
	251/1	<b>151- Male infertility (special specific courses in ruminants- equine- pet animals)</b>	2	2
	252/1	<b>152- Genital diseases.</b>		
	253/1	<b>153 - obstetrics (special specific courses in farm and pet Animals)</b>	2	2
	254/1	<b>153- reproduction and immunity</b>	1	2
	255/1	<b>155- artificial insemination in ruminants</b>	2	2
	256/1	<b>156- artificial insemination in equine</b>	2	2
	257/1	<b>157- artificial insemination in pet animals</b>	1	2
	258/1	<b>158- embryo transfer</b>	1	2
<b>Veterinary Surgery</b>	259/1	<b>159- General surgery (advanced)</b>	2	2
	260/1	<b>160- Special surgery( organs)</b>	2	3
	261/1	<b>161- surgery of eye, ear, nose and larynx</b>	2	2
	262/1	<b>162 digestive system surgery</b>	2	2
	263/1	<b>163- surgery of the limbs, hoof and claws</b>	2	2
	264/1	<b>164- experimental surgery</b>	2	2
	265/1	<b>165- anesthesiology</b>	1	1
	266/1	<b>166- radiology and ultrasonography</b>	2	2
<b>Poultry and rabbit diseases</b>	267/1	<b>167- bacterial diseases of poultry</b>	2	2
	268/1	<b>168- viral diseases of poultry</b>	2	2
	269/1	<b>169- fungal diseases of poultry</b>	2	2
	270/1	<b>170 parasitic diseases of poultry</b>	1	2
	271/1	<b>171 - nutritional diseases of poultry</b>	1	2
	272/1	<b>172-diseases of rabbit (advanced)</b>	2	2
	273/1	<b>173-Diseases of wild and migrating birds</b>	2	2
	274/1	<b>174- Preventive vaccines and their evaluation in poultry</b>	2	2
	275/1	<b>175- Laboratory diagnosis of poultry diseases.</b>		
<b>Animal and environmental hygiene</b>	276/1	<b>176- farm animal hygiene ( advanced)</b>	2	2
	277/1	<b>177- poultry hygiene ( advanced)</b>	2	2
	278/1	<b>178- environmental hygiene and pollution</b>	2	2
	279/1	<b>179- control of contagious diseases</b>	2	2
	280/1	<b>180- eradication of rodents and disease vector</b>	2	2
	281/1	<b>181- insecticides and public health</b>	2	2
	282/1	<b>182-hygiene of animal enclosures- specific courses in :- cattle houses – poultry houses – rabbit houses- pet animals house3s –</b>	2	2



		<b>experimental animals houses</b>		
	283/1	<b>183-disinfections and disinfectants</b>	2	2
	284/1	<b>184- veterinary epidemiology – specific courses in animal environment</b>	2	-
<b>Zoonoses</b>	285/1	<b>185- advanced zoonoses ( specific courses in bacterial and Mycotic diseases – viral diseases – parasitic diseases)</b>	2	2
	286/1	<b>186- role of rodents in transmission of zoonoses</b>	2	2
	287/1	<b>187- role of wild animals in transmission of zoonoses</b>	2	2
	288/1	<b>188- role of birds (special courses in: poultry, wild migrating or pets) in transmission of zoonoses</b>		
<b>Genetics and genetic engineering</b>	289/1	<b>189- Genetics of microorganisms .</b>	1	2
	290/1	<b>190- Genetic engineering( advanced)</b>	1	2
	291/1	<b>191- Cytological genetics</b>	1	-
	292/1	<b>192- Genetics of genuses.</b>	2	-
	293/1	<b>193- physiological genetics</b>	2	-
	294/1	<b>194- Chemical and radiological genetics.</b>	1	2
<b>Animal production</b>	295/1	<b>195- Animal breeding and improvement (advanced).</b>	2	-
	296/1	<b>196- Poultry breeding and improvement(advanced).</b>	2	-
	297/1	<b>197- Cattle and buffalo production (advanced).</b>	2	2
	298/1	<b>198- Sheep and goat production (advanced).</b>	2	2
	299/1	<b>199- Poultry production (advanced).</b>	2	2
	300	<b>200-Rabbit production (advanced).</b>	2	2
	301	<b>201-Improving by artificial insemination in poultry and rabbits.</b>	2	2
<b>Fish diseases and management</b>	302/1	<b>202- Biology of fish.</b>	2	2
	303/1	<b>203-Fish diseases (advanced)</b>	2	2
	304/1	<b>204-Fish farms.</b>	1	2
	305/1	<b>205-Fish breeding .</b>	2	2
<b>Economic and farms management</b>	306/1	<b>206- economics of animals and dairy production</b>	2	-
	307/1	<b>207- economics of poultry farms</b>	2	-
	308/1	<b>208-economics of fish farms</b>	2	-
	309/1	<b>209- feasibility studies</b>	2	-
	310/1	<b>210- farm management</b>	2	-
	311/1	<b>211- economics of beef production</b>	2	-



<b>Biostatistics</b>	312/1	<b>212- Biostatistics (advanced)</b>	2	-
	313/1	<b>213- Experimental design</b>	2	2
	314/1	<b>214- Computer and data processing</b>	2	1

### 6-Teaching and Learning Methods:

*The program features a variety of teaching approaches for different intended learning objectives including:*

- Lectures to gain knowledge and understanding skills
- Writing a review paper to gain the skills of self-learning and presentation
- Practical and lab sessions to gain practical skills
- Seminars

### 7- Students assessments:

The program depends on different assessment ways:

#### a. Course assessment:

<b>1- Written examination</b>	<b>For assessment of knowledge, back calling and Intellectual skills</b>
<b>2- Practical examination</b>	<b>For assessment of practical and professional skill</b>
<b>3- Oral examination</b>	<b>For assessment of knowledge and Intellectual skills</b>

#### b. Master Thesis

- Annual reports adopted by the Faculty
- Finally, the assessment of thesis measure the individual student ability to work independently in the field specialization
- Final evaluation and approval by a judging committee of at least three professors including one or more of the supervisors and an external professor. This assesses the ability to write a review article, perform the needed practical steps and to present the results in tables and graphs. In addition, the skills of analysis of results and discussion with previous findings obtained by other authors are also assessed.

### Assessment of program intended learning outcomes

<b>Tool or method</b>	<b>ILOs</b>
-----------------------	-------------



1-	Written	a1,2,3; b1,2,3
2-	Oral	a1,2,5; b2,3,4,6
3-	Practical	b1,7; c1-3
4-	Thesis	a1,2; b4; d1-8

### 8. Marking scale as follow:-

<b>Excellent</b>	> 90	
<b>Very good</b>	>80	
<b>Good</b>	>70	
<b>Pass</b>	>60	
<b>Fail</b>	<b>Weak</b>	45 to less than 60
	<b>very weak</b>	Less than 45

### 9. Program evaluation methods

Evaluator	Tool	Sample
Postgraduate Student	Questioners	<b>20%</b>
	meeting	<b>1</b>
Postgraduate alumni	Questioners	<b>5</b>
Stakeholders (employers)	Questioners	<b>10</b>
	Meeting	<b>1</b>
External evaluator/External examiner	Reports	<b>1</b>

### 10. Program Admission Requirements:

The Applicant must normally satisfy the Faculty of Veterinary Medicine- Kafrelsheikh University general entrance and requirement. The normal minimum entrance qualification for registration at the faculty on a master's program

- 1- Bachelor degree in Veterinary Medical Sciences of one of the Egyptian Universities or hold a degree in Veterinary Medical Sciences equivalent through the Supreme Council of Universities with general grade at least "Good" and at least grade "Very Good" in specialization.
- 2- Diploma of general grade at least "Good" and at least grade "Very Good" in specialization. The total number of study hours must be not less than 3 weekly in that specialization.
- 3- After he has passed the courses studied during premaster he must perform a research work in a subject approved by the faculty council at least for one year. He must submit the results of this work in thesis that should be approved by the discussion committee.

### 11. Regulations for progression of program

- a) Registration period for the Master in veterinary medicine is at least 2 years after the approval date by the faculty council and it should not exceed a period of 4 years, an extension could be approved by the faculty council depending on the supervisor report that



- approved by the department council and postgraduate and research committee refers to the universities regulation law.
- b) The student should conduct the courses proposed by both department council and approved by postgraduate and research committee and faculty council and include, 2-5 courses of the postgraduates stated in article (28) in regulation law list and the student will entitled to apply for the exam only after meeting attendance rate for each courses.
  - c) The student should pass written, practical and oral exams successfully in all courses, and the examination is held two times annually.
  - d) The Faculty council should deprive the student from entering the exam if his attendance rate in the course is less than 75%.
  - e) Failure or depriving from entering one or more course did not require reexamination of successful passed courses.
  - f) The applicant should conduct an innovate research on the subject that has been registered for at least 2 years from the date of registration approved by the faculty council. And the faculty council depending on a request from the supervisor has the right to authorize the student to do scientific experiments at recognized scientific institute.
  - g) The applicant should submit the thesis that accepted by the judging committee in an open discussion and the following policies should be met:
  - h) Pass all courses.
  - i) The applicant should submit 4 copies of his thesis concerned department council to form committee examining the thesis to be presented to the postgraduate studies committee and the faculty council, and in case of thesis approval by the department council, the applicant will submit 6 copies for the faculty library, 1 copy for public university library before introducing the report of examination committee to the post graduate studies committee and the faculty council.
  - j) Registration will be during March and September of each year.
  - k) The applicant should submit a request enrolment for the dean who forwards bit to the concerned department council to determine the research subject and the study program and then take calendar after complete documentation on the faculty council for approval.
  - l) The thesis title should be identified before being submitted at least 2 months and the judging committee has the right to amend the title without prejudice the subject of research.
  - m) The Faculty council has the right to suspend the student enrolment for a certain period if he has acceptable excuse preventing him from continuing his study or research, and his period will not counted within the period stated in article 25.
  - n) The applicant should submit 5 hard copies and 10 electronic copies (CDs) of the thesis after its validity approved by the judging committee and head of department to be distributed to the committee members and faculty library and the judging committee can decide the exchange of the thesis with other universities or printing at the expense of the university.

**12. Registration will be cancelled in one of the following cases:**





If the supervisors report during the registration period is unsatisfactory (2 reports).

1. If he did not submit his thesis before the end of registration period.
2. If the judging committee rejected the thesis twice.

### 13. Examination Regulations

- a- Time of written exam, 3 hours for each course that has 3 hours or more for lecture / practical /week. **If has less than 3 hours/week, the time of exam, is 2 hours only.**
- b-The final degree of each course which has 3 hours (lecture and practical) per week is **100 and less than 3 hours is 50 degrees and divided into 50% for written exam, and 50% for practical and oral exam.**

### 14. Program completion:

- Successfully completion of the required courses and submission of a thesis.

**Program Coordinator**

**Head of Department**

**Prof. Dr. Emad Wadeed**

**Prof. Dr. Mohamed Fahmy**



Program ILOs	ARS																											
	K&U (a)							I.S. (b)							P.P. (c)				G.T. (d)									
	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	1	2	3	4	5	6	7				
K&U	1 2	3	4	5	6	7 8																						
I.S.							1	2	3	4	5	6	7															
P.P.														1 2 3	4	5 6 7												
G.T.																	1	2	3	4	5	6	7					

## Program Specification Matrix

### Master in Veterinary Medicine (Clinical Pathology)

Courses		Total Contact hours/ course	No. of hours / week			KU (a)							IS (b)							PPS (c)					GTS (d)																																			
						Lect.	Lab.	Total	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	1	2	3	4	5	6	7	8																									
-	Fundamental (Basic) course	308	3	4	7	x	x	x											x	x	x																	x	x	x	x																			
-	Research methodology	176	1	3	4				x	x	x										x	x	x																																					
	Elective courses	10-12 hours/ week				x													x																				x																					
<b>Thesis</b>																																																												

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.





## ARS for Master in Veterinary Medical Sciences (Clinical Pathology)

### 1) Graduate attributes

*The graduate should have the ability for:*

- 13) Perfect application the basics and methodologies of scientific research in Clinical Pathology with the use of its different tools.
- 14) Application and use of analytical methods in evaluating laboratory results.
- 15) Application of the gained knowledge in Clinical Pathology to interpret the laboratory data.
- 16) Awareness with the ongoing problems and modern concepts in the Clinical Pathology laboratory regarding instruments and techniques.
- 17) Identification of problems facing laboratory diagnosis and suggesting solutions for them.
- 18) Mastering an appropriate domain in specialized professional skills regarding the laboratory work and use modern technology in the Clinical Pathology laboratory.
- 19) Effective communication with students, clinical pathologists and laboratory staff and leading work team through professional scale.
- 20) Decision making under different professional situations based on laboratory results.
- 21) Employing the available resources efficiently including history, clinical signs and laboratory findings.
- 22) Awareness with the role of laboratory medicine in maintenance of animal and human health and thus the society development and community preservation.
- 23) Reflection of the commitment to act with the integrity and credibility according to the ethical rules of laboratory work.
- 24) Academic and professional self- development and ability for life-long learning and progress by studying new aspects in Clinical Pathology

#### A) Knowledge and understanding

Adopted ARS		NARS (Master)
	<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	The theories and basics of clinical hematology and clinical biochemistry and related fields.	Theories and principles in the field of specialization and related fields.



2)	The impact of laboratory diagnosis and its role in making critical decisions concerning the animal and human health.	Mutual effect between professional practice and its impact on environment
3)	The scientific progress in the field of analytical pathology regarding instruments and techniques.	Scientific progress in the field of specialization
4)	The legal and ethical basics in the laboratory work regarding laboratory environment and interpreting the results.	Legal and ethical basics in professional practice in the field of specialization
5)	Clinical Pathology laboratory safety, risk assessments, laboratory regulations, instrumentation, calibration and automation.	Principles and basics of quality assurance in the area of specialization
6)	The basics and ethics of scientific research in the field of Clinical Pathology.	Basics and ethics of scientific research

## B) Intellectual skills

Adopted ARS		NARS (Master)
	<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Analysis and judgment of laboratory data regarding clinical hematology and clinical biochemistry and interpret them to solve clinical problems	Analysis and judgment of information in the field of specialization and analog to solve problems.
2)	Solving clues for clinical diseased problems based on the available laboratory data even in scarcity of resources such as unavailability of instruments and technicians.	Solving professional problems even in scarcity of data.
3)	Relate between signs and symptoms of diseases with the presence of certain laboratory findings to make appropriate interpretation and decision.	Relating between different knowledge to solve professional problems.
4)	Identification, summarizing and evaluating prior researches in Clinical Pathology and efficiently present his plan and data.	Preparing research plan in specialization and/ or writing scientific article on a research problem.
5)	Assess risks of laboratory work as improper use of some hazardous instruments or handling samples of zoonotic diseases.	Risk-assessment of professional practices in specialization.
6)	Plan to improve performance in the field of laboratory diagnosis.	Planning for improvement of professional performance.
7)	Make safe clinical decisions under complex and unpredictable situations based on laboratory data.	Taking professional decisions in a variety of professional contexts.



### C) Professional and practical skills

Adopted ARS		NARS (Master)	
	<i>By the end of this program the graduate should understand and accommodate the following:</i>		<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Mastering principles and recent practical skills including taking samples, use of instruments and performing different methods and techniques related to clinical hematology and clinical biochemistry.		Mastering basic and recent professional skills in the field of specialization
2)	Application of the principles of good experimental design and write and evaluate laboratory report.		Writing and evaluating professional reports.
3)	Evaluating laboratory instruments and methods of clinical hematology and clinical biochemistry, interpreting laboratory data and planning a research project in the field of Clinical Pathology with a consideration to the technical, ethical and safety issues and associated costs.		Evaluating existing materials and methods in the area of specialization.

### D) General and transferable skill

Adopted ARS		NARS (Master)	
	<i>By the end of this program the graduate should understand and accommodate the following:</i>		<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Communicating effectively with teaching staff, colleagues and the community by discussions or written materials.		Effective communication.
2)	Using information technology in scientific research and publications and to know the new in laboratory medicine.		Utilizing information technology to serve development of professional practice.
3)	Assessment of himself and identify his personal educational needs through demonstrating appropriate attitude towards teaching staff and colleagues.		Self-assessment and determination of personal educational needs.
4)	Respecting the importance of working in a team and leading a team under different professional circumstances.		Using different resources to obtain knowledge and information.
5)	Using appropriate attitude and rules towards		Establishing rules and indicators for

	teaching staff and colleagues and use evidence based evaluations.	assessment of the performance of others.
6)	Respecting the importance of team work.	Team working and leading a team in familiar professional contexts.
7)	Doing good control of timing.	Efficient time management.
8)	Performing continuous self-learning.	Self and continuous learning.

## ثانياً: برامج الماجستير

### ١- مواصفات الخريج

- خريج برنامج الماجستير في أي تخصص يجب أن يكون قادراً على:
١. إجادة تطبيق أساسيات و منهجيات البحث العلمي واستخدام أدواته المختلفة
  ٢. تطبيق المنهج التحليلي واستخدامه في مجال التخصص
  ٣. تطبيق المعارف المتخصصة و دمجها مع المعارف ذات العلاقة في ممارسته المهنية
  ٤. إظهار وعيا بالمشاكل الجارية و الرؤى الحديثة في مجال التخصص
  ٥. تحديد المشكلات المهنية و إيجاد حلول لها
  ٦. إتقان نطاق مناسب من المهارات المهنية المتخصصة، واستخدام الوسائل التكنولوجية المناسبة بما يخدم ممارسته المهنية
  ٧. التواصل بفاعلية و القدرة على قيادة فرق العمل
  ٨. اتخاذ القرار في سياقات مهنية مختلفة
  ٩. توظيف الموارد المتاحة بما يحقق أعلى استفادة و الحفاظ عليها
  ١٠. إظهار الوعي بدوره في تنمية المجتمع و الحفاظ على البيئة في ضوء المتغيرات العالمية و الإقليمية
  ١١. التصرف بما يعكس الالتزام بالنزاهة و المصداقية و الالتزام بقواعد المهنة
  ١٢. تنمية ذاته أكاديمياً و مهنياً و قادراً على التعلم المستمر

### ١٢- المعايير القياسية العامة

#### ١ المعرفة و الفهم

- بانتهاج دراسة برنامج الماجستير يجب ان يكون الخريج على فهم و دراية بكل من:
- أ- النظريات و الأساسيات المتعلقة بمجال التعلم وكذا في المجالات ذات العلاقة



- ب- التأثير المتبادل بين الممارسة المهنية وانعكاسها علي البيئة  
ت- التطورات العلمية في مجال التخصص  
ث- المبادئ الأخلاقية و القانونية للممارسة المهنية في مجال التخصص  
ج- مبادئ و أساسيات الجودة في الممارسة المهنية في مجال التخصص  
ح- أساسيات وأخلاقيات البحث العلمي

### ٢ المهارات الذهنية

- بانتهاء دراسة برنامج الماجستير يجب ان يكون الخريج قادرا على:  
أ- تحليل و تقييم المعلومات في مجال التخصص و القياس عليها لحل المشاكل  
ب- حل المشاكل المتخصصة مع عدم توافر بعض المعطيات  
ت- الربط بين المعارف المختلفة لحل المشاكل المهنية  
ث- إجراء دراسة بحثية و /أو كتابة دراسة علمية منهجية حول مشكلة بحثية  
ج- تقييم المخاطر في الممارسات المهنية في مجال التخصص  
ح- التخطيط لتطوير الأداء في مجال التخصص  
خ- اتخاذ القرارات المهنية في سياقات مهنية متنوعة

### ٣ المهارات المهنية

- بانتهاء دراسة برنامج الماجستير يجب ان يكون الخريج قادرا على:  
أ- إتقان المهارات المهنية الأساسية و الحديثة في مجال التخصص  
ب- كتابة و تقييم التقارير المهنية  
ت- تقييم الطرق و الأدوات القائمة في مجال التخصص

### ٤ المهارات العامة و المنتقلة

- بانتهاء دراسة برنامج الماجستير يجب أن يكون الخريج قادرا على:  
أ- التواصل الفعال بأنواعه المختلفة  
ب- استخدام تكنولوجيا المعلومات بما يخدم الممارسة المهنية  
ت- التقييم الذاتي وتحديد احتياجاته التعليمية الشخصية  
ث- استخدام المصادر المختلفة للحصول على المعلومات و المعارف  
ج- وضع قواعد ومؤشرات تقييم أداء الآخرين  
ح- العمل في فريق ، وقيادة فرق في سياقات مهنية مختلفة  
خ- إدارة الوقت بكفاءة  
د- التعلم الذاتي و المستمر



## COURSE SPECIFICATION (2021 / 2022)

### 1 - Basic Information:

Course code: -

Course title: Clinical Pathology (Basic)

Academic year or level: Master of Veterinary Medicine Program

Total teaching hours: 336 hours

Lecture: 144 hrs. (48 weeks- 3hrs/week)

Practical: 192 hrs. (48 weeks- 4hrs/week)

### 2 - OVERALL AIMS OF THE COURSE:

*By the end of this course, the student should acquire the concepts, principles and practical skills relevant to the science of clinical pathology necessary for diagnosis and differential diagnosis of animal diseases based on good interpretation and correlation of laboratory findings.*

### 3 - INTENDED LEARNING OUTCOMES (I. L.Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- a.1. Summarize the basics of normal hematopoiesis and normal development of blood cells and platelets.
- a.2. List the common disorders of red and white blood cells.
- a.3. Discuss the differential diagnosis of the common disorders of blood cells in different hematologic diseases.
- a.4. Identify the normal and abnormal conditions involving blood hemostasis.
- a.5. Define different conditions affecting enzymes and their laboratory findings.
- a.6. Recognize diseases affecting body macromolecules as carbohydrates, lipids and proteins.
- a.7. Enumerate different diseases affecting, minerals and electrolytes and acid-base balance.
- a.8-. Discuss various organ dysfunctions; their etiology, pathophysiology, and associated laboratory findings.
- a.9. Explain basic theoretical knowledge about tumor and inflammatory biomarkers and their clinical implication.

#### 3-B: INTELLECTUAL SKILLS:

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

- b.1. Categorize the appropriate tests used for screening, diagnosis, and follow up of various disease states.
- b.2. Interpret the results of routine hematological and biochemical laboratory tests and integrate the results with clinical information
- b.3. Correlate between signs and symptoms of some diseases with the presence of certain laboratory abnormal findings.

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

- c.1. Use the different available equipment present in clinical pathology laboratory.
- c.2. Collect blood for routine tests and giving instructions on specimen transport and processing.
- c.3. Perform all routine hematological tests.
- c.4. Apply the principal assays performed in investigation of hemostasis.
- c.5. Perform all routine biochemical tests.



c.6. Employ complete urine analysis.

**3- D: GENERAL and transferable SKILLS:**

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

- d.1. Communicate effectively with his professors, and collages.
- d.2. Utilize different sources of knowledge and information
- d.3. Use information technology to serve the professional practice.
- d.4. Manage time efficiently.

**4 - COURSE CONTENTS:**

Topic	No. of hours		
	Lectures	Practical	Total
1-Hematopoiesis.	4		4
2-Red and white blood cell disorders.	60		60
3-Platelet and coagulation disorders	9		9
4-Disorders of glucose, proteins and lipids metabolism.	18		18
5-Inflammatory and tumor markers	14		14
6- Organ functions evaluation	30		30
7-Disorders of minerals and electrolytes..	9		9
8-Clinical pathology laboratory and equipments		12	12
9-Laboratory tests for evaluation of RBCs,WBCs and thrombocytes		76	76
10-Laboratory tests for evaluation of carbohydrates,protein and lipid metabolism.		24	24
11- Laboratory tests for evaluation organ functions		40	40
12- Laboratory tests for evaluation of minerals and electrolytes		12	12
13- Urine analysis		28	28
<b>Total</b>	<b>144</b>	<b>192</b>	<b>336</b>

**5- TEACHING & LEARNING METHODS:**

- \* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard Discussion and brain storming
- \* **Practical sessions:**
- \* **Self-Learning activities:** Mini reviews from the web and the library Making individual reports about clinical pathology
- \* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a9	b1 to b3		d2, d3
<b>Practical sessions</b>		b1,b2	c1 to c7	d1to d4



<b>Self-Learning activities</b>	a4, a6	b2,b3		d2, d3, d4
<b>Distance Teaching and Learning</b>	a1 to a9	b1 to b3	c1 to c7	d1 to d4

### 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:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Acti vities
<b>7.b time</b>	The Examinations were held at the end of the academic year.	The Examinations were held at the end of the academic year.	The Examinations were held at the end of the academic year.	Allover the academi c year
<b>7.c grads</b>	<u>50</u>	<u>20</u>	<u>20</u>	<u>10</u>

6.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a9	b1- b3		d4
Practical exams			c1 to c6	d2, d3
Oral exams	a1 to a9	b1- b3		d1
Student activities				d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

### 8. LEARNING AND REFERENCE MATERIALS:

#### 8-1: Essential Books

- Acid-base and electrolyte handbook for veterinary technicians / edited by Angela Randels-Thorp, David Liss.2017
- Kenneth S Latimer (2015) Duncan and Prasse's Veterinary Laboratory Medicine: Clinical Pathology, 6<sup>th</sup> Edition.
- Veterinary laboratory medicine, Duncan, Prasse and Mahaffey (5th edition 2015)
- Oxford Handbook of Endocrinology and Diabetes (2014):Turner; Helen; Wass; John, Oxford University Press UK
- Atlas of Canine and Feline Peripheral Blood Smears, 1e (Small Animal Laboratory Essentials), (2013):Amy C. Valenciano, Rick Cowell, Theresa Rizzi and Ronald D. Tyler, Elsevier Health US.
- Veterinary Hematology and Clinical Chemistry (2012):Mary, John Wiley & Sons Limited

#### 8-2: Recommended books:



- Veterinary Hematology A Diagnostic Guide and Color Atlas (2011): Harvey, Elsevier Health US.
- Hematology. Schalm.6th Edition, (2010)
- Animal Clinical Chemistry. G.O.Evans. 2nd Edition, (2009).
- Fundamentals of Veterinary Clinical Pathology (2008):Steven L. Stockham, Michael A. Scott , 2nded., Blackwell publishing
- Veterinary laboratory medicine, clinical pathology Duncan and Prasse's 2003)
- Veterinary clinical pathology, Coles (1989):

### **8.3: Web sites and journals**

- WWW.PubMed.com
- American journal of clinical pathology
- Journal of comparative pathology and clinical pathology
- www.Vet.net.com
- <http://www.Clinicalpathology.net/>
- <http://www.ncbi.nlm.nih.gov/ICTVdb/>
- <http://www.healthsystem.virginia.edu/internet/labtests/clinical/cpath.cfm>.

**Course coordinator:**

**Head of department of Clinical Pathology**

**Prof. Dr. Emad Wadeed**

**Dr. Mohamed Fahmy**

### Course Matrix for achievement of Intended Learning Outcomes

Topics	Hours	Knowledge & Understanding									Intellectual Skills			Practical & Professional Skills						General & Transferable Skills			
		1	2	3	4	5	6	7	8	9	1	2	3	1	2	3	4	5	6	1	2	3	4
1-Hematopoiesis.	4	✓										✓	✓							✓	✓	✓	✓
2-Red and white blood cell disorders.	60	✓	✓	✓								✓	✓							✓	✓	✓	✓
3-Platelet and coagulation disorders	9	✓		✓	✓							✓	✓							✓	✓	✓	✓
4-Disorders of glucose, proteins and lipids metabolism.	18					✓	✓		✓	✓	✓	✓	✓							✓	✓	✓	✓
5-Inflammatory and tumor markers	14								✓	✓	✓	✓	✓							✓	✓	✓	✓
6- Organ functions evaluation	30					✓	✓	✓		✓	✓									✓	✓	✓	✓
7-Disorders of minerals and electrolytes..	9							✓	✓					✓	✓					✓	✓	✓	✓
8-Clinical pathology laboratory and equipment	12													✓						✓	✓	✓	✓
9-Laboratory tests for evaluation of RBCs, WBCs and thrombocytes	76										✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓
10-Laboratory tests for evaluation of carbohydrates, protein and lipid metabolism.	24										✓	✓	✓	✓	✓			✓		✓	✓	✓	✓
11- Laboratory tests for evaluation of organ functions.	40										✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓
12- Laboratory tests for evaluation of minerals and electrolytes	12										✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓
13-Urine analysis	28								✓		✓	✓						✓		✓		✓	✓



## COURSE SPECIFICATION (2021/2022)

### 1 - Basic Information:

Course code: 175 /1

Course title: Advanced Clinical Pathology (باطولوجيا اكلينيكية متقدم)

Academic year or level: Master of Veterinary Medicine Program

Total teaching hours: 192 hours

Lecture: 96 hrs.

Practical: 96 hrs.

### 2 - OVERALL AIMS OF THE COURSE:

*By the end of this course, the student should acquire the basic knowledge and skills concerning pathophysiosyndromes, diseases or other conditions that should be considered when results of clinical laboratory assays are abnormal.*

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- a.1. Recognize the basic laboratory techniques used in diagnosis of different animal diseases
- a.2. Identify normal and abnormal blood platelets function.
- a.3. Describe the cases of autoimmune diseases of blood.
- a.4. Illustrate acid-base balance and imbalance.
- a.5. Define hormonal disorders.

#### 3-B: INTELLECTUAL SKILLS:

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

- b.1. Evaluate homeostasis disorders.
- b.2. Judge cases of autoimmune diseases of blood.
- b.3. Contrast acid-base imbalance.
- b.4. Discover endocrine dysfunctions.
- b.5. Interpret exfoliative cells in different body fluids.

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

- c.1. Obtaining proper sample from bone marrow, blood and different body fluid in different animals.
- c.2. Carry out immune assays.
- c.3. Perform blood gases analysis.
- c.4. Detect normal and abnormal hormonal levels in different animals.
- c.5. Examine stained smear or unstained smear from different body fluid.

#### 3- D: GENERAL and transferable SKILLS:

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

- d.1. Communicate effectively with his professors, and collages.
- d.2. Utilize different sources of knowledge and information
- d.3. Use information technology to serve the professional practice.
- d.4. Manage time efficiently.

#### 4 - COURSE CONTENTS:

TOPIC	Total hours	Hours for lecture	Hours for practical
Introduction	4	2	2
Laboratory evaluation of homeostasis	38	19	19
Advanced evaluation of water, electrolytes and acid-base balance	30	15	15
Laboratory assessment of hormonal disorders	30	15	15
Laboratory assessment of exfoliative cells	30	15	15
Cases Studies of autoimmune diseases of blood	30	15	15
Molecular biology aids in advance clinical pathology lab.	30	15	15
<b>Total</b>	<b>192</b>	<b>96</b>	<b>96</b>

#### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library Making individual reports about clinical pathology

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures *	a1 to a5	b1 to b5		d1-d5
Practical sessions		b2,b5	c1 to c5	d1-d5
Self-Learning activities				d1-d5
Distance Teaching and Learning	a1 to a5	b1 to b5	c1 to c5	d1-d5

#### 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 the academic year	At the end of the academic year	At the end of the academic year	Allover the academic year
7.c grads	<u>50</u>	<u>20</u>	<u>20</u>	<u>10</u>





6.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a5	b2, b3		d1, d4
Practical exams			c1 to c5	d2, d4
Oral exams	a1 to a5	b2, b3		d2, d3, d4
Student activities				d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Essential Books

- Acid-base and electrolyte handbook for veterinary technicians / edited by Angela Randels-Thorp, David Liss.2017
- Kenneth S Latimer (2015) Duncan and Prasse's Veterinary Laboratory Medicine: Clinical Pathology, 6<sup>th</sup> Edition.
- Veterinary laboratory medicine, Duncan, Prasse and Mahaffey (5th edition 2015)
- Oxford Handbook of Endocrinology and Diabetes (2014):Turner; Helen; Wass; John, Oxford University Press UK
- Atlas of Canine and Feline Peripheral Blood Smears, 1e (Small Animal Laboratory Essentials), (2013):Amy C. Valenciano, Rick Cowell, Theresa Rizzi and Ronald D. Tyler, Elsevier Health US.
- Veterinary Hematology and Clinical Chemistry (2012):Mary, John Wiley & Sons Limited

### 8-2: Recommended books:

- Veterinary Hematology A Diagnostic Guide and Color Atlas (2011): Harvey, Elsevier Health US.
- Hematology. Schalm.6th Edition, (2010)
- Animal Clinical Chemistry. G.O.Evans. 2nd Edition, (2009).
- Fundamentals of Veterinary Clinical Pathology (2008):Steven L. Stockham, Michael A. Scott , 2nded., Blackwell publishing
- Veterinary laboratory medicine, clinical pathology Duncan and Prasse's 2003)
- Veterinary clinical pathology, Coles (1989):

### 8.3: Web sites and journals

- WWW.PubMed.com
- American journal of clinical pathology
- Journal of comparative pathology and clinical pathology
- www.Vet.net.com
- <http://www.Clinicalpathology.net/>
- <http://www.ncbi.nlm.nih.gov/ICTVdb/>
- <http://www.healthsystem.virginia.edu/internet/labtests/clinical/cpath.cfm>.

Course coordinator:

Head of department of Clinical Pathology

**Prof. Dr. Emad Wadeed**

**Dr. Mohamed Fahmy**

### Course Matrix for achievement of Intended Learning Outcomes

Topics	Hours	Knowledge & Understanding					Intellectual Skills					Practical & Professional Skills					General & Transferable Skills				
		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	
Introduction	4	✓						✓										✓	✓	✓	
Laboratory evaluation of homeostasis	38		✓				✓								✓	✓	✓		✓	✓	
Advanced evaluation of water, electrolytes and acid-base balance	30				✓				✓	✓	✓	✓			✓			✓	✓	✓	
Laboratory assessment of hormonal disorders	30					✓				✓		✓			✓		✓	✓	✓	✓	
Laboratory assessment of exfoliative cells	30	✓								✓						✓	✓	✓	✓	✓	
Cases Studies of autoimmune diseases of blood	30			✓		✓		✓				✓	✓	✓			✓	✓	✓	✓	
Molecular biology aids in advance clinical pathology lab.	30	✓					✓					✓	✓	✓			✓	✓	✓	✓	



## COURSE SPECIFICATION (2021 / 2022)

### 1 - Basic Information:

Course code: 176 /1

Course title: **Organ Function Tests, electrolytes and acid base balance**

Academic year or level : **Master of Veterinary Medicine Program**

Total teaching hours: **192 hours**

Lecture: **96 hrs**

Practical: **96 hrs**

### 2 - OVERALL AIMS OF THE COURSE:

**By the end of this course, the student should acquire the basic knowledge and skills concerning function tests of different organs including; liver, kidney, pancreas, digestive system, acid balance, body fluids and urine**

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- a.1. Discuss theories, concepts and principles relating to chemical pathology underlying health and disease.
- a.2. List the different equipment and tests used in the clinical biochemical laboratory and their principles and sample collection and handling.
- a.3. Define the laboratory findings associated with disorders of enzymes and body biomolecules as carbohydrates, lipids and proteins.
- a.4. Identify the disorders of minerals and electrolytes and laboratory biochemical findings associated with them.
- a.5. Contrast different diseases and various organ dysfunctions such as liver, muscle, kidney and pancreas and their associated laboratory findings.
- a.6. Describe the principals of endocrinology, disease and biochemical investigations in clinical diagnosis.
- a.7. Outline a basic knowledge about application of the tumor and inflammatory biomarkers.

#### 3-B: INTELLECTUAL SKILLS:

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

- b.1-Select the appropriate biochemical tests used for screening, diagnosis, and follow up of various disease states.
- b.2.Interpret the clinical chemistry results.
- b.3.Integrate clinical and laboratory findings for proper interpretation.
- b.4.Differentiate between the common disorders encountered in the practice of biochemical pathology based on laboratory findings.
- b.5.Analyze information from a wide range of sources and draw reasoned conclusions.

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

- c.1.Use the different equipments in the clinical biochemical pathology laboratory.
- c.2.Collect blood for routine chemical pathology tests and master the techniques of specimen collection, handling and processing.



- c.3. Apply the basic steps involved in performing routine tests in biochemical Pathology.
- c.4. Carry out routine biochemical tests used for diagnosing disorders involving body macromolecules, minerals and electrolytes.
- c.5. Perform routine biochemical tests used for diagnosing disorders involving internal organs.
- c.6. Practice urine examination, including physical, chemical, and microscopic aspects of urinalysis.

**3- D: GENERAL and transferable SKILLS:**

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

- d.1. Communicate effectively with his professors, and collages.
- d.2. Utilize different sources of knowledge and information
- d.3. Use information technology to serve the professional practice.
- d.4. Manage time efficiently.

**4 - COURSE CONTENTS:**

TOPIC	Total hours	Hours for lecture	Hours for practical
Introduction and different laboratory techniques used for organ function tests	4	2	2
Laboratory evaluation of liver disorders	40	20	20
Laboratory evaluation of kidney disorders	40	20	20
Laboratory evaluation of pancreas and GIT disorders	40	20	20
Laboratory tests for evaluation of minerals , electrolytes and acid base balance	28	14	14
Urine analysis	24	12	12
Case studies	16	8	8
Total	192	96	96

**5- TEACHING & LEARNING METHODS:**

- \* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard Discussion and brain storming
- \* **Practical sessions:**
- \* **Self-Learning activities:** Mini reviews from the web and the library Making individual reports about clinical pathology
- \* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures *	a1 to a7	b1- b5		d2- d4
Practical sessions			c1 to c6	d1- d4



<b>Self-Learning activities</b>				d1- d4
<b>Distance Teaching and Learning</b>	a1 to a7	b1 to b5	c1 to c6	d2 – d4

**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:-**

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	Allover the academic year
<b>7.c grads</b>	<u>50</u>	<u>20</u>	<u>20</u>	<u>10</u>

6.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a7	b1-b5		d1, d4
Practical exams			c1 to c6	d2, d4
Oral exams	a1 to a7	b2, b3		d2, d3, d4
Student activities				d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

**8. LEARNING AND REFERENCE MATERIALS:**

**8-1: Essential Books**

- Acid-base and electrolyte handbook for veterinary technicians / edited by Angela Randels-Thorp, David Liss.2017
- Kenneth S Latimer (2015) Duncan and Prasse’s Veterinary Laboratory Medicine: Clinical Pathology, 6<sup>th</sup> Edition.
- Veterinary laboratory medicine, Duncan, Prasse and Mahaffey (5th edition 2015)
- Oxford Handbook of Endocrinology and Diabetes (2014):Turner; Helen; Wass; John, Oxford University Press UK
- Atlas of Canine and Feline Peripheral Blood Smears, 1e (Small Animal Laboratory Essentials), (2013):Amy C. Valenciano, Rick Cowell, Theresa Rizzi and Ronald D. Tyler, Elsevier Health US.
- Veterinary Hematology and Clinical Chemistry (2012):Mary, John Wiley & Sons Limited

**8-2: Recomended books:**

- Veterinary Hematology A Diagnostic Guide and Color Atlas (2011): Harvey, Elsevier Health US.
- Hematology. Schalm.6th Edition, (2010)
- Animal Clinical Chemistry. G.O.Evans. 2nd Edition, (2009).
- Fundamentals of Veterinary Clinical Pathology (2008):Steven L. Stockham, Michael A. Scott , 2nded., Blackwell publishing
- Veterinary laboratory medicine, clinical pathology Duncan and Prasse’s 2003)



- Veterinary clinical pathology, Coles (1989):

### **8.3: Web sites and journals**

- WWW.PubMed.com
- American journal of clinical pathology
- Journal of comparative pathology and clinical pathology
- www.Vet.net.com
- <http://www.Clinicalpathology.net/>
- <http://www.ncbi.nlm.nih.gov/ICTVdb/>
- <http://www.healthsystem.virginia.edu/internet/labtests/clinical/cpath.cfm>.

**Course coordinator:**

**Head of department of Clinical Pathology**

**Prof. Dr. Emad Wadeed**

**Dr. Mohamed Fahmy**

### Course Matrix for achievement of Intended Learning Outcomes

Topics	Hours	Knowledge & Understanding							Intellectual Skills					Practical & Professional Skills						General & Transferable Skills				
		1	2	3	4	5	6	7	1	2	3	4	5	1	2	3	4	5	6	1	2	3	4	
Introduction and different laboratory techniques used for organ function tests	4	✓	✓					✓	✓			✓				✓					✓		✓	
Laboratory evaluation of liver disorders	40		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	
Laboratory evaluation of kidney disorders	40		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Laboratory evaluation of pancreas and GIT disorders	40		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	
Laboratory tests for evaluation of minerals , electrolytes and acid base balance	28				✓	✓			✓	✓	✓	✓			✓	✓	✓	✓		✓	✓	✓	✓	
Urine analysis	24		✓		✓			✓											✓	✓	✓	✓	✓	
Cases Studies	16				✓	✓		✓		✓	✓	✓	✓					✓	✓	✓	✓	✓	✓	



## COURSE SPECIFICATION (2021 / 2022)

### 1 - Basic Information:

Course code: 177 /1

Course title: Hematology and bone marrow examination (تشخيص أمراض الدم و فحص النخاع)

Academic Year: Master of Veterinary Medicine Program

Total teaching hours : 144 hours

Lecture: 48 hrs

Practical: 96 hrs

### 2 - OVERALL AIMS OF THE COURSE:

To provide students with basic knowledge and skills concerning abnormal hematopoiesis in addition to RBCs, WBCs, and thrombocytes disorders in different animals, birds and fish.

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- a.1. Determine the different hematological techniques used in diagnosis of blood and bone marrow disorders.
- a.2. Identify the RBCs disorders.
- a.3. Recognize the WBCs disorders.
- a.4. List the blood platelets disorders
- a.5. Describe the abnormalities of bone marrow.

#### 3-B: INTELLECTUAL SKILLS:

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

- b.1. Interpret different hematological results.
- b.2. Correlate obtained patient hematological data with other laboratory results to make appropriate judgments.
- b.3. Compare hematology tests with respect to principles, procedures, and techniques

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

- c.1. Obtaining proper blood and bone marrow samples from different animals.
- c.2. Perform complete blood count.
- c.3. Examine stained blood smears under light microscope.
- c.4. Apply stained bone marrow smears under light microscope.

#### 3- D: GENERAL SKILLS:

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

- d.1. Communicate effectively with his professors, and collages.
- d.2. Utilize different sources of knowledge and information
- d.3. Use information technology to serve the professional practice.
- d.4. Manage time efficiently.

### 4 - COURSE CONTENTS:

TOPIC	Total hours	Hours for lecture	Hours for practical



Introduction	6	2	4
Evaluation of erythron	42	14	28
Evaluation of leucogram	36	12	24
Evaluation of thrombon	9	3	6
Hematopoietic neoplasia	15	5	10
Bone marrow examination	24	8	16
Cases Studies	6	2	4
Laboratory aids for differential diagnosis of some animal diseases	6	2	4
<b>Total</b>	<b>144</b>	<b>48</b>	<b>96</b>

### 5- TEACHING & LEARNING METHODS:

- \* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard Discussion and brain storming
- \* **Practical sessions:**
- \* **Self-Learning activities:** Mini reviews from the web and the library  
Making individual reports about Hematology and bone marrow examination
- \* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures	a1 - a5	b1- b3		d1- d4
Practical sessions	a1- a5	b1-b3	c1 -c4	d1- d4
Self-Learning activities				d1- d4
Distance Teaching and Learning	a1 - a5	b1 - b3	c1 -c4	d1 - d4

### 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:-

<u>7.a Used methods</u>	Written examination	Oral examination	Practical examination	Activities
<u>7.b time</u>	The Examinations were held at the end of the academic year.	The Examinations were held at the end of the academic year.	The Examinations were held at the end of the academic year.	Allover the academic year
<u>7.c grads</u>	<u>50</u>	<u>20</u>	<u>20</u>	<u>10</u>



6.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 – a5	b1-b3		d3
Practical exams		b1-b3	c1 - c4	d1- d4
Oral exams	a1 – a5	b1- b3		d3,d4
Student activities		b1-b3		d1 – d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Essential Books

- Acid-base and electrolyte handbook for veterinary technicians / edited by Angela Randels-Thorp, David Liss.2017
- Kenneth S Latimer (2015) Duncan and Prasse's Veterinary Laboratory Medicine: Clinical Pathology, 6<sup>th</sup> Edition.
- Veterinary laboratory medicine, Duncan, Prasse and Mahaffey (5th edition 2015)
- Oxford Handbook of Endocrinology and Diabetes (2014):Turner; Helen; Wass; John, Oxford University Press UK
- Atlas of Canine and Feline Peripheral Blood Smears, 1e (Small Animal Laboratory Essentials), (2013):Amy C. Valenciano, Rick Cowell, Theresa Rizzi and Ronald D. Tyler, Elsevier Health US.
- Veterinary Hematology and Clinical Chemistry (2012):Mary, John Wiley & Sons Limited

### 8-2: Recomonded books:

- Veterinary Hematology A Diagnostic Guide and Color Atlas (2011): Harvey, Elsevier Health US.
- Hematology. Schalm.6th Edition, (2010)
- Animal Clinical Chemistry. G.O.Evans. 2nd Edition, (2009).
- Fundamentals of Veterinary Clinical Pathology (2008):Steven L. Stockham, Michael A. Scott, 2nded., Blackwell publishing
- Veterinary laboratory medicine, clinical pathology Duncan and Prasse's (2003)

### 8.3: Web sites and jouranls

- WWW.PubMed.com
- American journal of clinical pathology
- Journal of comparative pathology and clinical pathology
- www.Vet.net.com
- <http://www.Clinicalpathology.net/>
- <http://www.ncbi.nlm.nih.gov/ICTVdb/>
- <http://www.healthsystem.virginia.edu/internet/labtests/clinical/cpath.cfm>.

Course coordinator:

Head of department of Clinical Pathology

Prof. Dr. Emad Wadeed

Dr. Mohamed Fahmy

### Course Matrix for achievement of Intended Learning Outcomes

Topics	Hours	Knowledge & Understanding					Intellectual Skills			Practical & Professional Skills				General & Transferable Skills			
		1	2	3	4	5	1	2	3	1	2	3	4	1	2	3	4
Introduction	6	✓	✓	✓	✓	✓		✓	✓							✓	✓
Evaluation of erythron	42		✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Evaluation of leucogram	36			✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Evaluation of thrombon	9				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Hematopoietic neoplasia	15		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Bone marrow examination	24	✓				✓		✓	✓			✓	✓	✓	✓	✓	✓
Cases Studies	6	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Laboratory aids for differential diagnosis of some animal diseases	6	✓					✓			✓	✓	✓	✓	✓	✓	✓	✓



**Kafrelsheikh University**  
Faculty of Veterinary Medicine



---

**Kafrelsheikh University**

**Faculty of Veterinary Medicine**

**Department of Fish Diseases and Management**

# **Program Specification for Master Degree**

## **(2021 - 2022)**

**Program Title:**

**Master of The Veterinary Science**  
**(Fish Diseases and Management)**



### **A- Basic information:**

- 1- **Awarding Body:** Kafrelsheikh University
- 2- **Teaching Body:** Faculty of Veterinary Medicine
- 3- **Department(s) responsible:** Fish Diseases and Management.
- 4- **Programme Title:** Fish Diseases and Management.
- 5- **Final award:** Master Degree (MVSc)
- 6- **Program Coordinator:** **Dr. Eman Moustafa Moustafa**
- 7- **Registration period:** 2-4 years
- 8- **External evaluator:** **prof.dr. kamal kamal Metwally**

### **B- Professional information:**

#### **1-Educational aims of the Programme:**

- Provides graduates the opportunity to develop communication and teaching skills and the experience of scientific research.
- Develops the ability of graduate to engage critically with recent techniques and diagnostic tools in the field of fish Medicine and Management.
- Supplies the graduates with the most recent knowledge in science and technological applications in fish Medicine and Management.
- Allows graduates to develop practical research project.
- Enables graduates to achieve competency in modern laboratory technology.

#### **2- Academic standards:**

**Academic reference standards (ARS) adopted by the faculty committee No 1 (14-9-2014)**

#### **3-Graduate attributes:**

**The graduate must have the ability to:**

- 3.1.To understand how to use the fish information and its applications in fish diseases and farm management.
- 3.2.To identify technological problems of fish industry and how to solve them.
- 3.3.To estimate the efficiency of fish farms and their projects.
- 3.4.To design and execute feasibility studies of different fish projects.
- 3.5.To assess the economic benefits of diseases control by using any herd health programs.



- 3.6. To plan and choose the optimum resources for improving productive efficiency of fish farms in Egypt.
- 3.7. To plan and execute research work, evaluate outcomes and draw conclusions.
- 3.8. To communicate effectively in written, verbal and graphical forms.

#### **4-Program outcomes:**

##### **a. Knowledge and understanding:**

*By the end of this program the graduate should be able to:*

- a.1. Recognize the basics of using history, clinical symptoms and Post-mortem lesions in the diagnosis of infectious and non-infectious diseases.
- a.2. Identify the cause of the infectious diseases by isolating and identifying the causative pathogen in the laboratory.
- a.3. Clarify the effect of fish affections on human health.
- a.4. Recognize scientific progress in the field of Aquaculture Medicine especially those related to the development of fish production to meet the human nutritional needs.
- a.5. Describe the pathogenesis of microbial and parasitic diseases of fish.
- a.6. List the different pathogens affecting fish and methods of control
- a.7. Define the basics of risk-assessment in the field of fish diseases and safety measures in veterinary aquatic laboratory.
- a.8. Explain the legal and ethical basics in the field of fish diseases specially keeping fish and their byproducts free from drug and pesticide residues to be fit for human consumption.

##### **b. Intellectual skills:**

**On successful completion of this programme, the graduate will be able to:**

- b.1. Analyze the clinical pictures and changes after death to reach a perfect diagnosis.
- b.2. Interpret the laboratory findings and relate them to clinical pictures of diseases to reach a conclusive identification of the causative pathogen
- b.3. Minimize sophisticated problems in the aquatic field depending upon scientific bases.
- b.4. Manage problems of diagnosing the cause of diseases even in scarcity of resources via contact with professional experts.
- b.5. Correlate clinical signs, PM lesions to the laboratory findings in order to reach perfect diagnosis.
- b.6. Layout research plan in fish medicine
- b.7. Layout scientific article on a research problem involving metabolic disorders of infectious fish diseases.
- b.8. Explain risks of professional practices in aquatic field and their possible consequences.
- b.9. Maximize professional performance by improving fish nutrition and aquaculture conditions.
- b.10. Manage effectively laboratory diagnostic problems



**c. Practical and professional skills:**

**At the end of the program, graduate must be able to:**

- c.1. Apply basic and recent professional skills in isolation and identification of viruses, bacteria, parasites and fungi.
- c.2. Illustrate the appropriate laboratory tests for identification of non-infectious problems in fish.
- c.3. Write a professional and conclusive report about the disease of concern.
- c.4. Determine the measures steps for control of infectious diseases in fish.
- c.5. Apply a research project according to the international standards of safety measures and risk-assessment.
- c.6. Apply essential laboratory investigations concerned with pathogen identifications and immune status of fish.

**d. General and transferable skills:**

**At the end of the program, graduate must be able to:**

- d.1. Join effectively with his professors, collages and fish farm owner(s).
- d.2. Handle different sources of knowledge and information.
- d.3. Improve himself and identify his personal educational needs.
- d.4. Develop interpersonal skills and team working ability
- d.5. Develop an ability to learn independently for a career of lifelong learning.
- d.6. Incorporate information technology to serve the professional practice.
- d.7. Manage time efficiently.
- d.8. Prescribe tools and indicators for assessment of the performance of others.

**5- Program structure (duration 2-4 years)**

**a) Premaster courses – at least one academic year**

	Lecture (hours/week)	Practical (hours/week)
Fundamental (core) course	3	4
Research methodology	1	3
2-5 Elective Courses (10-12 hours)	Offered by other departments and are selected from the list below according to thesis topic	

**b) MVSc Thesis (at least one academic year)**

- All master-degree students should prepare a master thesis.
- The department and the ethical committees must approve the protocol of the research.
- The thesis should include a review part and a research part.
- The thesis is supervised by one or more senior staff members of the department responsible for the program and may include other specialties according to the nature of the research.



- The thesis should be evaluated and approved by a committee of three professors including one of the supervisors and an external professor.

*A number of subsidiary courses are selected from the following list according to the title of the research work*

Subject	Code	Course title	No of hours/week	
			Lecture	Practical Lab
Anatomy and embryology	101/1	<b>1- Applied anatomy</b>	2	2
	102/1	<b>2- Anatomical techniques and surface anatomy</b>	2	2
	103/1	<b>3- Osteology and arthrology</b>	2	2
	104/1	<b>4- Comparative digestive system</b>	2	2
	105/1	<b>5- Comparative uro-genital system</b>	2	2
	106/1	<b>6-Comparative respiratory system</b>	2	2
	107/1	<b>7- Comparative cardiovascular system</b>	2	2
	108/1	<b>8- Comparative nervous system and endocrine glands</b>	2	2
	109/1	<b>9- General and special embryology</b>	2	2
	110/1	<b>10- Avian anatomy</b>	1	2
Histology	111/1	<b>11- cytology and cytochemistry</b>	1	2
	112/1	<b>12- general histology</b>	2	2
	113/1	<b>13- Histology and histochemistry of blood, lymph and cardiovascular system.</b>	1	1
	114/1	<b>14- Comparative histology and histochemistry of body muscles, heart and blood vessels</b>	1	1
	115/1	<b>15- Comparative histology and histochemistry of respiratory system</b>	1	1
	116/1	<b>16-Comparative histology and histochemistry of digestive system</b>	2	2
	117/1	<b>17- Comparative histology and histochemistry of uro-genital system</b>	2	2
	118/1	<b>18- Comparative histology and histochemistry of nervous and endocrine systems</b>	2	2
	119/1	<b>19- Histology and histochemistry of special sensors</b>	1	2
	120/1	<b>20-Histology and histochemistry of skin, hooves, claws and</b>	2	2





		<b>Nails</b>		
	121/1	<b>21- Avian histology</b>	2	2
	122/1	<b>22- Fish histology</b>	1	2
<b>Physiology</b>	123/1	<b>23- Physiology of mammalian endocrine and reproduction</b>	2	2
	124/1	<b>24- poultry physiology (advanced)</b>	2	2
	125/1	<b>25- physiology of muscle and nerve</b>	1	2
	126/1	<b>26- physiology of ruminants</b>	2	2
	127/1	<b>27- physiology of environment, adaptation and cell</b>	2	2
	128/1	<b>28- physiology of blood</b>	2	2
	129/1	<b>29- physiology of digestion, metabolism and energy</b>	2	2
	130/1	<b>30- Physiology in pollution</b>	1	2
	131/1	<b>31- Radioactive isotopes and biological uses</b>	2	2
	132/1	<b>32- Physiology of heights</b>	1	1
	133/1	<b>33-Fish physiology.</b>	1	2
<b>Biochemistry</b>	134/1	<b>34- Basics of biochemistry</b>	2	3
	135/1	<b>35- Metabolism</b>	2	2
	136/1	<b>36- Biochemistry of tissue and body fluids .</b>	2	2
	137/1	<b>37- Biochemistry of hormones and reproduction</b>	2	2
	138/1	<b>38- Feeding biochemistry</b>	2	2
	139/1	<b>39- Clinical biochemistry</b>	2	2
	140/1	<b>40- Avian biochemistry</b>	2	2
	141/1	<b>41- Microbial biochemistry</b>	2	2
	142/1	<b>42- Biochemistry of radiation</b>	1	2
	143/1	<b>43- Fish biochemistry</b>		
<b>Animal behavior and management</b>	144/1	<b>44- Behavior and management of ruminants ( specific courses in cattle, buffalo, sheep, camels and goats)</b>	2	3
	145/1	<b>45- Behavior and management of horses</b>	2	3
	146/1	<b>46- Behavior and management of pet animals</b>	1	2
	147/1	<b>47- Behavior and management of laboratory animals</b>	1	2
	148/1	<b>48- Behavior and management of wild animals</b>	2	2
	149/1	<b>49- Behavior and management of poultry</b>	2	2
	150/1	<b>50- Behavior and management of rabbit</b>	1	2
	151/1	<b>51- Behavior of experimental animals</b>	1	2
<b>Nutrition and clinical nutrition</b>	152/1	<b>52- Basics of animal nutrition</b>	2	2
	153/1	<b>53- feedstuff</b>	2	2
	154/1	<b>54- nutrition of farm animals and fish specific courses in ( cattle and buffalo nutrition – sheep and goat nutrition – camel nutrition- equine</b>	2	2



		<b>nutrition – fish nutrition)</b>		
	155/1	<b>55- poultry and rabbit nutrition( advanced)</b>	2	2
	156/1	<b>56- wild animal nutrition</b>	1	2
	157/1	<b>57- laboratory animal nutrition</b>	1	2
	158/1	<b>58- feed additives</b>	1	2
	159/1	<b>59- feedstuff analysis</b>	2	2
	160/1	<b>60- Quality control of feed and feed factories</b>	2	2
	161/1	<b>61- Clinical nutrition and malnutrition</b>	2	2
	162/1	<b>62- Fish nutrition</b>	1	2
<b>Pathology</b>	163/1	<b>63- General pathology and neoplasm( progressive)</b>	2	2
	164/1	<b>64-pathology of microbial and parasitic diseases in animal</b>	2	2
	165/1	<b>65- pathology of bad nutrition</b>	1	2
	166/1	<b>66- pathology of environmental pollution</b>	1	2
	167/1	<b>67- pathology of reproductive diseases</b>	1	2
	168/1	<b>68- Avian pathology</b>	2	2
	169/1	<b>69-Experimental pathology</b>	2	2
	170/1	<b>70- toxins pathology</b>	2	2
	171/1	<b>71- surgical pathology</b>	2	2
	172/1	<b>72- Pathology of experimental animals.</b>		
	173/1	<b>73- Pathology of genetics</b>		
	174/1	<b>74-- Fish pathology</b>	2	2
<b>Clinical pathology</b>	175/1	<b>75- Advanced clinical pathology</b>	2	2
	176/1	<b>76-Organ function tests and body and urine balance</b>	2	2
	177/1	<b>77- Clinical hematology and bone marrow examination</b>	1	2
<b>Bacteriology, immunology and mycology</b>	178/1	<b>78- General bacteriology(advanced)</b>	1	2
	179/1	<b>79-systemic bacteriology</b>	2	3
	182/1	<b>80- Advanced immunology</b>	2	2
	183/2	<b>81- Advanced mycology</b>	1	2
<b>Virology</b>	180/3	<b>82- General virology</b>	1	2
	181/4	<b>83-Systemic virology( specific courses)</b>	2	3
	182/5	<b>84- Advanced immunology</b>	2	2
<b>Mixed courses between Bacteriology and Virology</b>	184/1	<b>85- Microbiology of poultry</b>	2	2
	185/1	<b>86- Microbiology of ??????</b>	1	2
	186/1	<b>87- Microbiology of animal product</b>	2	2
	187/1	<b>88- Fish Microbiology</b>	1	2
		<b>81- Advanced immunology</b>	2	2
<b>Parasitology</b>	188/1	<b>89- Veterinary medical entomology and acarology</b>	2	2
	189/1	<b>90-helminthology</b>	2	2



	190/1	<b>91- protozoology</b>	2	2
	191/1	<b>92- Avian and rabbits parasitology</b>	2	2
	192/1	<b>93Malacology and its vet. Importance</b>	1	2
	193/1	<b>94- parasitic Immunology</b>	1	2
	194/1			
	195/1			
	196/1		-	-
	197/1	<b>98- Physiology and biochemistry of parasites</b>	2	2
	198/1	<b>99- Fish parasitology</b>	1	2
<b>Pharmacology</b>				
	199/1	<b>100- Aeneral pharmacology ( advanced)</b>	2	2
	200/1	<b>101- pharmacology of autonomic nervous system and autocoid</b>	2	2
	201/1	<b>102- pharmacology of central nervous system</b>	2	2
	202/1	<b>103 pharmacology of anesthesia</b>	2	2
	203/1	<b>104- Systemic pharmacology</b>	2	2
	204/1	<b>105- pharmacology of metabolism</b>	2	2
	205/1	<b>106- pharmacology of hormones</b>	2	2
	206/1	<b>107-Chemotherapy</b>	2	2
	207/1	<b>108-Biological evolution of drug</b>	1	1
<b>Hygiene and control of milk and dairy products</b>				
	208/1	<b>108- Hygiene and control of milk and dairy products</b>	2	2
	209	<b>109- Microbiology of milk and dairy products</b>	2	2
	210/1	<b>110- Milk technology and preservation</b>	2	2
	211/1	<b>111- Food analysis</b>	2	2
	212/1	<b>112- Food poisoning</b>	1	2
	213/1	<b>113- Specific courses on sources of contamination, disturbances of milk production, milk born diseases, hygiene of table egg, edible fats and oils</b>	1	1
	214/1	<b>114- The sanitation of dairy plant</b>	2	2
<b>Control of meat hygiene and their products</b>				
	215/1	<b>115- Slaughter animal Hygiene</b>	1	2
	216/1	<b>116- Abattoir management and hygiene</b>	2	2
	217/1	<b>117- Hygienic control of meat and their product</b>	2	2
	218/1	<b>118 inspection of poultry meat.</b>	1	2
	219/1	<b>119- Food technology</b>	1	2
	220/1	<b>120- Microbiology of meat and fish meats and their product</b>	2	1
	221/1	<b>121- Chilled meal microbiology</b>	1	2
	222/1	<b>122- Analysis of meat and fish and their product</b>	1	2
	223/1	<b>123- Preservation of meat, poultry, fish and their products</b>	1	2
	224/1	<b>124- Sanitation affairs of meat and fish plants.</b>	2	2



<b>Internal medicine</b>	225/1	<b>125- advanced general medicine</b>	2	2
	226/1	<b>126- disease of ruminants( cattle, buffalo, camels, sheep and goats)</b>	3	3
	227/1	<b>127- diseases of equines</b>	2	2
	228/1	<b>128 diseases of pet animals</b>	2	2
	229/1	<b>129- diseases of wild animals</b>	2	2
	230/1	<b>130- diseases of metabolic disorders</b>	2	2
	231/1	<b>131- nutritional deficiency diseases</b>	2	2
	232/1	<b>132- Skin diseases</b>	1	2
	233/1	<b>133 - diseases of newly born animals</b>	2	2
	234/ 1	<b>134- Stress diseases during animals transport.</b>		
<b>Infectious diseases</b>	235/ 1	<b>135- Infectious diseases of cattle</b>	2	2
	236/ 1	<b>136- Infectious diseases of sheep and goat</b>	2	2
	237/ 1	<b>137- Infectious diseases camel</b>	2	2
	238/ 1	<b>138 Infectious diseases of equine</b>	2	2
	239/ 1	<b>139- Infectious diseases of pet animals</b>	2	2
	240/ 1	<b>140- Infectious diseases lab animals</b>	1	2
	241/ 1	<b>141- Infectious diseases of udder and newly born animals</b>	2	2
	242/ 1	<b>142- Infectious diseases buffaloes</b>	2	1
	243/1	<b>143- Infectious diseases of wild animals.</b>		
<b>Forensic medicine and toxicology</b>	244/1	<b>144- Forensic medicine and veterinary procedures</b>	2	2
	245/1	<b>145- general toxicology</b>	2	2
	246/1	<b>146- environmental toxicology</b>	2	2
	247/1	<b>147- forensic toxicology</b>	2	2
	248/1	<b>148- laboratory diagnostic toxicology</b>	2	2
	249/1	<b>149- Drug toxicology</b>		
<b>Theriogenology</b>	250/1	<b>150- Female infertility (special specific courses in ruminants- equine- pet animals)</b>	2	2
	251/1	<b>151- Male infertility (special specific courses in ruminants- equine- pet animals)</b>	2	2
	252/1	<b>152- Genital diseases.</b>		
	253/1	<b>153 - obstetrics (special specific courses in farm and pet Animals)</b>	2	2
	254/1	<b>153- reproduction and immunity</b>	1	2
	255/1	<b>155- artificial insemination in ruminants</b>	2	2
	256/1	<b>156- artificial insemination in equine</b>	2	2
	257/1	<b>157- artificial insemination in pet animals</b>	1	2
	258/1	<b>158- embryo transfer</b>	1	2



<b>Veterinary Surgery</b>	259/1	<b>159- General surgery (advanced)</b>	2	2
	260/1	<b>160- Special surgery( organs)</b>	2	3
	261/1	<b>161- surgery of eye, ear, nose and larynx</b>	2	2
	262/1	<b>162 digestive system surgery</b>	2	2
	263/1	<b>163- surgery of the limbs, hoof and claws</b>	2	2
	264/1	<b>164- experimental surgery</b>	2	2
	265/1	<b>165- anesthesiology</b>	1	1
	266/1	<b>166- radiology and ultrasonography</b>	2	2
<b>Poultry and rabbit diseases</b>	267/1	<b>167- bacterial diseases of poultry</b>	2	2
	268/1	<b>168- viral diseases of poultry</b>	2	2
	269/1	<b>169- fungal diseases of poultry</b>	2	2
	270/1	<b>170 parasitic diseases of poultry</b>	1	2
	271/1	<b>171 - nutritional diseases of poultry</b>	1	2
	272/1	<b>172-diseases of rabbit (advanced)</b>	2	2
	273/1	<b>173-Diseases of wild and migrating birds</b>	2	2
	274/1	<b>174- Preventive vaccines and their evaluation in poultry</b>	2	2
	275/1	<b>175- Laboratory diagnosis of poultry diseases.</b>		
<b>Animal and environmental hygiene</b>	276/1	<b>176- farm animal hygiene ( advanced)</b>	2	2
	277/1	<b>177- poultry hygiene ( advanced)</b>	2	2
	278/1	<b>178- environmental hygiene and pollution</b>	2	2
	279/1	<b>179- control of contagious diseases</b>	2	2
	280/1	<b>180- eradication of rodents and disease vector</b>	2	2
	281/1	<b>181- insecticides and public health</b>	2	2
	282/1	<b>182-hygiene of animal enclosures- specific courses in :- cattle houses – poultry houses – rabbit houses- pet animals house3s – experimental animals houses</b>	2	2
	283/1	<b>183-disinfections and disinfectants</b>	2	2
	284/1	<b>184- veterinary epidemiology – specific courses in animal environment</b>	2	-
<b>Zoonoses</b>	285/1	<b>185- advanced zoonoses ( specific courses in bacterial and Mycotic diseases – viral diseases – parasitic diseases)</b>	2	2
	286/1	<b>186- role of rodents in transmission of zoonoses</b>	2	2
	287/1	<b>187- role of wild animals in transmission of zoonoses</b>	2	2
	288/1	<b>188- role of birds (special courses in: poultry, wild migrating or pets) in transmission of zoonoses</b>		
<b>Genetics and genetic</b>	289/1	<b>189- Genetics of microorganisms .</b>	1	2
	290/1	<b>190- Genetic engineering( advanced)</b>	1	2



engineering	291/1	<b>191- Cytological genetics</b>	1	-
	292/1	<b>192- Genetics of genuses.</b>	2	-
	293/1	<b>193- physiological genetics</b>	2	-
	294/1	<b>194- Chemical and radiological genetics.</b>	1	2
Animal production	295/1	<b>195- Animal breeding and improvement (advanced).</b>	2	-
	296/1	<b>196- Poultry breeding and improvement(advanced).</b>	2	-
	297/1	<b>197- Cattle and buffalo production (advanced).</b>	2	2
	298/1	<b>198- Sheep and goat production (advanced).</b>	2	2
	299/1	<b>199- Poultry production (advanced).</b>	2	2
	300	<b>200-Rabbit production (advanced).</b>	2	2
	301	<b>201-Improving by artificial insemination in poultry and rabbits.</b>	2	2
Economic and farms management	306/1	<b>206- economics of animals and dairy production</b>	2	-
	307/1	<b>207- economics of poultry farms</b>	2	-
	308/1	<b>208-economics of fish farms</b>	2	-
	309/1	<b>209- feasibility studies</b>	2	-
	310/1	<b>210- farm management</b>	2	-
	311/1	<b>211- economics of beef production</b>	2	-
Biostatistics	312/1	<b>212- Biostatistics (advanced)</b>	2	-
	313/1	<b>213- Experimental design</b>	2	2
	314/1	<b>214- Computer and data processing</b>	2	1

### 5-Teaching and Learning:

The program features a variety of teaching approaches for different intended learning objectives, including a combination of lectures, seminars, presentation, practical lab assignments, research work and library work leading to write thesis. Teaching staff specifically refer to reference studies in Fish Diseases and Management illustrate important theoretical, ethical, methodological and practical issues to the students.

### 7- Students assessments:

The program depends on different assessment ways:

#### a. Course assessment:

1- Written examination	For assessment of knowledge, back calling and Intellectual skills
------------------------	---



<b>2- Practical examination</b>	<b>For assessment of practical and professional skill</b>
<b>3- Oral examination</b>	<b>For assessment of knowledge and Intellectual skills</b>

### b. Master Thesis

- Annual reports adopted by the Faculty
- Finally, the assessment of thesis measure the individual student ability to work independently in the field specialization
- Final evaluation and approval by a judging committee of at least three professors including one or more of the supervisors and an external professor. This assesses the ability to write a review article, perform the needed practical steps and to present the results in tables and graphs. In addition, the skills of analysis of results and discussion with previous findings obtained by other authors are also assessed.

### Assessment of program intended learning outcomes

Tool or method	ILOs
Written	a1-2; b1,2,3
Oral	a1,2,5,6; b1,2,5
Practical	c1-6; b2,4,5,10
Thesis	a3-a8.;b2-b3; c1,4,5, d1-8

### 8. Marking scale as follow:-

<b>Excellent</b>	> 90	
<b>Very good</b>	>80	
<b>Good</b>	>70	
<b>Pass</b>	>60	
<b>Fail</b>	<b>Weak</b>	45 to less than 60
	<b>very weak</b>	Less than 45

### 9. Program evaluation methods

Evaluator	Tool	Sample
Postgraduate Student	Questioners	20%
	meeting	1
Postgraduate alumni	Questioners	5
Stakeholders (employers)	Questioners	10
	Meeting	1



External evaluator/External examiner	Reports	1
--------------------------------------	---------	---

### 10. Program Entrance Requirements:

-The Applicant must normally satisfy the faculty of veterinary medicine- Kafr el-Sheikh University general entrance and requirement. The normal minimum entrance qualification for registration at the faculty on a master's program in Fish Diseases and Management is at least one of the following:

- 1- Bachelor degree in Medical veterinary science of one of the Egyptian universities or hold a degree in Medical veterinary science equivalent through the Supreme Council of Universities with general grade at least "Good" and at least grade very Good" in specialization or the average courses covered the specialization
- 2- Diploma of Fish Diseases and Management of at least grade "Good".
- 3- Applications with an appropriate technical qualification, or equivalent qualification and experience from overseas are also welcomed.

### 9. Regulations for progression Of programme

- a) Registration period for the MSc in veterinary medical science is at least 3 years after the approval date by the faculty council and it should not exceed a period of five years, an extension could be approved by the faculty council depending on the supervisor report that approved by the department council and postgraduate and research committee refers to the universities regulation law.
- b) The student should conduct the courses proposed by both department council and approved by postgraduate and research committee and faculty council and include, 5 courses of the postgraduates stated in article (28) in regulation law list and the student will entitled to apply for the exam only after meeting attendance rate for each courses.
- c) The student should pass written, practical and oral exams successfully in all courses, and the grade will be estimated according to one of the estimates stated in the article (34c).
- d) The Faculty council should deprive the student from entering the exam if his attendance rate in the course is less than 75%.
- e) Failure or depriving from entering one or more course did not requires reexamination of successful passed courses.





- f) The applicant should conduct an innovate research on the subject that has been registered for at least 2 years from the date of registration approved by the faculty council. And the faculty council depending on a request from the supervisor has the right to authorize the student to do scientific experiments at recognized scientific institute.
- g) -The applicant should submit the thesis that accepted by the judging committee in an open discussion and the following policies should be met:  
-Pass all courses.  
-The applicant should submit **10** copies of his thesis concerned department council to form committee examining the thesis to be presented to the postgraduate studies committee and the faculty council, and in case of thesis approval by the department council, the applicant will submit **6** copies for the faculty library, 1 copy for public university library before introducing the report of examination committee to the post graduate studies committee and the faculty council.
- h) Registration will be during March and September of each year.
- i)The applicant should submit a request enrolment for the dean who forwards bit to the concerned department council to determine the research subject and the study program and then take calendar after complete documentation on the faculty council for approval.
- j)The thesis title should be identified before being submitted at least **2 months** and the judging committee has the right to amend the title without prejudice the subject of research.
- k) The Faculty council has the right to suspend the student enrolment for a certain period if he has acceptable excuse preventing him from continuing his study or research, and his period will not counted within the period stated in **article 16 &20**.
- l)The applicant should submit 10 copies of the thesis after its validity approved by the judging and discussion committee to be distributed to the committee members and faculty library and the judging and discussion committee can decide the exchange of the thesis with other universities or printing at the expense of the university.

**12-Registration will be cancelled in one of the following cases:**

- If the supervisors report during the registration period is unsatisfactory (2 reports).
- If he did not submit his thesis before the end of registration period.



-If the judging committee rejected the thesis twice.

### 13-Examination Regulations

Time of written exam, 3 hours for each course that have 3 hours or more for lecture / practical /week. If the curriculum less than 3 hours/week, the time of exam, is 2 hours only.

The final degree of each course which has 3 hours (lecture and practical) per week is 100 and less than 3 hours is 50 degrees and divided into 50% for written exam, and 50% for practical and oral exam.

### 14-Program completion:

- Successfully completion of the required courses.
- Approved completion of the research experiments.
- Successfully pass of thesis open defense examination.

Programme co-ordinator

Dr .Iman moustafa

Head of the Department

Prof. Dr Nadia Bassiony Mahfouz

### Matching program ILOs with ARS - Matrix

Program ILOs	ARS																											
	K&U (a)						I.S. (b)							P.P. (c)				G.T. (d)										
	1	2	3	4	5	6	1	2	3	4	5	6	7	1	2	3	4	1	2	3	4	5	6	7	8			
<b>K&amp;U</b>	1 2	3	4	5 6	7	8																						
<b>I.S.</b>							1 2	3	4 5	6 7	8	9	10															
<b>P.P.</b>														1 2	3	4,5	6											
<b>G.T.</b>																		1	2	3	4	5	6	7	8			





## DEPARTMENT OF FISH DISEASES AND MANAGEMENT

### Course specification

(2021 / 2022)

#### 1 - Basic Information:

Code number:-

Course title: **Fish Diseases (Basic)**

Academic Year: **Master of Veterinary Medicine Program**

Total teaching hours: **336 hrs**

Lectures: **144 hrs (48 weeks- 3hrs/week)**

Practical: **192 hrs (48 weeks- 4hrs/week)**

#### 2 - OVERALL AIMS OF THE COURSE:

- Achieve the basic principals for distinguishing the normal and diseased fish, through their clinical examination.
- Provide the students with the basic hygienic measures adopted in aquacultures for food fish or aquaria for ornamentals.
- Provide the students with an appropriate background on the most common diseases affecting fishes with their remedies or prevention and control.
- Acquaint the students with an appropriate professional attitudes, communications and problem solving skills

#### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

##### 3-A: KNOWLEDGE and UNDERSTANDING:

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

A1-Describe the normal and pathological parameters of the different fish species, that may aid in diagnosis of the disease affections.

A2-Approach the appropriate management schedules and programs of fish aquacultures that may affect the growth, body weight gain and reproduction.

A3-Denote the appropriate knowledge about the water hydrochemistry of aquacultures for normal fish's life.

A4-Determine the nutritional disorders affecting the fish life stage (fry, fingerlings and adults) with their suitable management practices.

A5-Recognize the suitable health promotives as well as the preventive measures of fish diseases.

A6-Determine the causes, pathogenesis, clinical signs, post-mortem findings, laboratory investigations, treatments for the most important fish diseases (bacterial, fungal, viral ad parasitic diseases).

##### 3-B: INTELLECTUAL SKILLS:

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

B1-Interpret of the most important clinical signs and lesions of diseased fish.

B2-Adopt the proper management programs either for fish and /or the fish farm .

B3-Mindful the different clinical situations concerned with fish or water hydrochemistry of the fish farm.

B4-Report the laboratory investigation parameters performed for the fish or the water milieu.

##### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

C1-Check the pathognomonic clinical signs in diseased fish .

- C2-Assess the normal developmental stages of fish life stages .  
 C3-Apply appropriate clinical assessments for disease diagnosis.  
 C4-Acquire the Talent of obtaining the proper case history of a fish farm.  
 C5-Perform an adequate clinical investigations for diseased fish or the fish's environment in aquaculture.  
 C6-Prescribe the proper remedies for an affected fish farm.  
 C7- Construct the appropriate design for the fish farms.  
 C8- Choose the perfect methods for fish transportation.

### **3- D: GENERAL SKILLS:**

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

- D1- Coach and work in groups.  
 D2-Classify different duties  
 D3- Utilize computer and internet skills.  
 D4-Develop the ethical behaviors between students and staff members as well as among the students themselves..

### **4 - COURSE CONTENTS:**

TOPIC	Total hours	Hours for lecture	Hours for practical
1- Bacterial Diseases of fish	34	16	18
2- Parasitic Disease of fish	34	12	22
3- Mycotic Disease of fish	38	16	22
4- Viral Disease of fish	32	14	18
5- Nutritional Diseases of fish	14	14	-
6- Principals of fish immunology	14	14	-
7- Role of stress in fish diseases	14	14	-
8-Prophylaxis and treatment	14	14	-
9- Water hydrochemistry associated diseases	32	14	18
10-Internal anatomy and external features of fish	20	-	20

11-Genaral ichthyology and technical terms	20	-	20
12-Fish specimens dispatch	18	-	18
13-Haematological examination of fish blood	18	-	18
14- Fish farm construction	18	-	18
15- Commercial farm-food fish	16	16	-
<b>Total</b>	<b>336</b>	<b>144</b>	<b>192</b>

## 5- TEACHING & LEARNING METHODS:

\***Advanced lectures:** PowerPoint presentations including videos, and whiteboard Discussion and brain storming

\* **Practical sessions:** Practical demonstrations, practice of skills, and discussions, Fish farm visits.

\* **Self-Learning activities:** Mini reviews from the web and the library, Making individual reports

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures	A1 to A6	B1 to B4		D1, D4
Practical sessions		B1 to B4	C1 to C8	D1, D4
Self-Learning activities				D2, D3, D4
Distance Teaching and Learning	A1 to A6	B1 to B4	C1 to C8	D1 to D4

emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

## 6. METHODS FOR STUDENTS With limited capabilities:-

- No disabled students until now, but if present the methods are:-
  - Discussion with them during practical session.
  - Theoretical and practical teaching suitable for people with limited capacity.
  - Activation of office hours.
  - Simplify and re-explain the information theoretically and practically wherever needed .
  - Using of illustrated cases.

## 7. STUDENT ASSESSMENT:-



<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	all over the academic year
<b>7.c grads</b>	50	20	20	10

7.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	A1 to A6	B1 to B4		D3
Practical exams			C1 to C8	
Oral exams	A1 to A6	B1 to B4		D1,D2
Student activities	A1, A6			D1 to D4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8.1: Recommended books:

1. Bacterial fish pathogens (Austin & Austin)1999.
2. Fish Disease (Diagnosis and treatment) by Edward Noga, 2<sup>nd</sup> edition 2000.
3. Fish Medicine by Stoskopff (1993).
4. Practical Notes on Fish Diseases & Management. Students book (2016/2017).
5. Fish pathology, second edition (1989)

### 8.2: web sites and journals .....and so on

- [WWW.PubMed.com](http://WWW.PubMed.com)
- [WWW.arabvet.com](http://WWW.arabvet.com)
- [WWW.science direct.com](http://WWW.science direct.com)
- [www.FAO.com](http://www.FAO.com)
- [J. Fish Pathology.](#)

Course Coordinator:

Head of Department:

Dr. Eman Moustafa moustafa

Prof. Dr. Nadia Basiony Mahfouz



### Course Matrix for achievement of Intended Learning Outcomes

Topics	Hrs	Knowledge & Understanding						Intellectual Skills				Practical & Professional Skills								General & Transferable Skills				
		1	2	3	4	5	6	1	2	3	4	1	2	3	4	5	6	7	8	1	2	3	4	
		1- Bacterial Diseases of fish	34	×				×	×	×				×		×	×		×			×	×	
2- Parasitic Disease of fish	34	×				×	×	×				×		×	×		×			×	×		×	×
3- Mycotic Disease of fish	38	×				×	×	×				×		×	×		×			×	×		×	×
4- Viral Disease of fish	32	×				×	×	×				×		×	×		×			×	×		×	×
5- Nutritional Diseases of fish	14				×			×												×	×		×	×
6- Principals of fish immunology	14					×		×												×	×		×	×
7- Role of stress in fish diseases	14					×		×												×	×		×	×
8- Prophylaxis and treatment	14					×			×											×	×		×	×
9- Water hydrochemistry associated diseases	32			×					×	×						×				×	×		×	×



10-Internal anatomy and external features of fish	20									×				×	×							×	×		×	×										
11-Genaral ichthyology and technical terms	20									×				×	×								×	×		×	×									
12-Fish specimens dispatch	18																						×	×	×		×	×								
13-Haematological examination of fish blood	18																											×	×		×	×				
14- Fish farm construction	18																													×	×		×	×		
15- Commercial farm-food fish	16	×																														×	×		×	×



## DEPARTMENT OF FISH DISEASES AND MANAGEMENT

### Course specification

(2021 / 2022)

#### 1 - Basic Information:

Code number: 302/1

Course title: **Fish Biology**

Academic Year: **Master of Veterinary Medicine Program**

Total teaching hours: 192 hrs

Lectures: 96 hrs. (48 weeks- 2hrs/week)

Practical: 96 hrs. (48 weeks- 2hrs/week)

#### 2 - OVERALL AIMS OF THE COURSE:

- Achieve the basic principles for distinguishing the different types of fish species.
- Provide the students with the basic hygienic measures adopted in aquacultures for food fish and ornamentals.
- Provide the students with an appropriate background on biological differences between fish species.
- Acquaint the students with an appropriate professional attitudes, communications and problem solving skills .

#### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

##### 3-A: KNOWLEDGE and UNDERSTANDING:

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

A1- Describe the general anatomical features of different fish species.

A2- Study the different technical terms of ichthyology.

A3- Distinguish the basic immunology of fish.

A4- Recognize the basic knowledge about fish ecology.

A5- Classify the feeding habits of fish species .

##### 3-B: INTELLECTUAL SKILLS:

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

B1- Identify the different anatomical features of normal fish species.

B2- Differentiate the different theories in fish immunology.

B3- Judge the various ecological basis of different fish species and aquaculture.

B4- Interpret the different feeding habits and regims of different fish species.

##### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

C1- Check the normal anatomical features of healthy and diseased fish.

C2- Evaluate the different immunological hypothesis in fish species .

C3- Analyse the ecological parameters for healthy fish species.

C4- Recommend the normal feeding habits of different fish species.

##### 3- D: GENERAL SKILLS:

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

D1- Coach and work in groups.

D2-Classify different duties.

D3- Utilize computer and internet skills.

D4- Develop the ethical behaviors between students and staff members as well as among the students themselves.

#### 4 - COURSE CONTENTS:

TOPIC	Total hours	Hours for lecture	Hours for practical
1- General Anatomy of fish	50	20	30
2- General Ichthyology & technical terms	36	16	20
3- Basic fish immunology	40	20	20
4- Basic fish ecology	33	20	13
5-Feeding habits of fish	33	20	13
<b>Total</b>	<b>192</b>	<b>96</b>	<b>96</b>

#### 5- TEACHING & LEARNING METHODS:

\***Advanced lectures:** PowerPoint presentations including videos, and whiteboard Discussion and brain storming

\* **Practical sessions:** Practical demonstrations, practice of skills, and discussions, Fish farm visits.

\* **Self-Learning activities:** Mini reviews from the web and the library, Making individual reports

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures	A1 to A5	B1 to B4		D1, D4
Practical sessions		B1 to B4	C1 to C4	D1, D4
Self-Learning activities				D2, D3, D4
Distance Teaching and Learning	A1 to A5	B1 to B4	C1 to C4	D1 to D4

#### 6. METHODS FOR STUDENTS With limited capabilities:-

- No disabled students until now, but if present the methods are:-
  - Discussion with them during practical session.
  - Theoretical and practical teaching suitable for people with limited capacity.
  - Activation of office hours.
  - Simplify and re-explain the information theoretically and practically wherever needed .
  - Using of illustrated cases.

## 7. STUDENT ASSESSMENT:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	all over the academic year
<b>7.c grads</b>	50	20	20	10

7.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	A1 to A5	B1 to B4		D3
Practical exams			C1 to C4	
Oral exams	A1 to A5	B1 to B4		D1,D2
Student activities	A1, A5			D1 to D4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Recommended books:

1. Fish Medicine by Stoskopff.
2. Fish Biology.
3. **Aquaculture principles and practices**, Pillay T.V.R. (1995) Black well science, Inc,USA.
4. **Aquaculture farming aquatic animals and plants**. Lucas and Southgate (2003), a black well publishing LTD, UK.

### 8.2: web sites and journals .....and so on

- [WWW.PubMed.com](http://WWW.PubMed.com)
- [WWW.arabvet.com](http://WWW.arabvet.com)
- [WWW.science direct.com](http://WWW.science direct.com)
- [www.FAO.com](http://www.FAO.com)
- **J. Fish Pathology.**
- **J. Aquaculture**
- **Egyptian Scientific J. of Oceanography**

### Course Matrix for achievement of Intended Learning Outcomes

Topics	Hs	Knowledge & Understanding					Intellectual Skills				Practical & Professional Skills				General & Transferable Skills			
		1	2	3	4	5	1	2	3	4	1	2	3	4	1	2	3	4
1- General Anatomy of fish	50	×					×				×				×	×	×	×
2- General Ichthyology & technical terms	36		×					×				×			×	×	×	×
3- Basic fish immunology	40			×					×				×		×	×	×	×
4- Basic fish ecology	33				×					×				×	×	×	×	×
5-Feeding habits of fish	33					×				×				×	×	×	×	×

**Course Coordinator:**

**Head of Department:**

Dr. Amira Alaa El-Dein Zakaria

Prof. Dr. Nadia Basiony Mahfouz



## DEPARTMENT OF FISH DISEASES AND MANAGEMENT

### Course specification

(2021 / 2022)

#### 1 - Basic Information:

Code number: 303/1

Course title: **Fish Diseases (Advanced)**

Academic Year: **Master of Veterinary Medicine Program**

Total teaching hours: 192 hrs

Lectures: 96 hrs (48 weeks- 2hrs/week)

Practical: 96 hrs (48 weeks- 2hrs/week)

#### 2 - OVERALL AIMS OF THE COURSE:

- Achieve the basic principles for distinguishing the normal and diseased fish, through their clinical examination.
- Provide the students with the basic hygienic measures adopted in aquacultures for food and ornamental fish.
- Provide the students with an appropriate background on the most common diseases affecting fishes with their remedies or prevention and control in Egypt.
- Acquaint the students with an appropriate professional attitudes, communications and problem solving skills

#### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

##### 3-A: KNOWLEDGE and UNDERSTANDING:

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

A1- Describe the normal and pathological parameters of the different fish species that may aid in diagnosis of the disease affections.

A2- Determine the nutritional disorders affecting the fish life stages (fry, fingerlings and adults).

A3-Recognize the suitable health promotives as well as the preventive measures of fish diseases.

A4-Define the causes, pathogenesis, clinical signs, post-mortem findings, laboratory investigations, treatments for the most important fish diseases (bacterial, fungal, viral, parasitic and nutritional diseases).

##### 3-B: INTELLECTUAL SKILLS:

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

B1- Interpret of the most important clinical signs and lesions of diseased fish.

B2- Design the basic managemental programs either for fish and/or aquaculture.

B3- Analyze the laboratory investigation parameters performed for the fish.

##### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

C1- Check the pathognomonic clinical signs in diseased fish.

C2- Assess the normal developmental stages of fish life stages.

C3- Apply the appropriate clinical assessments for disease diagnosis.

C4- Acquire the talent of obtaining the proper case history of a fish farm.

##### 3- D: GENERAL AND transferable SKILLS:

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

D1- Coach and work in groups.



D2-Classify different duties

D3- Utilize computer and internet skills.

D4- Develop the ethical behaviors between students and staff members as well as among the students themselves.

#### 4 - COURSE CONTENTS:

TOPIC	Total hours	Hours for lecture	Hours for practical
1- Bacterial Diseases of fish	34	20	14
2- Parasitic Disease of fish	30	16	14
3- Mycotic Disease of fish	28	14	14
4- Viral Disease of fish	20	10	10
5- Nutritional Diseases of fish	10	10	-
6- Principals of fish immunology	8	8	-
7- Role of stress in fish diseases	10	10	-
8-Prophylaxis and treatment	8	8	-
9-Internal anatomy and external features of fish	12	-	12
10-Genaral ichthyology and technical terms	12	-	12
11-Fish specimens dispatch	10	-	10
12-Haematological examination of fish blood	10	-	10
<b>Total</b>	192	96	96

#### 5- TEACHING & LEARNING METHODS:

\***Advanced lectures:** PowerPoint presentations including videos, and whiteboard

Discussion and brain storming

\* **Practical sessions:** Practical demonstrations, practice of skills, and discussions, Fish farm visits.

\* **Self-Learning activities:** Mini reviews from the web and the library, Making individual reports

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.



Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures	A1 to A4	B1 to B3		D1, D4
Practical sessions		B1 to B3	C1 to C4	D1, D4
Self-Learning activities				D2, D3, D4
Distance Teaching and Learning	A1 to A4	B1 to B3	C1 to C4	D1 to D4

## 6. METHODS FOR STUDENTS With limited capabilities:-

- No disabled students until now, but if present the methods are:-
  - Discussion with them during practical session.
  - Theoretical and practical teaching suitable for people with limited capacity.
  - Activation of office hours.
  - Simplify and re-explain the information theoretically and practically wherever needed .
  - Using of illustrated cases.

## 7. STUDENT ASSESSMENT:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	all over the academic year
<b>7.c grads</b>	50	20	20	10

7.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	A1 to A4	B1 to B3		D3
Practical exams			C1 to C4	
Oral exams	A1 to A4	B1 to B3		D1,D2
Student activities	A1, A4			D1 to D4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Recommended books:

6. Bacterial fish pathogens (Austin & Austin)1999.
7. Fish Disease (Diagnosis and treatment) by Edward Noga, 2<sup>nd</sup> edition 2000.
8. Fish Medicine by Stoskopf (1993).
9. Practical Notes on Fish Diseases & Management. Students book (2016/2017).
10. Fish pathology, second edition (1989)

### 8.2: web sites and journals .....and so on

- [WWW.PubMed.com](http://WWW.PubMed.com)
- [WWW.arabvet.com](http://WWW.arabvet.com)
- [WWW.science direct.com](http://WWW.science direct.com)
- [www.FAO.com](http://www.FAO.com)
- [J. Fish Pathology.](#)

### Course Matrix for achievement of Intended Learning Outcomes

Topics	Hrs	Knowledge & Understanding				Intellectual Skills			Practical & Professional Skills				General & Transferable Skills				
		1	2	3	4	1	2	3	1	2	3	4	1	2	3	4	
1- Bacterial Diseases of fish	34	×		×	×	×	×	×	×		×	×	×	×	×	×	×
2- Parasitic Disease of fish	30	×		×	×	×	×	×	×		×	×	×	×	×	×	×
3- Mycotic Disease of fish	28	×		×	×	×	×	×	×		×	×	×	×	×	×	×
4- Viral Disease of fish	20	×		×	×	×	×	×	×		×	×	×	×	×	×	×
5- Nutritional Diseases of fish	10	×	×	×	×	×	×	×	×		×	×	×	×	×	×	×
6- Principles of fish immunology	8	×	×	×		×				×			×	×	×	×	×
7- Role of stress in fish diseases	10	×	×	×		×			×	×	×		×	×	×	×	×
8- Prophylaxis and treatment	8			×	×		×	×			×	×	×	×	×	×	×
9- Internal anatomy and external features of fish	12	×					×		×	×							
10- General ichthyology and	12	×	×				×			×							



technical terms																	
11-Fish specimens dispatch	10	×					×		×								
12-Haematological examination of fish blood	10	×	×				×		×								

**Course Coordinator:**

**Head of Department:**

Dr. Eman Moustafa Moustafa

Prof. Dr. Nadia Bassiouny Mahfouz



## DEPARTMENT OF FISH DISEASES AND MANAGEMENT

### Course specification

(2021 / 2022)

#### 1 - Basic Information:

Code number: 304/1

Course title: **Aquaculture**

Academic Year: **Master of Veterinary Medicine Program**

Total teaching hours: 144 hrs

Lectures: 48 hrs (48 weeks- 1hrs/week)

Practical: 96 hrs (48 weeks- 2hrs/week)

#### 2 - OVERALL AIMS OF THE COURSE:

1. Provide the students with proper management programmes to construct the fish and shrimp ponds, tanks, cages and hatcheries.
2. Acquire the students with the suitable methods to control the aquatic weeds, pests and predators and the suitable schedules to control the water hydrochemistry of fish farms

#### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

##### 3-A: KNOWLEDGE and UNDERSTANDING:

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

A1- Describe the construction of fish and shrimp ponds, tanks, cages and hatcheries.

A2- Denote the appropriate programmes to control the aquatic weeds, pests and predators.

A3- Recognize the suitable schedules to control the water hydrochemistry of fish farms.

##### 3-B: INTELLECTUAL SKILLS:

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

B1- Adopt the proper management programmes to construct the fish and shrimp ponds, tanks, cages and hatcheries.

B2-Assess the suitable methods to control the aquatic weeds, pests and predators.

B3-Mindful the different clinical situations concerned with water hydrochemistry of the fish farms.

##### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

C1-Acquire the talent of different designations of ponds, tanks, cages and hatcheries.

C2-Apply the different methods to control the aquatic weeds, pests and predators.

C3-Check the different methods to measure the water hydrochemistry of fish farms.

##### 3- D: GENERAL SKILLS:

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

D1- Coach and work in groups.

D2-Classify different duties

D3- Utilize computer and internet skills.

D4-Develop the ethical behaviors between students and staff members as well as among the students themselves.

#### 4 - COURSE CONTENTS:

TOPIC	Total hours	Hours for lecture	Hours for practical
1- Design and construction of fish ponds	23	8	15
2- Design and construction of fish tanks	18	6	12
3- Design and construction of fish cages	18	6	12
4- Design and construction of fish hatcheries	21	6	15
5-Design and construction of shrimp ponds	18	6	12
6- Control of aquatic weeds, pestes and predators	21	6	15
7-Control of Water hydrochemistry of fish farm	25	10	15
<b>Total</b>	144	48	96

#### 5- TEACHING & LEARNING METHODS:

\***Advanced lectures:** PowerPoint presentations including videos, and whiteboard Discussion and brain storming

\* **Practical sessions:** Practical demonstrations, practice of skills, and discussions, Fish farm visits.

\* **Self-Learning activities:** Mini reviews from the web and the library, Making individual reports

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures	A1 to A3	B1 to B3		D1, D4
Practical sessions		B1 to B3	C1 to C3	D1, D4
Self-Learning activities				D2, D3, D4
Distance Teaching and Learning	A1 to A3	B1 to B3	C1 to C3	D1 to D4

#### 6. METHODS FOR STUDENTS With limited capabilities:-

- No disabled students until now, but if present the methods are:-
  - Discussion with them during practical session.
  - Theoretical and practical teaching suitable for people with limited capacity.
  - Activation of office hours.
  - Simplify and re-explain the information theoretically and practically wherever needed .
  - Using of illustrated cases.

## 7. STUDENT ASSESSMENT:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	all over the academic year
<b>7.c grads</b>	50	20	20	10

7.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	A1 to A3	B1 to B3		D3
Practical exams			C1 to C3	
Oral exams	A1 to A3	B1 to B3		D1, D2
Student activities	A1, A3			D1 to D4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Recommended books:

- 1-Aquaculture principles and practices, Pillay T.V.R. (1995)
- 2- Aquaculture farming aquatic animals and plants. Lucas and Southgate (2003),

### 8.2: web sites and journals .....and so on

- [WWW.PubMed.com](http://WWW.PubMed.com)
- [WWW.arabvet.com](http://WWW.arabvet.com)
- [WWW.science direct.com](http://WWW.science direct.com)
- [www.FAO.com](http://www.FAO.com)
- **J. Aquaculture**

## Course Matrix for achievement of Intended Learning Outcomes

Topics	Hrs	Knowledge & Understanding			Intellectual Skills			Practical & Professional Skills			General & Transferable Skills			
		1	2	3	1	2	3	1	2	3	1	2	3	4
1- Design and construction of fish ponds	23	×			×			×			×	×	×	×
2- Design and construction of fish tanks	18	×			×			×			×	×	×	×
3- Design and construction of fish cages	18	×			×			×			×	×	×	×
4- Design and construction of fish hatcheries	21	×			×			×			×	×	×	×



5- Design and construction of shrimp ponds	18	×			×			×			×	×	×	×
6- Control of aquatic weeds, pestes and predators	21		×			×			×		×	×	×	×
7- Control of Water hydrochemistry of fish farm	25			×						×	×	×	×	×

Course Coordinator:

Head of Department:

Dr. Amira Alaa El-Dein Omar

Prof. Dr. Nadia Basiony Mahfouz



**DEPARTMENT OF FISH DISEASES AND MANAGEMENT**  
**Fish Rearing Course specification**  
**(2021 / 2022)**

**1 - Basic Information:**

**Code number: 305/1**

**Course title: Fish Rearing**

**Academic Year: Master of Veterinary Medicine Program**

**Total teaching hours: 144 hrs**

**Lectures: 48 hrs (48 weeks- 1hrs/week)**

**Practical: 96 hrs (48 weeks- 2hrs/week)**

**2 - OVERALL AIMS OF THE COURSE:**

- Achieving the basic principles for selecting good fish species for culturing.
- Acquainting the students with an appropriate knowledge about the basics of fish sorting and harvesting.

**3 - INTENDED LEARNING OUTCOMES (I. L. Os.):**

**3-A: KNOWLEDGE and UNDERSTANDING:**

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

A1-Approach the appropriate parameters for selecting good fish species for culture.

A2-Determine the guidelines followed for suitable pond construction.

A3-Recognize the methods of fish cultivation in fresh, brackish and marine water.

A4-Describe the different feeding regimes of fish inside pond.

A5-Denote the appropriate knowledge about the basics of sorting, grading and harvesting of fish.

**3-B: INTELLECTUAL SKILLS:**

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

B1-Interpret of the most important feeding systems for fish inside the pond either naturally or artificially.

B2-Adopt the best methods for sorting, grading and harvesting of fish.

B3-Mindful the different ways for fish cultivation in fresh, brackish and marine water.

B4- Choose the best fish species that can be reared altogether for best farm management and highest economic outcome.

**3- C: PRACTICAL AND PROFESSIONAL SKILLS:**

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

C1- Assess the best way for fish feeding.

C2- Acquir the talent for good pond management.

C3- Perform the suitable regime for fish harvesting and sorting.

C4-Prescribe the different ways for fish cultivation.

C5- Determine the best type of fish culture with suitable stocking density.

**3- D: GENERAL SKILLS:**

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

D1- Coach and work in groups.

D2- Classify different duties

D3- Utilize computer and internet skills.



D4- Develop the ethical behaviors between students and staff members as well as among the students themselves.

#### 4 - COURSE CONTENTS:

TOPIC	Total hours	Hours for lecture	Hours for practical
1- Selection of fish species for culture	18	6	12
2- Farm management	18	8	10
3-Stocking rate of ponds	12	4	8
4-Natural food of fish in ponds	18	6	12
5- Artificial feeding of fish	18	6	12
6- Fish cultivation in fresh water	10	2	8
7- Fish cultivation in brackish water	12	4	8
8- Fish cultivation in marine water	12	4	8
9- sorting and grading of fish	14	4	10
10-Harvesting of fish	12	4	8
Total	144	48	96

#### 5- TEACHING & LEARNING METHODS:

\***Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming

\* **Practical sessions:** Practical demonstrations, practice of skills, and discussions, Fish farm visits.

\* **Self-Learning activities:** Mini reviews from the web and the library, Making individual reports

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures	A1 to A5	B1 to B4		D1, D4
Practical sessions		B1 to B4	C1 to C5	D1, D4
Self-Learning activities				D2, D3, D4
Distance Teaching and Learning	A1 to A5	B1 to B4	C1 to C5	D1 to D4

## 6. METHODS FOR STUDENTS With limited capabilities:-

- No disabled students until now, but if present the methods are:-
  - Discussion with them during practical session.
  - Theoretical and practical teaching suitable for people with limited capacity.
  - Activation of office hours.
  - Simplify and re-explain the information theoretically and practically wherever needed .
  - Using of illustrated cases.

## 7. STUDENT ASSESSMENT:-

<u>7.a Used methods</u>	Written examination	Oral examination	Practical examination	Activities
<u>7.b time</u>	At the end of the academic year	At the end of the academic year	At the end of the academic year	all over the academic year
<u>7.c grads</u>	50	20	20	10

7.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	A1 to A5	B1 to B4		D3
Practical exams			C1 to C5	
Oral exams	A1 to A5	B1 to B4		D1,D2
Student activities	A1, A5			D1 to D4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Recommended books:

1-Aquaculture principles and practices, Pillay T.V.R. (1995) Black well science, Inc,USA.

2-Aquaculture farming aquatic animals and plants. Lucas and Southgate (2003), a black well publishing LTD, UK.

### 8.2: web sites and journals .....and so on

- [WWW.PubMed.com](http://WWW.PubMed.com)
- [WWW.arabvet.com](http://WWW.arabvet.com)
- [WWW.science direct.com](http://WWW.science direct.com)
- [www.FAO.com](http://www.FAO.com)
- [J. Aquaculture](#)

### Course Matrix for achievement of Intended Learning Outcomes

Topics	Hs	Knowledge & Understanding					Intellectual Skills				Practical & Professional Skills					General & Transferable Skills			
		1	2	3	4	5	1	2	3	4	1	2	3	4	5	1	2	3	4
1- Selection of fish species for culture	18	×							×					×	×	×	×	×	×
2- Farm management	18	×	×	×	×	×			×		×	×	×	×	×	×	×	×	×
3-Stocking rate of ponds	12		×						×					×	×	×	×	×	×
4-Natural food of fish in ponds	18				×		×			×					×	×	×	×	×
5- Artificial feeding of fish	18				×		×			×					×	×	×	×	×
6- Fish cultivation in fresh water	10			×				×					×		×	×	×	×	×
7- Fish cultivation in brackish water	12			×				×					×		×	×	×	×	×
8- Fish cultivation in marine water	12			×		×		×					×		×	×	×	×	×
9- sorting and grading of fish	14					×		×					×		×	×	×	×	×
10-Harvesting of fish	12					×		×					×		×	×	×	×	×

Course Coordinator:

Head of Department:

Dr. Eman Moustafa Moustafa

Prof. Dr. Nadia Bassiouny Mahfouz



**Kafrelsheikh University**  
Faculty of Veterinary Medicine



**Kafrelsheikh University**

**Faculty of Veterinary Medicine**

**Department of Forensic Medicine & Toxicology**

# **Program Specification for Master Degree**

**(2021 - 2022)**

**Program Title:**

**Master of The Veterinary Science  
(Forensic Medicine and Toxicology)**



### **A- Administrative information:**

1. **Awarding Body:** Kafrelsheikh University
2. **Teaching Body:** Faculty of Veterinary Medicine
3. **Department responsible:** Forensic Medicine and Toxicology
4. **Program Title:** Master Degree in Veterinary Science (Forensic Medicine and Toxicology)
5. **Final award:** Master Degree
6. **Registration period:** 2-4 years
7. **Program Coordinator:** Prof. Dr.
8. **External evaluator:**
9. **Date of revision:**
10. **Date of approval:**

### **B- Professional Information**

#### **1-Program Aims:**

- Provides graduates the opportunity to develop communication and teaching skills and the experience of scientific research.
- Develops the ability of graduate to engage critically with recent techniques and diagnostic tools in the field of Forensic Medicine and Toxicology.
- Supplies the graduates with the most recent knowledge in science and technological applications in Forensic Medicine and Toxicology.
- Demonstrates an awareness of the connections between disciplines and develop the ability to engage critically with scientific literature and to critically review and present their own research data for the protection and promotion of the animal health.
- Allows graduates to develop practical research project.
- Enables graduates to achieve competency in modern laboratory technology.

#### **2- Academic standards:**

Academic reference standards (ARS) adopted by the faculty committee No 1 (14/9/2014)

#### **3- Graduate attributes:**

*Upon successful completion of the program, the graduate has the ability for:*

- 1) Perfect application of scientific research basics and methodologies in Forensic Medicine and Toxicology, and using its varied tools.
- 2) Application and use of analytical methods in detection of poisons and identification of animal trace evidence.
- 3) Application of gained specialized knowledge and integrating them with the relevant knowledge in Forensic Medicine and Toxicology.
- 4) Awareness with ongoing toxicological and criminal problems and recent concepts of action of poisons at the cellular level.



- 5) Identification of toxicological problems and suggesting suitable and economic methods of treatment and control.
- 6) Mastering the proper scope of a rate specialized professional skills, and using appropriate technological means to serve the diagnosis and treatment of intoxicated animals in addition to identification of forensic cause of death or injury.
- 7) Effective communication with students, forensic pathologists and animal owners and leading work team.
- 8) Decision making for suggesting the cause of poisoning or death and measuring the time passed since death.
- 9) Employ available resources efficiently including history, clinical signs, PM lesions and laboratory findings.
- 10) Awareness with his role in society development and fighting toxicological pollution for preservation of a clean environment.
- 11) Reflection of the commitment to act with integrity, credibility and the rules of profession.
- 12) Academic and professional self- development and ability for life-long learning and progress by studying new forensic and toxicological cases.

#### **4-Intended Learning Outcomes (ILOs)**

##### **a- Knowledge and Understanding:**

***By the end of this program the graduate should be able to:***

- a.1. Recognize basic principles of toxicokinetics, toxicodynamics in addition to diagnosis and control of animal intoxications.
- a.2. Realize the direct and indirect causes of death with estimation of wound and burn vitality.
- a.3. Identify mutual effect between legal medicine and toxicology practice and its impact on community for preservation of clean environment from different sources of pollution.
- a.4. Recognize scientific progress in the field of Forensic Medicine and Toxicology especially forensic DNA printing and molecular toxicology.
- a.5. Apply the basics and ethics of scientific research specially the rules of using Lab animals in toxicology and euthanasia.
- a.6. Realize the principles and basics of quality assurance in the area of specialization.
- a.7. Realize the legal and ethical basics in the field of Forensic Medicine and Toxicology specially keeping animals intended for meat production and their byproducts free from drug and pesticide residues.

##### **b- Intellectual Skills**



***By the end of this program the graduate should be able to:***

- b.1.** Analyze and judge the information collected from the crime scene or by laboratory investigations.
- b.2.** Find clues for problems in diagnosing the cause of death or poisoning even in scarcity of resources via contact with professional experts.
- b.3.** Relate the trace evidences, clinical signs, PM lesions to the laboratory findings in order to reach perfect diagnosis.
- b.4.** Participate in preparing research plan in in Forensic Medicine and Toxicology and/ or write scientific article on a research problem.
- b.5.** Assess risks of professional practices in Forensic Medicine and Toxicology and their possible consequences.
- b.6.** Plan for improvement of professional performance.
- b.7.** Make professional decisions in dealing with laboratory diagnostic problems.

### **c) Professional and practical skills**

***By the end of this program the graduate should be able to:***

- c.1.** Master basic and recent professional skills in detection of inorganic and organic poisons.
- c.2.** Perform the principal skills in forensic lab on the macro- and microscopical level.
- c.3.** Write, conclude and evaluate a professional and conclusive report about the poison of concern.
- c.4.** Write a medicolegal report about the type and vitality of injury, cause of death and time passed since death.
- c.5.** Evaluate existing materials and methods in Toxicology.
- c.6.** Perform an experiment in to measure the general toxicity of special toxicity such as hepatotoxicity, nephrotoxicity, genotoxicity, etc. and analyze data statistically.

### **D- General and Transferable Skills**

***By the end of this program, the graduate should be able to:***

- d.1.** Communicate effectively with his professors, collages and animal owner(s).
- d.2.** Use information technology to serve the professional practice.
- d.3.** Assess himself and identify his personal educational needs.
- d.4.** Utilize different sources of knowledge and information.
- d.5.** Demonstrate an ability to learn independently for a career of lifelong learning.
- d.6.** Demonstrate interpersonal skills and team working ability



d.7. Manage time efficiently.

d.8. Set tools and indicators for assessment of the performance of others.

### **5- Program structure (duration 2-4 years)**

#### **a) Premaster courses – at least one academic year**

	Lecture (hours/week)	Practical (hours/week)
Fundamental (core) course	3	4
Research methodology	1	3
2-5 Elective Courses (10-12 hours)	Offered by other departments and are selected from the list below according to thesis topic	

#### **b) MVM Thesis (at least one academic year)**

- All master-degree students should prepare a master thesis.
- The department and the ethical committees must approve the protocol of the research.
- The thesis should include a review part and a research part.
- The thesis is supervised by one or more senior staff members of the department responsible for the program and may include other specialties according to the nature of the research.
- The thesis should be evaluated and approved by a committee of three professors including one of the supervisors and an external professor.

*A number of subsidiary courses are selected from the following list according to the title of the research work*

Subject	Code	Course title	No of hours/week	
			Lecture	Practical Lab
Anatomy and embryology	101/1	<b>1- Applied anatomy</b>	2	2
	102/1	<b>2- Anatomical techniques and surface anatomy</b>	2	2
	103/1	<b>3- Osteology and arthrology</b>	2	2
	104/1	<b>4- Comparative digestive system</b>	2	2
	105/1	<b>5- Comparative uro-genital system</b>	2	2
	106/1	<b>6-Comparative respiratory system</b>	2	2
	107/1	<b>7- Comparative cardiovascular system</b>	2	2
	108/1	<b>8- Comparative nervous system and endocrine glands</b>	2	2
	109/1	<b>9- General and special embryology</b>	2	2
	110/1	<b>10- Avian anatomy</b>	1	2
Histology	111/1	<b>11- cytology and cytochemistry</b>	1	2





	112/1	<b>12- general histology</b>	2	2
	113/1	<b>13- Histology and histochemistry of blood, lymph and cardiovascular system.</b>	1	1
	114/1	<b>14- Comparative histology and histochemistry of body muscles, heart and blood vessels</b>	1	1
	115/1	<b>15- Comparative histology and histochemistry of respiratory system</b>	1	1
	116/1	<b>16-Comparative histology and histochemistry of digestive system</b>	2	2
	117/1	<b>17- Comparative histology and histochemistry of uro-genital system</b>	2	2
	118/1	<b>18- Comparative histology and histochemistry of nervous and endocrine systems</b>	2	2
	119/1	<b>19- Histology and histochemistry of special sensors</b>	1	2
	120/1	<b>20-Histology and histochemistry of skin, hooves, claws and Nails</b>	2	2
	121/1	<b>21- Avian histology</b>	2	2
	122/1	<b>22- Fish histology</b>	1	2
<b>Physiology</b>	123/1	<b>23- Physiology of mammalian endocrine and reproduction</b>	2	2
	124/1	<b>24- poultry physiology (advanced)</b>	2	2
	125/1	<b>25- physiology of muscle and nerve</b>	1	2
	126/1	<b>26- physiology of ruminants</b>	2	2
	127/1	<b>27- physiology of environment, adaptation and cell</b>	2	2
	128/1	<b>28- physiology of blood</b>	2	2
	129/1	<b>29- physiology of digestion, metabolism and energy</b>	2	2
	130/1	<b>30- Physiology in pollution</b>	1	2
	131/1	<b>31- Radioactive isotopes and biological uses</b>	2	2
	132/1	<b>32- Physiology of heights</b>	1	1
	133/1	<b>33-Fish physiology.</b>	1	2
<b>Biochemistry</b>	134/1	<b>34- Basics of biochemistry</b>	2	3
	135/1	<b>35- Metabolism</b>	2	2
	136/1	<b>36- Biochemistry of tissue and body fluids .</b>	2	2
	137/1	<b>37- Biochemistry of hormones and reproduction</b>	2	2
	138/1	<b>38- Feeding biochemistry</b>	2	2
	139/1	<b>39- Clinical biochemistry</b>	2	2
	140/1	<b>40- Avian biochemistry</b>	2	2



	141/1	<b>41- Microbial biochemistry</b>	2	2
	142/1	<b>42- Biochemistry of radiation</b>	1	2
	143/1	<b>43- Fish biochemistry</b>		
<b>Animal behavior and management</b>	144/1	<b>44- Behavior and management of ruminants ( specific courses in cattle, buffalo, sheep, camels and goats)</b>	2	3
	145/1	<b>45- Behavior and management of horses</b>	2	3
	146/1	<b>46- Behavior and management of pet animals</b>	1	2
	147/1	<b>47- Behavior and management of laboratory animals</b>	1	2
	148/1	<b>48- Behavior and management of wild animals</b>	2	2
	149/1	<b>49- Behavior and management of poultry</b>	2	2
	150/1	<b>50- Behavior and management of rabbit</b>	1	2
	151/1	<b>51- Behavior of experimental animals</b>	1	2
<b>Nutrition and clinical nutrition</b>	152/1	<b>52- Basics of animal nutrition</b>	2	2
	153/1	<b>53- feedstuff</b>	2	2
	154/1	<b>54- nutrition of farm animals and fish specific courses in ( cattle and buffalo nutrition – sheep and goat nutrition – camel nutrition- equine nutrition – fish nutrition)</b>	2	2
	155/1	<b>55- poultry and rabbit nutrition( advanced)</b>	2	2
	156/1	<b>56- wild animal nutrition</b>	1	2
	157/1	<b>57- laboratory animal nutrition</b>	1	2
	158/1	<b>58- feed additives</b>	1	2
	159/1	<b>59- feedstuff analysis</b>	2	2
	160/1	<b>60- Quality control of feed and feed factories</b>	2	2
	161/1	<b>61- Clinical nutrition and malnutrition</b>	2	2
	162/1	<b>62- Fish nutrition</b>	1	2
<b>Pathology</b>	163/1	<b>63- General pathology and neoplasm( progressive)</b>	2	2
	164/1	<b>64-pathology of microbial and parasitic diseases in animal</b>	2	2
	165/1	<b>65- pathology of bad nutrition</b>	1	2
	166/1	<b>66- pathology of environmental pollution</b>	1	2
	167/1	<b>67- pathology of reproductive diseases</b>	1	2
	168/1	<b>68- Avian pathology</b>	2	2
	169/1	<b>69-Experimental pathology</b>	2	2
	170/1	<b>70- toxins pathology</b>	2	2
	171/1	<b>71- surgical pathology</b>	2	2
	172/1	<b>72- Pathology of experimental animals.</b>		
	173/1	<b>73- Pathology of genetics</b>		
	174/1	<b>74-- Fish pathology</b>	2	2



Clinical pathology	175/1	<b>75- Advanced clinical pathology</b>	2	2
	176/1	<b>76-Organ function tests and body and urine balance</b>	2	2
	177/1	<b>77- Clinical hematology and bone marrow examination</b>	1	2
<b>Separator</b>				
Bacteriology, immunology and mycology	178/1	<b>78- General bacteriology(advanced)</b>	1	2
	179/1	<b>79-systemic bacteriology</b>	2	3
	182/1	<b>80- Advanced immunology</b>	2	2
	183/2	<b>81- Advanced mycology</b>	1	2
Virology	180/3	<b>82- General virology</b>	1	2
	181/4	<b>83-Systemic virology( specific courses)</b>	2	3
	182/5	<b>84- Advanced immunology</b>	2	2
Mixed courses between Bacteriology and Virology	184/1	<b>85- Microbiology of poultry</b>	2	2
	185/1	<b>86- Microbiology of ??????</b>	1	2
	186/1	<b>87- Microbiology of animal product</b>	2	2
	187/1	<b>88- Fish Microbiology</b>	1	2
<b>Separator</b>				
Parasitology		<b>81- Advanced immunology</b>	2	2
	188/1	<b>89- Veterinary medical entomology and acarology</b>	2	2
	189/1	<b>90-helminthology</b>	2	2
	190/1	<b>91- protozoology</b>	2	2
	191/1	<b>92- Avian and rabbits parasitology</b>	2	2
	192/1	<b>93Malacology and its vet. Importance</b>	1	2
	193/1	<b>94- parasitic Immunology</b>	1	2
	194/1	<b>95- Clinical parasitology</b>	2	2
	195/1	<b>96-Wild life parasitology</b>	1	2
	196/1	<b>97-Special vet. Parasitology</b>	2	2
	197/1	<b>98- Physiology and biochemistry of parasites</b>	2	2
	198/1	<b>99- Fish parasitology</b>	1	2
<b>Separator</b>				
Pharmacology	199/1	<b>100- Aeneral pharmacology ( advanced)</b>	2	2
	200/1	<b>101- pharmacology of autonomic nervous system and autocoid</b>	2	2
	201/1	<b>102- pharmacology of central nervous system</b>	2	2
	202/1	<b>103 pharmacology of anesthesia</b>	2	2
	203/1	<b>104- Systemic pharmacology</b>	2	2
	204/1	<b>105- pharmacology of metabolism</b>	2	2
	205/1	<b>106- pharmacology of hormones</b>	2	2
	206/1	<b>107-Chemotherapy</b>	2	2
207/1	<b>108-Biological evolution of drug</b>	1	1	
<b>Separator</b>				
Hygiene and control of milk and dairy	208/1	<b>108- Hygiene and control of milk and dairy products</b>	2	2
	209	<b>109- Microbiology of milk and dairy products</b>	2	2



<b>products</b>	210/1	<b>110- Milk technology and preservation</b>	2	2
	211/1	<b>111- Food analysis</b>	2	2
	212/1	<b>112- Food poisoning</b>	1	2
	213/1	<b>113- Specific courses on sources of contamination, disturbances of milk production, milk born diseases, hygiene of table egg, edible fats and oils</b>	1	1
	214/1	<b>114- The sanitation of dairy plant</b>	2	2
<b>Control of meat hygiene and their products</b>	215/1	<b>115- Slaughter animal Hygiene</b>	1	2
	216/1	<b>116- Abattoir management and hygiene</b>	2	2
	217/1	<b>117- Hygienic control of meat and their product</b>	2	2
	218/1	<b>118 inspection of poultry meat.</b>	1	2
	219/1	<b>119- Food technology</b>	1	2
	220/1	<b>120- Microbiology of meat and fish meats and their product</b>	2	1
	221/1	<b>121- Chilled meal microbiology</b>	1	2
	222/1	<b>122- Analysis of meat and fish and their product</b>	1	2
	223/1	<b>123- Preservation of meat, poultry, fish and their products</b>	1	2
224/1	<b>124- Sanitation affairs of meat and fish plants.</b>	2	2	
<b>Internal medicine</b>	225/1	<b>125- advanced general medicine</b>	2	2
	226/1	<b>126- disease of ruminants( cattle, buffalo, camels, sheep and goats)</b>	3	3
	227/1	<b>127- diseases of equines</b>	2	2
	228/1	<b>128 diseases of pet animals</b>	2	2
	229/1	<b>129- diseases of wild animals</b>	2	2
	230/1	<b>130- diseases of metabolic disorders</b>	2	2
	231/1	<b>131- nutritional deficiency diseases</b>	2	2
	232/1	<b>132- Skin diseases</b>	1	2
	233/1	<b>133 - diseases of newly born animals</b>	2	2
234/ 1	<b>134- Stress diseases during animals transport.</b>			
<b>Infectious diseases</b>	235/ 1	<b>135- Infectious diseases of cattle</b>	2	2
	236/ 1	<b>136- Infectious diseases of sheep and goat</b>	2	2
	237/ 1	<b>137- Infectious diseases camel</b>	2	2
	238/ 1	<b>138 Infectious diseases of equine</b>	2	2
	239/ 1	<b>139- Infectious diseases of pet animals</b>	2	2
	240/ 1	<b>140- Infectious diseases lab animals</b>	1	2
	241/ 1	<b>141- Infectious diseases of udder and newly born animals</b>	2	2
	242/ 1	<b>142- Infectious diseases buffaloes</b>	2	1
	243/1	<b>143- Infectious diseases of wild animals.</b>		



<b>Theriogenology</b>	250/1	<b>150- Female infertility (special specific courses in ruminants- equine- pet animals)</b>	2	2
	251/1	<b>151- Male infertility (special specific courses in ruminants- equine- pet animals)</b>	2	2
	252/1	<b>152- Genital diseases.</b>		
	253/1	<b>153 - obstetrics (special specific courses in farm and pet Animals)</b>	2	2
	254/1	<b>153- reproduction and immunity</b>	1	2
	255/1	<b>155- artificial insemination in ruminants</b>	2	2
	256/1	<b>156- artificial insemination in equine</b>	2	2
	257/1	<b>157- artificial insemination in pet animals</b>	1	2
	258/1	<b>158- embryo transfer</b>	1	2
<b>Veterinary Surgery</b>	259/1	<b>159- General surgery (advanced)</b>	2	2
	260/1	<b>160- Special surgery( organs)</b>	2	3
	261/1	<b>161- surgery of eye, ear, nose and larynx</b>	2	2
	262/1	<b>162 digestive system surgery</b>	2	2
	263/1	<b>163- surgery of the limbs, hoof and claws</b>	2	2
	264/1	<b>164- experimental surgery</b>	2	2
	265/1	<b>165- anesthesiology</b>	1	1
	266/1	<b>166- radiology and ultrasonography</b>	2	2
<b>Poultry and rabbit diseases</b>	267/1	<b>167- bacterial diseases of poultry</b>	2	2
	268/1	<b>168- viral diseases of poultry</b>	2	2
	269/1	<b>169- fungal diseases of poultry</b>	2	2
	270/1	<b>170 parasitic diseases of poultry</b>	1	2
	271/1	<b>171 - nutritional diseases of poultry</b>	1	2
	272/1	<b>172-diseases of rabbit (advanced)</b>	2	2
	273/1	<b>173-Diseases of wild and migrating birds</b>	2	2
	274/1	<b>174- Preventive vaccines and their evaluation in poultry</b>	2	2
	275/1	<b>175- Laboratory diagnosis of poultry diseases.</b>		
<b>Animal and environmental hygiene</b>	276/1	<b>176- farm animal hygiene ( advanced)</b>	2	2
	277/1	<b>177- poultry hygiene ( advanced)</b>	2	2
	278/1	<b>178- environmental hygiene and pollution</b>	2	2
	279/1	<b>179- control of contagious diseases</b>	2	2
	280/1	<b>180- eradication of rodents and disease vector</b>	2	2
	281/1	<b>181- insecticides and public health</b>	2	2
	282/1	<b>182-hygiene of animal enclosures- specific courses in :- cattle houses – poultry houses – rabbit houses- pet animals house3s – experimental animals houses</b>	2	2
	283/1	<b>183-disinfections and disinfectants</b>	2	2
	284/1	<b>184- veterinary epidemiology – specific courses</b>	2	-



in animal environment				
<b>Zoonoses</b>	285/1	<b>185- advanced zoonoses ( specific courses in bacterial and Mycotic diseases – viral diseases – parasitic diseases)</b>	2	2
	286/1	<b>186- role of rodents in transmission of zoonoses</b>	2	2
	287/1	<b>187- role of wild animals in transmission of zoonoses</b>	2	2
	288/1	<b>188- role of birds (special courses in: poultry, wild migrating or pets) in transmission of zoonoses</b>		
<b>Genetics and genetic engineering</b>	289/1	<b>189- Genetics of microorganisms .</b>	1	2
	290/1	<b>190- Genetic engineering( advanced)</b>	1	2
	291/1	<b>191- Cytological genetics</b>	1	-
	292/1	<b>192- Genetics of genuses.</b>	2	-
	293/1	<b>193- physiological genetics</b>	2	-
	294/1	<b>194- Chemical and radiological genetics.</b>	1	2
<b>Animal production</b>	295/1	<b>195- Animal breeding and improvement (advanced).</b>	2	-
	296/1	<b>196- Poultry breeding and improvement(advanced).</b>	2	-
	297/1	<b>197- Cattle and buffalo production (advanced).</b>	2	2
	298/1	<b>198- Sheep and goat production (advanced).</b>	2	2
	299/1	<b>199- Poultry production (advanced).</b>	2	2
	300	<b>200-Rabbit production (advanced).</b>	2	2
	301	<b>201-Improving by artificial insemination in poultry and rabbits.</b>	2	2
<b>Fish diseases and management</b>	302/1	<b>202- Biology of fish.</b>	2	2
	303/1	<b>203-Fish diseases (advanced)</b>	2	2
	304/1	<b>204-Fish farms.</b>	1	2
	305/1	<b>205-Fish breeding .</b>	2	2
<b>Economic and farms management</b>	306/1	<b>206- economics of animals and dairy production</b>	2	-
	307/1	<b>207- economics of poultry farms</b>	2	-
	308/1	<b>208-economics of fish farms</b>	2	-
	309/1	<b>209- feasibility studies</b>	2	-
	310/1	<b>210- farm management</b>	2	-
	311/1	<b>211- economics of beef production</b>	2	-
<b>Biostatistics</b>	312/1	<b>212- Biostatistics (advanced)</b>	2	-
	313/1	<b>213- Experimental design</b>	2	2
	314/1	<b>214- Computer and data processing</b>	2	1



## 6-Teaching and Learning Methods:

*The program features a variety of teaching approaches for different intended learning objectives including:*

- Lectures to gain knowledge and understanding skills
- Writing a review paper to gain the skills of self-learning and presentation
- Practical and lab sessions to gain practical skills
- Seminars

## 7- Students assessments: The program depends on different assessment ways:

### a. Course assessment:

<b>1- Written examination</b>	<b>For assessment of knowledge, back calling and Intellectual skills</b>
<b>2- Practical examination</b>	<b>For assessment of practical and professional skill</b>
<b>3- Oral examination</b>	<b>For assessment of knowledge and Intellectual skills</b>

### b. Master Thesis

- Annual reports adopted by the Faculty
- Finally, the assessment of thesis measure the individual student ability to work independently in the field specialization
- Final evaluation and approval by a judging committee of at least three professors including one or more of the supervisors and an external professor. This assesses the ability to write a review article, perform the needed practical steps and to present the results in tables and graphs. In addition, the skills of analysis of results and discussion with previous findings obtained by other authors are also assessed.

### *Assessment of program intended learning outcomes*

	<b>Tool or method</b>	<b>ILOs</b>
1-	Written	a1,2,3,4,5,7; b2,3,5,6,7
2-	Oral	a1,2,5; b2,3,4,6
3-	Practical	b1,2,3,7; c1-6
4-	Thesis	a3-7; b1-7; c1-6, d1-8

## 8. Marking scale as follow:-

<b>Excellent</b>	> 90
<b>Very good</b>	>80
<b>Good</b>	>70



<b>Pass</b>		>60
<b>Fail</b>	<b>Weak</b>	45 to less than 60
	<b>very weak</b>	Less than 45

### 9. Program evaluation methods

Evaluator	Tool	Sample
Postgraduate Student	Questioners	20%
	Meeting	1
Postgraduate alumni	Questioners	5
Stakeholders (employers)	Questioners	10
	Meeting	1
External evaluator/External examiner	Reports	1

### 10. Program Admission Requirements:

The Applicant must normally satisfy the faculty of veterinary medicine- kafrelsheikh University general entrance and requirement. The normal minimum entrance qualification for registration at the faculty on a master's program

- 1- Bachelor degree in Veterinary Medical Sciences of one of the Egyptian Universities or hold a degree in Veterinary Medical Sciences equivalent through the Supreme Council of Universities with general grade at least "Good" and at least grade "Very Good" in specialization.
- 2- Diploma of general grade at least "Good" and at least grade "Very Good" in specialization. The total number of study hours must be not less than 3 weekly in that specialization.
- 3- After he has passed the courses studied during premaster he must perform a research work in a subject approved by the faculty council at least for one year. He must submit the results of this work in thesis that should be approved by the discussion committee.

### 11. Regulations for progression of program

- a) Registration period for the M.V.M in veterinary medical science is at least 2 years after the approval date by the faculty council and it should not exceed a period of 4 years, an extension could be approved by the faculty council depending on the supervisor report that approved by the department council and postgraduate and research committee refers to the universities regulation law.
- b) The student should conduct the courses proposed by both department council and approved by postgraduate and research committee and faculty council and include, 2-5 courses of the postgraduates stated in article (28) in regulation law list and the student will entitled to apply for the exam only after meeting attendance rate for each courses.
- c) The student should pass written, practical and oral exams successfully in all courses, and the examination is held two times annually.
- d) The Faculty council should deprive the student from entering the exam if his attendance rate in the course is less than 75%.
- e) Failure or depriving from entering one or more course did not require reexamination of successful passed courses.
- f) The applicant should conduct an innovate research on the subject that has been registered for at least 2 years from the date of registration approved by the faculty council. And the faculty council depending on a request from the supervisor has the right to authorize the student to do scientific experiments at recognized scientific institute.





- g) The applicant should submit the thesis that accepted by the judging committee in an open discussion and the following policies should be met:
- h) Pass all courses.
- i) The applicant should submit 4 copies of his thesis concerned department council to form committee examining the thesis to be presented to the postgraduate studies committee and the faculty council, and in case of thesis approval by the department council, the applicant will submit 6 copies for the faculty library, 1 copy for public university library before introducing the report of examination committee to the post graduate studies committee and the faculty council.
- j) Registration will be during March and September of each year.
- k) The applicant should submit a request enrolment for the dean who forwards bit to the concerned department council to determine the research subject and the study program and then take calendar after complete documentation on the faculty council for approval.
- l) The thesis title should be identified before being submitted at least 2 months and the judging committee has the right to amend the title without prejudice the subject of research.
- m) The Faculty council has the right to suspend the student enrolment for a certain period if he has acceptable excuse preventing him from continuing his study or research, and his period will not counted within the period stated in article 25.
- n) The applicant should submit 5 hard copies and 10 electronic copies (CDs) of the thesis after its validity approved by the judging committee and head of department to be distributed to the committee members and faculty library and the judging committee can decide the exchange of the thesis with other universities or printing at the expense of the university.

#### **12. Registration will be cancelled in one of the following cases:**

1. If the supervisors report during the registration period is unsatisfactory (2 reports).
2. If he did not submit his thesis before the end of registration period.
3. If the judging committee rejected the thesis twice.

#### **13. Examination Regulations**

- a- Time of written exam, 3 hours for each course that has 3 hours or more for lecture / practical /week. **If has less than 3 hours/week, the time of exam, is 2 hours only.**
- b- The final degree of each course which has 3 hours (lecture and practical) per week is **100 and less than 3 hours is 50 degrees and divided into 50% for written exam, and 50% for practical and oral exam.**

#### **14. Program completion:**

- Successfully completion of the required courses and submission of a thesis.

**Program Coordinator**

**Head of Department**

**Prof. Dr. Hanaa Mohamed Ragab**

**Prof. Dr. Tarek Ahmed Abd el-Hady**



## Matching program ILOs with ARS - Matrix

Program ILOs	ARS																											
	K&U (a)						I.S. (b)							P.P. (c)				G.T. (d)										
	1	2	3	4	5	6	1	2	3	4	5	6	7	1	2	3	4	1	2	3	4	5	6	7	8			
<b>K&amp;U</b>	1 2	3	4	5	6	7																						
<b>I.S.</b>							1	2	3	4	5	6	7															
<b>P.P.</b>														1 2	3 4	5	6											
<b>G.T.</b>																		1	2	3	4	5	6	7	8			





Kafrelsheikh University

Faculty of Veterinary Medicine



## ARS for Master in Veterinary Medical Sciences (Forensic Medicine, Toxicology and Veterinary Regulations)

### 1) Graduate attributes

*The graduate should have the ability for:*

- 1) Perfect application of scientific research basics and methodologies in Forensic Medicine and Toxicology, and using its varied tools.
- 2) Application and use of analytical methods in detection of poisons and identification of animal trace evidence.
- 3) Application of gained specialized knowledge and integrating them with the relevant knowledge in Forensic Medicine and Toxicology.
- 4) Awareness with ongoing toxicological and criminal problems and recent concepts of action of poisons at the cellular level.
- 5) Identification of toxicological problems and suggesting suitable and economic methods of treatment and control.
- 6) Mastering the proper scope of a rate of specialized professional skills, and using appropriate technological means to serve the diagnosis and treatment of intoxicated animals in addition to identification of forensic cause of death or injury.
- 7) Effective communication with students, forensic pathologists and animal owners and leading work team.
- 8) Decision making for suggesting the cause of poisoning or death and measuring the time passed since death.
- 9) Employ available resources efficiently including history, clinical signs, PM lesions and laboratory findings.
- 10) Awareness with his role in society development and fighting toxicological pollution for preservation of a clean environment.
- 11) Reflection of the commitment to act with integrity, credibility and the rules of profession.
- 12) Academic and professional self- development and ability for life-long learning and progress by studying new forensic and toxicological cases.

#### A) Knowledge and understanding

Adopted ARS		NARS (Master)
	<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Theories and principles in the field of Forensic	Theories and principles in the field of



	Medicine and Toxicology and related fields.	specialization and related fields.
2)	The impact of combating poisoning on the environment and methods of keeping the environment clean from different sources of pollution	Mutual effect between professional practice and its impact on environment
3)	Application of his knowledge of Forensic Medicine and Toxicology research methods by evaluating the utility of those techniques to specific research question about diagnosis of certain poisons	Scientific progress in the field of specialization
4)	Applying his knowledge and understanding of mechanisms of action of poisons to the critical analysis and discussion of the scientific literature.	Legal and ethical basics in professional practice in the field of specialization
5)	Health and safety risk assessments for the veterinary Forensic Medicine and Toxicology laboratory.	Principles and basics of quality assurance in the area of specialization
6)	Basics and ethics of scientific research especially that involving laboratory animals	Basics and ethics of scientific research

## B) Intellectual skills

	<b>Adopted ARS</b>	<b>NARS (Master)</b>
	<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Analysis of data about evidences in the crime scene or laboratory findings in case of poisoned animals	Analysis and judgment of information in the field of specialization and analog to solve problems.
2)	Solving criminal clues about the cause of death or injury in addition to identification of the cause of poisoning.	Solving professional problems even in scarcity of data.
3)	Development of creative approaches to solve technical problems or issues associated with running and researches project.	Relating between different knowledge to solve professional problems.
4)	Identification, summarizing and evaluating prior researches finding forensic medicine and toxicology.	Preparing research plan in specialization and/ or writing scientific article on a research problem.
5)	Comprehending areas where further researches necessary and be aware of any which would be beyond current ethical cods.	Risk-assessment of professional practices in specialization.
6)	Development of plans to improve performance in laboratory practice with automation.	Planning for improvement of professional performance.
7)	Using appropriate intellectual strategy to deal with laboratory diagnostic problems.	Taking professional decisions in a variety of professional contexts.



### C) Professional and practical skills

<b>Adopted ARS</b>		<b>NARS (Master)</b>	
	<i>By the end of this program the graduate should understand and accommodate the following:</i>		<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Investigating using of recent techniques and tools necessary to diagnose and characterize causes of death or poisons of veterinary importance.		Mastering basic and recent professional skills in the field of specialization
2)	Application of the principles of good experimental design and analysis to their own research project		Writing and evaluating professional reports.
3)	Planning a research project in the field of veterinary Forensic Medicine and Toxicology with a consideration to the technical, ethical and safety issues and associated costs.		Evaluating existing materials and methods in the area of specialization.
4)	Performing essential laboratory skills that underpin techniques associated with sampling, toxin isolation different techniques for poison detection		

### D) General and transferable skill

<b>Adopted ARS</b>		<b>NARS (Master)</b>	
	<i>By the end of this program the graduate should understand and accommodate the following:</i>		<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Communicating effectively with teaching staff, colleagues and the community.		Effective communication.
2)	Using information technology in scientific research and publications.		Utilizing information technology to serve development of professional practice.
3)	Demonstrating appropriate attitude towards teaching staff and colleagues.		Self-assessment and determination of personal educational needs.
4)	Identifying and use different sources of information and knowledge.		Using different resources to obtain knowledge and information.
5)	Using appropriate attitude and rules towards teaching staff and colleagues and use evidence based evaluations.		Establishing rules and indicators for assessment of the performance of others.
6)	Respecting the importance of team work.		Team working and leading a team in familiar professional contexts.
7)	Doing good control of timing.		Efficient time management.
8)	Performing continuous self-learning.		Self and continuous learning.

## ثانيا :برامج الماجستير

### ١ -مواصفات الخريج

- خريج برنامج الماجستير في أي تخصص يجب أن يكون قادرا على:
- ١ .إجادة تطبيق أساسيات و منهجيات البحث العلمي واستخدام أدواته المختلفة
  - ٢ .تطبيق المنهج التحليلي واستخدامه في مجال التخصص
  - ٣ .تطبيق المعارف المتخصصة و دمجها مع المعارف ذات العلاقة في ممارسته المهنية
  - ٤ .إظهار وعيا بالمشاكل الجارية و الرؤى الحديثة في مجال التخصص
  - ٥ .تحديد المشكلات المهنية و إيجاد حلول لها
  - ٦ .إتقان نطاق مناسب من المهارات المهنية المتخصصة، واستخدام الوسائل التكنولوجية المناسبة بما يخدم ممارسته المهنية
  - ٧ .التواصل بفاعلية و القدرة على قيادة فرق العمل
  - ٨ .اتخاذ القرار في سياقات مهنية مختلفة
  - ٩ .توظيف الموارد المتاحة بما يحقق أعلى استفادة و الحفاظ عليها
  - ١٠ . إظهار الوعي بدوره في تنمية المجتمع و الحفاظ على البيئة في ضوء المتغيرات العالمية و الإقليمية
  - ١١ . التصرف بما يعكس الالتزام بالنزاهة و المصداقية و الالتزام بقواعد المهنة
  - ١٢ . تنمية ذاته أكاديميا و مهنيا و قادرا علي التعلم المستمر

### ١٢ -المعايير القياسية العامة

#### ١ المعرفة و الفهم

- بانتهاء دراسة برنامج الماجستير يجب ان يكون الخريج على فهم و دراية بكل من:
- أ -النظريات و الأساسيات المتعلقة بمجال التعلم وكذا في المجالات ذات العلاقة
  - ب -التأثير المتبادل بين الممارسة المهنية وانعكاسها علي البيئة
  - ت -التطورات العلمية في مجال التخصص
  - ث -المبادئ الأخلاقية و القانونية للممارسة المهنية في مجال التخصص
  - ج -مبادئ و أساسيات الجودة في الممارسة المهنية في مجال التخصص
  - ح -أساسيات و أخلاقيات البحث العلمي

#### ٢ المهارات الذهنية



- بانتهاؤ دراسة برنامج الماجستير يجب ان يكون الخريج قادرا على:
- أ- تحليل و تقييم المعلومات في مجال التخصص و القياس عليها لحل المشاكل
  - ب- حل المشاكل المتخصصة مع عدم توافر بعض المعطيات
  - ت- الربط بين المعارف المختلفة لحل المشاكل المهنية
  - ث- إجراء دراسة بحثية و /أو كتابة دراسة علمية منهجية حول مشكلة بحثية
  - ج- تقييم المخاطر في الممارسات المهنية في مجال التخصص
  - ح- التخطيط لتطوير الأداء في مجال التخصص
  - خ- اتخاذ القرارات المهنية في سياقات مهنية متنوعة

### ٣ المهارات المهنية

- بانتهاؤ دراسة برنامج الماجستير يجب ان يكون الخريج قادرا على:
- أ- إتقان المهارات المهنية الأساسية و الحديثة في مجال التخصص
  - ب- كتابة و تقييم التقارير المهنية
  - ت- تقييم الطرق و الأدوات القائمة في مجال التخصص

### ٤ المهارات العامة و المنتقلة

- بانتهاؤ دراسة برنامج الماجستير يجب أن يكون الخريج قادرا على:
- أ- التواصل الفعال بأنواعه المختلفة
  - ب- استخدام تكنولوجيا المعلومات بما يخدم الممارسة المهنية
  - ت- التقييم الذاتي و تحديد احتياجاته التعليمية الشخصية
  - ث- استخدام المصادر المختلفة للحصول على المعلومات و المعارف
  - ج- وضع قواعد و مؤشرات تقييم أداء الآخرين
  - ح- العمل في فريق ، و قيادة فرق في سياقات مهنية مختلفة
  - خ- إدارة الوقت بكفاءة
  - د- التعلم الذاتي و المستمر





## COURSE SPECIFICATION (2021 / 2022)

### 1 - Basic Information:

Code number: .....

Course title: Forensic Medicine, Toxicology and Veterinary Regulations (Basic)

Academic Year: Master of Veterinary Medicine Program

Total teaching hours: 336 hrs.

Lectures: 144 hrs. (48 weeks- 3hrs/week)

Practical: 192 hrs. (48 weeks- 4hrs/week)

### 2 - OVERALL AIMS OF THE COURSE:

*By the end of this course, the student should acquire the concepts, principles and skills related to crimes involving animals, causes of injury or death, major toxic agents affecting species of veterinary importance and their toxic action and effect and diagnosis and treatment of problems in veterinary toxicology*

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- a.1. Categorize the signs of death and postmortem changes.
- a.2. List the medico-legal aspects of different wounds and firearm wounds.
- a.3. Clarify the medical basis of legal issues related to asphyxial death.
- a.4. Identify the legal laws and regulation in the field of veterinary medicine.
- a.5. Realize the biotransformation and mechanisms of action of different poisons.
- a.6. Describe the medical basis to develop a plan for diagnosis and treatment of toxicoses.

#### 3-B: INTELLECTUAL SKILLS:

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

- b.1. Determine the actual cause of death and conclude the time passed since death.
- b.2. Apply knowledge to differential diagnosis of live and still-born fetuses.
- b.3. Determine the animal species by examination of trace evidence including hair and biological stains.
- b.4. Demonstrate the vitality and age of burns and wounds.
- b.5. Apply knowledge to the differential diagnosis and choosing the proper method of management of cases of intoxication.

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

- c.1. Carry proper sampling for forensic and toxicological analysis.
- c.2. Realize the basic principles of identification of living and dead animals and animal remains.
- c.3. Identify the different types of firearms, wounds inflicted and distance of firing.
- c.4. Solving criminal clues by examination of biological stains and hair.
- c.5. Test the acute, subchronic and chronic poisoning.
- c.6. Assess the genotoxicity and reproductive toxicity of different poisons.
- c.7. Study the Hematotoxicity, hepatotoxicity, nephrotoxicity and oxidative stress.

#### 3- D: GENERAL SKILLS:



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

- d.1. Communicate effectively with his professors, and collages.
- d.2. Utilize different sources of knowledge and information
- d.3. Use information technology to serve the professional practice.
- d.4. Manage time efficiently.

#### 4 - COURSE CONTENTS:

Topic	No. of hours		
	Lectures	Practical	Total
Causes of death	6		6
Death & PM changes	6		6
Asphyxia	6		6
Wounds	6		6
Legal report and Veterinary regulations	9		9
Toxicological concepts and terminology	6		6
Dose-response relationship	6		6
Classification of poisons and toxic effects	6		6
Common causes of animal poisoning	3		3
Toxicokinetics	3		3
Bioactivation of poisons	6		6
Factors affecting toxicological action	3		3
Diagnosis of toxicosis	3		3
Therapy and Management of Toxicoses	6		6
Mechanistic toxicology	9		9
Toxicants affecting nervous system	6		6
Toxicants causing paralysis	3		3
Nephrotoxic toxicants	3		3
Hepatotoxicants	6		6
Toxicants causing asphyxia	3		3
Toxicants affecting blood	6		6
Toxicants affecting the lung	3		3
Toxicants affecting the heart	3		3
Toxicants affecting skin and eye	3		3
Toxicants affecting gastrointestinal tract	3		3
Toxicants causing bloat in ruminants	3		3
Toxicants causing blindness	3		3
Toxicants affecting reproductive system	6		6
Mutagenic and carcinogenic toxicants	6		6
Endocrine disruptors	3		3



Sample collection in forensic medicine		12	12
Identification of live and dead animals		16	16
Examination of firearms and cartridges		12	12
Analysis of blood stains, hair and other trace evidence		16	16
Sampling in toxicology		8	8
Acute toxicity testing		24	24
Subchronic toxicity testing		12	12
Chronic toxicity testing		12	12
Hematotoxicity testing		8	8
Hepatotoxicity testing		16	16
Evaluation of oxidative stress		16	16
Nephrotoxicity		8	8
Reproductive toxicity testing		16	16
Genotoxicity testing		16	16
Total	144	192	336

### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library  
Making individual reports about Forensic Medicine, Toxicology and  
Veterinary Regulations

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a6	b1 to b5		d1, d4
Practical sessions		b1 to b5	c1 to c7	d2, d4
Self-Learning activities				d2, d3, d4
Distance Teaching and Learning	a1 to a5	b1 to b4	c1 to c7	d1 to d4

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
-------------------------	---------------------	------------------	-----------------------	------------



<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	Allover the academic year
<b>7.c grads</b>	50	20	20	10

6.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a6	b1 to b5		d4
Practical exams			c1 to c7	d2, d3
Oral exams	a1 to a6	b1 to b5		d1
Student activities	a1, a6			d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Essential Books

- **Veterinary Forensics: Animal Cruelty Investigation.** Merck, M.D., 2nd ed., Wiley-Blackwell, USA, 2012.
- **Clinical Veterinary Toxicology.** Lorgue, G., Lechenet, J. and Riviere, J. Blackwell Sci., Carlton, Australia 1996.
- **Clinical Veterinary Toxicology.** Konnie H. Plumlee. 2004, Mosby, Inc.

### 8-2: Recmended books:

- **Casarett & Doull's Toxicology. The Basic Science of Poisons.** Klaassen, C.D., 6<sup>th</sup> edition, McGraw-Hill, New York, 2001.
- **Toxicology.** Osweiler, G.D., The National Veterinary Medical Series for Independent StudyBlackwell Pub., 1996.
- **Forensic Pathology,** (Practical Aspects of Criminal & Forensic Investigations). DiMaio, D. and DiMaio, V.J. M.D., 2nd edition, CRC press, New York, 2001.
- **Veterinary Forensic Medicine and Forensic Sciences.** Jason H. Byrd, Patricia Norris, Nancy Bradley-Siemens. 2020. ISBN-13: 978-1138563728

### Scientific Journals

- Archiv Toxicol. - Springerlink
- Bull. Environ. Contam. Toxicol. - Springerlink
- Environ. Toxicol. – Interscience
- Food Chem. Toxicol. - Elsevier
- Forensic. Sci. Int – Elsevier
- J. Forensic Legal Med. - Elsevier
- Reprod. toxicol. - Elsevier
- Toxicol. Appl. Pharmacol. - Elsevier

### Scientific websites

- **The Egyptian Knowledge Bank:** <https://www.ekb.eg/web/guest/home>
- TOXNET (toxicology data network)
- IVIS



- 
- Environmental Protection Agency (EPA)
  - Food and Drug Administration (FDA)
  - American Board of Toxicology
  - EPA: Integrated Risk Information System (IRIS)
  - Yahoo – Forensics
  - Carpenter's Forensic Science Resources

**Course Coordinator**

**Head of Department**

**Prof. Dr. Hanaa Mohamed Ragab**

**Prof. Dr. Tarek Ahmed Abd el-Hady**

### Course Matrix for achievement of Intended Learning Outcomes

Topics	Hour s	Knowledge & Understanding						Intellectual Skills					Practical & Professional Skills							General & Transferable Skills			
		1	2	3	4	5	6	1	2	3	4	5	1	2	3	4	5	6	7	1	2	3	4
Causes of death	6	✓						✓	✓		✓									✓	✓	✓	✓
Death & PM changes	6	✓						✓	✓		✓									✓	✓	✓	✓
Asphyxia	6	✓		✓				✓	✓											✓	✓	✓	✓
Wounds	6	✓	✓					✓			✓									✓	✓	✓	✓
Legal report and Veterinary regulations	9	✓			✓			✓												✓	✓	✓	✓
Toxicological concepts and terminology	6	✓			✓			✓												✓	✓	✓	✓
Dose-response relationship	6	✓			✓			✓												✓	✓	✓	✓
Classification of poisons and toxic effects	6	✓			✓			✓												✓	✓	✓	✓
Common causes of animal poisoning	3	✓			✓			✓												✓	✓	✓	✓
Toxicokinetics	3	✓			✓			✓												✓	✓	✓	✓
Bioactivation of poisons	6					✓		✓												✓	✓	✓	✓
Factors affecting toxicological action	3					✓		✓												✓	✓	✓	✓
Diagnosis of toxicosis	3					✓		✓												✓	✓	✓	✓
Therapy and Management of Toxicoses	6						✓	✓				✓								✓	✓	✓	✓
Mechanistic toxicology	9					✓	✓					✓								✓	✓	✓	✓
Toxicants affecting nervous system	6					✓						✓								✓	✓	✓	✓
Toxicants causing paralysis	3					✓	✓					✓								✓	✓	✓	✓
Nephrotoxic toxicants	3					✓	✓	✓				✓								✓	✓	✓	✓
Hepatotoxicants	6					✓	✓	✓				✓								✓	✓	✓	✓
Toxicants causing asphyxia	3					✓	✓	✓				✓								✓	✓	✓	✓

Toxicants affecting blood	6						✓	✓	✓										✓	✓	✓	✓
Toxicants affecting the lung	3						✓	✓	✓										✓	✓	✓	✓
Toxicants affecting the heart	3						✓	✓	✓										✓	✓	✓	✓
Toxicants affecting skin and eye	3						✓	✓	✓										✓	✓	✓	✓
Toxicants affecting gastrointestinal tract	3						✓	✓	✓										✓	✓	✓	✓
Toxicants causing bloat in ruminants	3						✓	✓	✓										✓	✓	✓	✓
Toxicants causing blindness	3						✓	✓	✓										✓	✓	✓	✓
Toxicants affecting reproductive system	6						✓	✓	✓										✓	✓	✓	✓
Mutagenic and carcinogenic toxicants	6						✓	✓	✓										✓	✓	✓	✓
Endocrine disruptors	3								✓										✓	✓	✓	✓
Sample collection in forensic medicine	12								✓		✓	✓	✓		✓				✓	✓	✓	✓
Identification of live and dead animals	16								✓		✓	✓	✓	✓	✓				✓	✓	✓	✓
Examination of firearms and cartridges	12								✓		✓	✓	✓	✓	✓				✓	✓	✓	✓
Analysis of blood stains, hair and other trace evidence	16								✓		✓	✓	✓	✓	✓				✓	✓	✓	✓
Sampling in toxicology	8								✓		✓	✓				✓			✓	✓	✓	✓
Acute toxicity testing	24								✓		✓	✓				✓			✓	✓	✓	✓
Subchronic toxicity testing	12								✓		✓	✓				✓			✓	✓	✓	✓
Chronic toxicity testing	12								✓		✓	✓				✓			✓	✓	✓	✓
Hematotoxicity testing	8								✓		✓	✓				✓		✓	✓	✓	✓	✓
Hepatotoxicity testing	16								✓		✓	✓				✓		✓	✓	✓	✓	✓
Evaluation of oxidative stress	16								✓		✓	✓				✓		✓	✓	✓	✓	✓
Nephrotoxicity	8								✓		✓	✓				✓		✓	✓	✓	✓	✓
Reproductive toxicity testing	16								✓		✓	✓				✓	✓		✓	✓	✓	✓
Genotoxicity testing	16								✓		✓	✓				✓	✓		✓	✓	✓	✓



## COURSE SPECIFICATION (2021 / 2022)

### 1 - Basic Information:

**Code number:** 244/1

**Course title:** Forensic medicine and veterinary regulations (Advanced) (الطب الشرعي والإجراءات البيطرية)

**Academic Year:** Master of Veterinary Medicine Program

**Total teaching hours:** 192 hrs.

Lectures: 96 hrs. (48 weeks- 2hrs. /week)

Practical: 96 hrs. (48 weeks- 2hrs. /week)

### 2 - OVERALL AIMS OF THE COURSE:

*By the end of this course, the student should acquire the concepts, principles, skills and achievement of knowledge about, death, violent asphyxia, thermal injuries, wounds, abortion, infanticide and veterinary regulations besides procedures of PM examination.*

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- a1. Identify stages of death and types of injuries
- a2. Explain the causes of asphyxia, abortion and infanticide.
- a3. Discuss the basics for writing a complete medico-legal report.
- a4. Memorize the laws and regulations on the profession of forensic medicine.

#### 3-B: INTELLECTUAL SKILLS:

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

- b1. Interpret the injuries of body parts of different animal species
- b2. Differentiate criminal and accidental deaths.
- b3. Write, conclude and evaluate a professional and conclusive medico-legal report.
- b4. Choose the proper approach for different medicolegal case

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

- c1. Perform PM examination and collect proper samples.
- c2. Solve criminal clues by examination of biological stains and trace evidences.
- c3. **Apply** the laws and procedures for forensic medicine.
- c4. **Write** and **assess** medicolegal reports.

#### 3- D: GENERAL SKILLS:

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

- d.1. Communicate effectively with his professors, and collages.
- d.2. Utilize different sources of knowledge and information
- d.3. Use information technology to serve the professional practice.
- d.4. Manage time efficiently.

### 4 - COURSE CONTENTS:

Topic	No. of hours		
	Lectures	Practical	Total
Identification	12	12	24
Death	12	12	24
Wounds	12	12	24





Thermal injuries	12	12	24
Asphyxia	12	12	24
Abortion	12	12	24
Infanticides	12	12	24
Medical rules and ethics	12	12	24
Total	96	96	192

### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library  
Making individual reports about forensic medicine

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures *	a1 to a4	b1 to b4		d1, d4
Practical sessions		b1 to b4	c1 to c4	d2, d4
Self-Learning activities				d1, d3, d4
Distance Teaching and Learning	a1 to a4	b1 to b4	c1 to c4	d1 to d4

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:-

<b>7.A Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.B Time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	Allover the academic year
<b>7.C Grads</b>	50	20	20	10

7. Student Assessment				
5.1. Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a4	b1 to b4		d4
Practical exams			c1 to c4	d2, d3
Oral exams	a1 to a4	b1 to b4		d1
Student activities	a1, a4			d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.



## **8. LEARNING AND REFERENCE MATERIALS:**

### **8-1: Essential Books**

- **Veterinary Forensics: Animal Cruelty Investigation.** Merck, M.D., 2nd ed., Wiley-Blackwell, USA, 2012.
- **Forensic Pathology,** Second Edition (Practical Aspects of Criminal & Forensic Investigations). DiMaio, D. and DiMaio, V.J. M.D., 2nd edition, CRC press, New York, 2001.

### **8-2: Recommended books:**

- **Introduction to Veterinary and Comparative Forensic Medicine.** Cooper, J.E. and Cooper, M.E., Wiley-Blackwell, USA, 2007.
- **Animal Abuse and Unlawful Killing: Forensic veterinary pathology.** Munro, R. and Munro, H.M.C., Saunders Ltd, China, 2008.

### **8-3: Scientific Journals:**

- Journal of Forensic Sciences
- American Journal of Forensic Medicine and Pathology
- Forensic Science International: Genetics
- Environmental Forensics
- Journal of Forensic and Legal Medicine
- Forensic Toxicology
- Journal of Forensic Identification
- Journal of Forensic Medicine and Toxicology
- Journal of Forensic Practice
- Forensic Science Review
- Journal of clinical forensic medicine

### **8-4: Scientific websites**

- [A Free And Comprehensive Guide To The World Of Forensic Science](#)
- [Crime Scene Investigator Network](#)
- [Digital Evidence and Forensics](#)
- [FBI Laboratory](#)
- [FBI: Fingerprints & Other Biometrics](#)
- [Forensic Entomology Page, International](#)
- [National Archive of Criminal Justice Data](#)
- [Visible Proofs: Forensic Views of the Body](#)
- [American Association of Anthropological Genetics](#)
- [American Association of Physical Anthropologists](#)
- [American Board of Forensic Anthropology](#)
- [C.A. Pound Human Identification Laboratory](#)
- [Forensic Art](#)
- [International Association for Craniofacial Identification](#)
- [The Perfect Corpse](#)
- [Written in Bone: Forensic Files of the 17th-Century Chesapeake](#)

**Course Coordinator**

**Head of Department**

**Prof. Dr. Hanaa Mohamed Ragab**

**Prof. Dr. Tarek Ahmed Abd el-Hady**

**Course Matrix for achievement of Intended Learning Outcomes**

Topics	Hours	Knowledge & Understanding				Intellectual Skills				Practical & Professional Skills					General & Transferable Skills				
		1	2	3	4	1	2	3	4	1	2	3	4	5	1	2	3	4	
1. Identification	24	✓														✓	✓	✓	✓
2. Death	24	✓		✓	✓	✓	✓			✓						✓	✓	✓	✓
3. Wounds	24	✓	✓		✓ ✓				✓	✓		✓	✓	✓	✓	✓	✓	✓	✓
4. Thermal injuries	24	✓	✓		✓ ✓				✓	✓		✓	✓	✓	✓	✓	✓	✓	✓
5. Asphyxia	24	✓	✓		✓ ✓				✓	✓		✓	✓	✓	✓	✓	✓	✓	✓
6. Abortion	24	✓	✓													✓	✓	✓	✓
7. Infanticides	24	✓	✓													✓	✓	✓	✓
8. Medical rules and ethics	24	✓	✓	✓	✓		✓			✓						✓	✓	✓	✓



## COURSE SPECIFICATION (2021 / 2022)

### 1 - Basic Information:

Code number: 245/1

Course title: **Advanced General Toxicology (سموم عام متقدم)**

Academic Year: **Master of Veterinary Medicine Program**

Total teaching hours: 240 hrs.

Lectures: 96 hrs. (48 weeks- 2hrs/week)

Practical: 144 hrs. (48 weeks- 3hrs/week)

### 2 - OVERALL AIMS OF THE COURSE:

*At the end of this course, the student must be* acquire knowledge and skills related to types, actions, clinical features, circumstances, diagnosis, detection, and management of poisoning which operate on the animal body.

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- a1. Define the types, sources and circumstances of poisoning.
- a2. Recognize the mode of action and metabolism of toxic substances.
- a3. Identify the factors affecting the degree of poisoning.
- a4. Explain the general line of treatment and diagnosis of toxicological cases.
- a5. Be aware with different sources of toxicants.

#### 3-B: INTELLECTUAL SKILLS:

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

- b.1. Relate the toxic impacts to the metabolic pathways of the toxicant.
- b.2. Interpret the results of different laboratory tests.
- b.3. Relate the mechanism of action with the symptoms of poisoning.
- b.4. Select the most suitable antidotes for treatment of poisoning in animals.

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

- c.1. Perform essential calculations in toxicology.
- c.2. Carry out dosing, sampling, labeling and preservation of samples.
- c.3. Estimate the general and special toxic effects in-vivo and in-vitro.
- c.4. Detect metals and organic poisons in biological samples.

#### 3- D: GENERAL SKILLS:

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

- d1. Communicate effectively with his professors, and collages.
- d2. Efficiently make use of library facilities and IT tools.
- d3. Manage time efficiently.
- d4. Processing, spreadsheets, presentation packages and graph plotting.

### 4 - COURSE CONTENTS:

Topic	No. of hours		
	Lectures	Practical	Total
1. Basic of general toxicology	12	18	30



2. Corrosives	12	18	30
3. Metallic poisons	12	18	30
4. Pesticides	12	18	30
5. Animal poisoning	12	18	30
6. Volatile gases poisoning	12	18	30
7. Mycotoxicosis	12	18	30
8. Poisonous plants	12	18	30
<b>Total</b>	<b>96</b>	<b>144</b>	<b>240</b>

### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming

\* **Self-Learning activities:** Mini reviews from the web and the library  
Making individual reports about toxicology

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a5	b1 to b4	c1 to c4	d1, d4
Self-Learning activities		b1 to b4		d2, d3, d4
Distance Teaching and Learning	a1 to a5	b1 to b4	c1 to c4	d1 to d4

\*Lectures may be offered face to face or via distance teaching and 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 lectures.

### 7. STUDENT ASSESSMENT:-

<u>7.a: Used methods</u>	Written examination	Oral examination	Practical examination	Activities
<u>7.b: Time</u>	At the end of the academic year	At the end of the academic year	At the end of the academic year	All over the academic year
<u>7.c: grads</u>	50	20	20	10

7. Student Assessment				
Intended Learning Outcomes Covered				
5.1. Methods	KU	IS	PPS	GTS
Written exams	a1 to a5	b1 to b4		d4
Practical exams	-----	-----	c1 to c4	-----
Oral exams	a1 to a5	b1 to b4		d1
Student activities	a1, a5			d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.



## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Essential Books

- **Principles of Forensic Toxicology.** 2020. Barry S. Levine and Sarah Kerrigan. Springer. ISBN-13: 978-3030429164- ISBN-10: 3030429164
- **Toxicology.** Osweiler, G.D., The National Veterinary Medical Series for Independent Study Blackwell Pub., 1996.
- **Handbook of Toxicology:** Derelanko, M.J. and Hollinger, M.A., 2nd ed., CRC Press , Boca Raton, 2002.

### 8-2: Recommended books:

- **Principles and Methods of Toxicology:** Hayes, A.W., 5th ed., CRC Press, New York, 2007.
- **Casarett & Doull's Toxicology. The Basic Science of Poisons.** Klaassen, C.D., 6th edition, McGraw-Hill, New York, 2001.
- **Introduction to toxicology.** Timbrell, J., - 3rd ed., Taylor & Francis, USA, 2003.

### 8-3: Scientific Journals:

- Archiv Toxicol. - Springerlink
- Bull. Environ. Contam. Toxicol. - Springerlink
- Environ. Toxicol. – Interscience
- Food Chem. Toxicol. - Elsevier
- Reprod. toxicol. - Elsevier
- Toxicol. Appl. Pharmacol. – Elsevier

### 8-4: Scientific websites:

- TOXNET (toxicology data network)
- IVIS
- Environmental Protection Agency (EPA)
- Food and Drug Administration (FDA)
- American Board of Toxicology
- EPA: Integrated Risk Information System (IRIS)

**Course Coordinator**

**Head of Department**

**Prof. Dr. Hanaa Mohamed Ragab**

**Prof. Dr. Tarek Ahmed Abd el-Hady**



Course Matrix for achievement of Intended Learning Outcomes

Topics	Hours	Knowledge & Understanding					Intellectual Skills				Practical and professional skills				General & Transferable Skills			
		1	2	3	4	5	1	2	3	4	1	2	3	4	1	2	3	4
1. Basic of general toxicology	30	✓					✓	✓					✓	✓	✓	✓	✓	✓
2. Corrosives	30	✓		✓			✓	✓		✓	✓		✓	✓	✓	✓	✓	✓
3. Metallic poisons	30		✓	✓			✓	✓	✓		✓		✓	✓	✓	✓	✓	✓
4. Pesticides	30				✓		✓	✓				✓	✓	✓	✓	✓	✓	✓
5. Animal poisoning	30					✓	✓	✓		✓			✓	✓	✓	✓	✓	✓
6. Volatile gases poisoning	30					✓	✓	✓		✓		✓	✓	✓	✓	✓	✓	✓
7. Mycotoxicosis	30					✓	✓	✓	✓		✓		✓	✓	✓	✓	✓	✓
8. Poisonous plants	30					✓	✓	✓				✓	✓	✓	✓	✓	✓	✓



## COURSE SPECIFICATION (2021 / 2022)

### 1 - Basic Information:

Code number: 246/1

Course title: Environmental Toxicology (السموم البيئية)

Academic Year: Master of Veterinary Medicine Program

Total teaching hours: 192 hrs

Lectures: 96 hrs (48 weeks- 2hrs/week)

Practical: 96 hrs (48 weeks- 2hrs/week)

### 2 - OVERALL AIMS OF THE COURSE:

*At the end of this course, the student must be* acquire knowledge and skills related to demonstrate, analyze and control the main toxicological problems of contaminants in the environment.

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- a.1 Recognize different classes of physical and chemical environmental pollutants.
- a.2 Identify the impact of pollutants in the environment .
- a.3 Explain specific areas including: the major environmental toxicants,
- a.4 Identify the basics and scientific theories to find ways of assessing environmental toxins.

#### 3-B: INTELLECTUAL SKILLS:

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

- b1. Interpret the different environmental toxic substance.
- b2. Manage the risks arising from exposure to toxins and various pollutants.
- b3. Estimate the impact of using pesticides on community health and economics.

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

- c.1. Carry out proper sampling, labeling and preservation for pollutant assessment.
- c.2. Analyze and detect the expected pollutants in air, water and soil samples.
- c.3. Perform toxicity testing to different classes of pollutants in Lab animals.

#### 3- D: GENERAL SKILLS:

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

- d.1. Communicate effectively with his professors, and collages.
- d.2. Efficiently make use of library facilities and IT tools.
- d.3. Manage time efficiently.
- d.4. Processing, spreadsheets, presentation packages and graph plotting.

### 4 - COURSE CONTENTS:

Topic	No. of hours		
	Lectures	Practical	Total
1. Basic of general toxicology	16	16	32
2. Environmental Data Analysis	20	20	40
3. Environmental Toxicology	20	20	40
4. Water Management	20	20	40





5. Environmental Toxicology and Pollution Monitoring Project	20	20	40
<b>Total</b>	<b>96</b>	<b>96</b>	<b>192</b>

### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming

\* **Self-Learning activities:** Mini reviews from the web and the library  
Making individual reports about environmental toxicology

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures *	a1 to a4	b1 to b3	c1 to c3	d1, d4
Self-Learning activities		b1 to b3		d2, d3, d4
Distance Teaching and Learning	a1 to a4	b1 to b3	c1 to c3	d1 to d4

\*Lectures may be offered face to face or via distance teaching and 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 lectures.

### 7. STUDENT ASSESSMENT:-

<b>7.a:Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b: Time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	All over the academic year
<b>7.c: Grads</b>	50	20	20	10

7. Student Assessment				
5.1. Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a4	b1 to b3	c1 to c3	d4
Practical exams	a1 to a3	b1 to b3	c1 to c3	d1 to d3
Oral exams	a1 to a4	b1 to b3		d1
Student activities	a1, a3	b1 to b3		d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

### 8. LEARNING AND REFERENCE MATERIALS:

#### 8-1: Essential Books

- Environmental Toxicology**, Wright, D.A. and Welbourn, P., Cambridge University Press, UK, 2002.



- **Principles of Forensic Toxicology.** 2020. Barry S. Levine and Sarah Kerrigan. Springer. ISBN-13: 978-3030429164- ISBN-10: 3030429164

**8-2: Recmended books:**

- **Casarett & Doull's Toxicology. The Basic Science of Poisons.** Klaassen, C.D., 6th edition, McGraw-Hill, New York, 2001.
- **Introduction To Environmental Toxicology, *Impacts of Chemicals Upon Ecological Systems*,** Landis, W.G. and Yu, M., CRC Press, New York, 2005.

**8-3: Scientific Journals:**

- Archiv Toxicol. - Springerlink
- Bull. Environ. Contam. Toxicol. - Springerlink
- Environ. Toxicol. – Interscience
- Food Chem. Toxicol. - Elsevier
- Reprod. toxicol. - Elsevier
- Toxicol. Appl. Pharmacol. – Elsevier

**8-4: Scientific websites:**

<https://cfpub.epa.gov/ecotox/>

<https://www.atsdr.cdc.gov/toxprofiledocs/index.html>

[https://www.nlm.nih.gov/pubs/techbull/nd19/nd19\\_toxnet\\_new\\_locations.html](https://www.nlm.nih.gov/pubs/techbull/nd19/nd19_toxnet_new_locations.html)

<https://ntp.niehs.nih.gov/>

<https://www.atsdr.cdc.gov/>

**Course Coordinator**

**Head of Department**

**Prof. Dr. Hanaa Mohamed Ragab**

**Prof. Dr. Tarek Ahmed Abd el-Hady**



Course Matrix for achievement of Intended Learning Outcomes

Topics	Hours	Knowledge & Understanding					Intellectual Skills			Practical and professional skills			General & Transferable Skills			
		1	2	3	4	5	1	2	3	1	2	3	1	2	3	4
1. Basics of general toxicology	32	✓					✓						✓	✓	✓	✓
2. Environmental Data Analysis	40	✓		✓		✓	✓	✓		✓			✓	✓	✓	✓
3. Environmental Toxicology	40		✓	✓			✓		✓	✓	✓	✓	✓	✓	✓	✓
4. Water Management	40				✓			✓			✓	✓	✓	✓	✓	✓
5. Environmental Toxicology and Pollution Monitoring Project	40	✓				✓	✓	✓				✓	✓	✓	✓	✓



## COURSE SPECIFICATION (2021 / 2022)

### 1 - Basic Information:

**Code number:** 247/1

**Course title:** Forensic Toxicology (السموم من الوجهة الطبية الشرعية)

**Academic Year:** Master of Veterinary Medicine Program

**Total teaching hours:** 192 hrs.

Lectures: 96 hrs. (48 weeks- 2hrs/week)

Practical: 96 hrs. (48 weeks- 2hrs/week)

### 2 - OVERALL AIMS OF THE COURSE:

By the end of this course, students should have gained the basic principles and the essential practical skills in the field of identification of the cause of deaths and write medico-legal report concerning toxicological case.

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- a1. Recognize criminal toxins, their characteristics and harmful effects.
- a2. Define the theories and fundamentals related Occupational and environmental toxicology
- a3. Explain circumstantial evidence about the crime scene
- a4. State the principles of judging in different toxicological cases

#### 3-B: INTELLECTUAL SKILLS:

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

- b1. Evaluate the forensic cases depending upon analytical bases.
- b2. Interpret the results of forensic analysis.

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

- c1. Collect and store samples in the perfect way
- c2. Acquire skills used in analytical laboratories in the context of medico-legal investigation.
- c3. Apply appropriate autopsy procedures and sampling technique.

#### 3- D: GENERAL SKILLS:

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

- d.1. Communicate effectively with his professors, and collages.
- d.2. Utilize different sources of knowledge and information
- d.3. Use information technology to serve the professional practice.
- d.4. Manage time efficiently

### 4 - COURSE CONTENTS:

Topic	No. of hours		
	Lectures	Practical	Total
Analytical toxicology	16	16	32
Drugs and toxicology	16	16	32
General and clinical toxicology	16	16	32
Occupational and environmental toxicology	16	16	32
General forensics	16	16	32
Postmortem examination and medico-legal reports	16	16	32
Total	96	96	192



## 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library  
Making individual reports in forensic toxicology

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a4	b1 to b2		d1, d4
Practical sessions		b1 to b2	c1 to c3	d2, d4
Self-Learning activities				d2, d3, d4
Distance Teaching and Learning	a1 to a4	b1 to b2	c1 to c3	d1 to d4

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:-

<b>7.a: Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b: Time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	Allover the academic year
<b>7.c : Grads</b>	50	20	20	10

7.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a4	b1 to b2		d4
Practical exams			c1 to c3	d2, d3
Oral exams	a1 to a4	b1 to b2		d1
Student activities				d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Essential Books

- Fundamentals of analytical toxicology**, SeFlanagan, R.J., Taylor, A., Watson, I.D. and Whelpton, R., John Wiley & Sons Inc, New York, 2007.
- Principles of Forensic Toxicology**. 2020. Barry S. Levine and Sarah Kerrigan. Springer. ISBN-13: 978-3030429164- ISBN-10: 3030429164



- **Forensic Toxicology: Principles and Concepts.** 2022. Nicholas T. Lappas, Courtney M. Lappas. 2<sup>nd</sup> Ed. **ISBN-13:** 9780128192863- Elsevier Science

#### **8-2: Recommended books:**

- Handbook of Forensic Toxicology for Medical Examiners. Molina,, D.K., CRC press, USA, 2010.

#### **8-3: Scientific Journals**

- **Archiv Toxicol. - Springerlink**
- **Bull. Environ. Contam. Toxicol. - Springerlink**
- **Environ. Toxicol. – Interscience**
- **Food Chem. Toxicol. - Elsevier**
- **Reprod. toxicol. - Elsevier**
- **Toxicol. Appl. Pharmacol. – Elsevier**

#### **8-4: Scientific websites**

- TOXNET (toxicology data network)
- IVIS
- Environmental Protection Agency (EPA)
- Food and Drug Administration (FDA)
- American Board of Toxicology
- EPA: Integrated Risk Information System (IRIS)

**Course Coordinator**

**Prof. Dr. Hanaa Mohamed Ragab**

**Head of Department**

**Prof. Dr. Tarek Ahmed Abd el-Hady**



Course Matrix for achievement of Intended Learning Outcomes

Topics	Hours	Knowledge & Understanding				Intellectual Skills		Practical & Professional Skills			General & Transferable Skills			
		1	2	3	4	1	2	1	2	3	1	2	3	4
Analytical toxicology	32	✓				✓	✓	✓	✓	✓	✓	✓	✓	✓
Drugs and toxicology	32		✓			✓	✓	✓			✓	✓	✓	✓
General and clinical toxicology	32		✓		✓	✓	✓			✓	✓	✓	✓	✓
Occupational and environmental toxicology	32			✓		✓	✓		✓		✓	✓	✓	✓
General forensics	32	✓		✓		✓	✓			✓	✓	✓	✓	✓
Postmortem examination and medico-legal reports	32			✓	✓	✓	✓	✓	✓		✓	✓	✓	✓

## COURSE SPECIFICATION (2021 / 2022)

### 1 - Basic Information:

**Code number:** 248/1

**Course title:** Laboratory diagnosis for toxins (التشخيص المعملّي للسموم)

**Academic Year:** Master of Veterinary Medicine Program

**Total teaching hours:** 192 hrs.

**Lectures:** 96 hrs. (48 weeks- 2hrs/week)

**Practical:** 96 hrs. (48 weeks- 2hrs/week)

### 2 - OVERALL AIMS OF THE COURSE:

*By the end of this course, students should have gained the basic principles and the essential practical skills in the field of application of scientific methods in laboratory diagnosis of toxicants.*

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.)

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- a1. Identify the methods used in toxicants detection.
- a2. Recognize the type, quantity and methods of collecting the necessary samples for the diagnosis of toxicants.
- a3. Describe how to use laboratory equipment in the analysis of those samples.
- a4. Explain how to interpret and analyze the laboratory results.

#### 3-B: INTELLECTUAL SKILLS:

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

- b1. Distinguish the different forensic/analytical toxicological cases.
- b2. Select decisions regarding common clinical situations using appropriate problem solving skills and relevant ethical principles.

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

- C1. Collect suspected samples from clinical cases under field conditions
- C2. Perform the suitable laboratory assessments for detection of the poison in question.
- C3. Conduct toxicity testing in vitro.

#### 3- D: GENERAL SKILLS:

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

- d.1. Communicate effectively with his professors, and collages.
- d.2. Utilize different sources of knowledge and information
- d.3. Use information technology to serve the professional practice.
- d.4. Manage time efficiently

### 4 - COURSE CONTENTS:

Topic	No. of hours		
	Lectures	Practical	Total
Essential Clinical Toxicology	12	12	24
Analytical Techniques	12	12	24





Essential Therapeutics	12	12	24
Trace Elements and Toxic Metals	12	12	24
Drug Abuse and Forensics	12	12	24
Essential Clinical Biochemistry	12	12	24
Laboratory and personal safety	12	12	24
Practical Project and Dissertation	12	12	24
Total	96	96	192

### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library

Making individual reports in laboratory diagnosis of toxicants

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures *	a1 to a4	b1 to b2		d1, d4
Practical sessions		b1 to b2	c1 to c3	d2, d4
Self-Learning activities				d2, d3, d4
Distance Teaching and Learning	a1 to a4	b1 to b2	c1 to c3	d1 to d4

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:-

<b>7.a: Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b: Time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	All over the academic year
<b>7.c : Grads</b>	50	20	20	10

7.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a4	b1 to b2		d4



Practical exams			c1 to c3	d2, d3
Oral exams	a1 to a4	b1 to b2		d1
Student activities				d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Essential Books

- **Vet. Toxicol. Basic. & Clin. Principles**, R.C. Gupta, Academic Press; 2 edition, 2012.
- **Toxicology**. Osweiler, G.D., The National Veterinary Medical Series for Independent Study Blackwell Pub., 1996.

### 8-2: Recommended books:

- **Principles and Methods of Toxicology: Hayes**, A.W., 5th ed., CRC Press, New York, 2007.
- **Handbook of Toxicology: Derelanko**, M.J. and Hollinger, M.A., 2nd ed., CRC Press, Boca Raton, 2002.

### 8-3: Scientific Journals

- Archiv Toxicol. - Springerlink
- Bull. Environ. Contam. Toxicol. - Springerlink
- Environ. Toxicol. – Interscience
- Food Chem. Toxicol. - Elsevier
- Reprod. toxicol. - Elsevier
- Toxicol. Appl. Pharmacol. – Elsevier

### 8-4: Scientific websites

- TOXNET (toxicology data network)
- IVIS
- Environmental Protection Agency (EPA)
- Food and Drug Administration (FDA)
- American Board of Toxicology
- EPA: Integrated Risk Information System (IRIS)

**Course Coordinator**

**Prof. Dr. Hanaa Mohamed Ragab**

**Head of Department**

**Prof. Dr. Tarek Ahmed Abd el-Hady**



Course Matrix for achievement of Intended Learning Outcomes

Topics	Hours	Knowledge & Understanding				Intellectual Skills		Practical & Professional Skills			General & Transferable Skills			
		1	2	3	4	1	2	1	2	3	1	2	3	4
Analytical toxicology	32	✓				✓	✓	✓	✓	✓	✓	✓	✓	✓
Drugs and toxicology	32		✓			✓		✓			✓	✓	✓	✓
General and clinical toxicology	32		✓		✓	✓	✓			✓	✓	✓	✓	✓
Occupational and environmental toxicology	32			✓		✓	✓		✓		✓	✓	✓	✓
General forensics	32	✓		✓		✓	✓			✓	✓	✓	✓	✓
Postmortem examination and medico-legal reports	32			✓	✓		✓	✓	✓		✓	✓	✓	✓



## COURSE SPECIFICATION (2021 / 2022)

### 1 - Basic Information:

**Code number:** 249/1

**Course title:** Drug toxicity (سمية الدواء)

**Academic Year:** Master of Veterinary Medicine Program

**Total teaching hours:** 144 hrs.

**Lectures:** 48 hrs. (48 weeks- 1hrs./week)

**Practical:** 96 hrs. (48 weeks- 2hrs./week)

### 2 - OVERALL AIMS OF THE COURSE:

*By the end of this course, students should have gained the basic principles and the essential practical skills in the field of mechanism of toxicity, toxicokinetics, clinical presentation, diagnosis and medications indicated and contraindicated in the treatment of toxicity of common drug and chemical groups.*

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.)

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- a1. **Recognize** the impact of drug toxicity.
- a2. **Define** the major drug toxicants, sources, pathways and fate of major toxicants; specific effects on organisms; physiological & biochemical principles of toxicity testing; LD50 & NOEC.
- a3. Explain circumstantial evidence about the drug toxicity cases
- a4. State the principles of judging in different toxicological cases

#### 3-B: INTELLECTUAL SKILLS:

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

- b1. **Interpret** the different drug toxins.
- b2. **Evaluate** and analyze the toxic doses of drugs.
- b3. **Analyze** other scientific toxicological researches and data.

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

- c1. Report the toxic effect of drugs on animals.
- c2. Conduct suitable sample collection, chemical and biological methods of analysis, analytical quality control, toxicity tests.
- c3. Manage and deal with drug toxicity cases.

#### 3- D: GENERAL SKILLS:

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

- d.1. Communicate effectively with his professors, and collages.
- d.2. Utilize different sources of knowledge and information
- d.3. Use information technology to serve the professional practice.
- d.4. Manage time efficiently

### 4 - COURSE CONTENTS:

Topic	No. of hours		
	Lectures	Practical	Total
Drug safety and pharmacovigilance	8	16	24



Mechanisms of toxicity	8	16	24
Major toxins	8	16	24
Management and prevention of toxicity	8	16	24
Poisoning and toxic vigilance	8	16	24
Occupational and environmental toxicology	8	16	24
Total	48	96	144

### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library  
Making individual reports in drug toxicity

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures *	a1 to a4	b1 to b3		d1, d4
Practical sessions		b1 to b3	c1 to c3	d2, d4
Self-Learning activities				d2, d3, d4
Distance Teaching and Learning	a1 to a4	b1 to b3	c1 to c3	d1 to d4

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:-

<b>7.a: Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b: Time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	Allover the academic year
<b>7.c : Grads</b>	50	20	20	10

7.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a4	b1 to b3		d4
Practical exams			c1 to c3	d2, d3
Oral exams	a1 to a4	b1 to b3		d1
Student activities				d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.



## **8. LEARNING AND REFERENCE MATERIALS:**

### **8-1: Essential Books**

- **Vet. Toxicol. Basic. & Clin. Principles**, R.C. Gupta, Academic Press; 2 edition, 2012.
- **Toxicology**. Osweiler, G.D., The National Veterinary Medical Series for Independent Study Blackwell Pub., 1996.

### **8-2: Recommended books:**

- **Principles and Methods of Toxicology: Hayes**, A.W., 5th ed., CRC Press, New York, 2007.
- **Handbook of Toxicology: Derelanko**, M.J. and Hollinger, M.A., 2nd ed., CRC Press, Boca Raton, 2002.

### **8-3: Scientific Journals**

- Archiv Toxicol. - Springerlink
- Bull. Environ. Contam. Toxicol. - Springerlink
- Environ. Toxicol. – Interscience
- Food Chem. Toxicol. - Elsevier
- Reprod. toxicol. - Elsevier
- Toxicol. Appl. Pharmacol. – Elsevier

### **8-4: Scientific websites**

- TOXNET (toxicology data network)
- IVIS
- Environmental Protection Agency (EPA)
- Food and Drug Administration (FDA)
- American Board of Toxicology
- EPA: Integrated Risk Information System (IRIS)

**Course Coordinator**

**Prof. Dr. Hanaa Mohamed Ragab**

**Head of Department**

**Prof. Dr. Tarek Ahmed Abd el-Hady**

### Course Matrix for achievement of Intended Learning Outcomes

Topics	Hours	Knowledge & Understanding				Intellectual Skills			Practical & Professional Skills			General & Transferable Skills			
		1	2	3	4	1	2	3	1	2	3	1	2	3	4
Drug safety and pharmacovigilance	32	✓				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Mechanisms of toxicity	32		✓				✓		✓	✓		✓	✓	✓	✓
Major toxins	32		✓		✓	✓	✓				✓	✓	✓	✓	✓
Management and prevention of toxicity	32						✓	✓		✓		✓	✓	✓	✓
Poisoning and toxic vigilance	32	✓		✓		✓	✓				✓	✓	✓	✓	✓
Occupational and environmental toxicology	32	✓		✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓



**Kafrelsheikh University**  
Faculty of Veterinary Medicine



**Kafrelsheikh University**

**Faculty of Veterinary Medicine**

**Department of Cytology and Histology**

# **Program Specification for Master Degree**

**(2021 - 2022)**

**Program Title:**

**Master of The Veterinary Medicine  
(Cytology and Histology)**





### **A- Administrative information:**

- 1- **Awarding Body:** Kafrelsheikh University
- 2- **Teaching Body:** Faculty of Veterinary Medicine
- **Department responsible:** Cytology and Histology
- 3- **Program Title:** Master Degree in Veterinary Science (Cytology and Histology)
- 4- **Final award:** Master Degree
- 5- **Registration period:** 2-4 years
- 6- **Program Coordinator:** Prof. Dr.
- 7- **External evaluator:**
- 8- **Date of revision:**
- 9- **Date of approval:**

### **B- Professional information:**

#### **1-Educational aims of the program**

- Provide graduates the opportunity to develop communication skills, recent techniques and diagnostic tools in the field of Cytology and Histology, experience of scientific research and teaching skills.
- To achieve capability in modern laboratory technology to develop practical research project.
- To supply the graduated students with the most recent knowledge in science and technological applications of Cytology and Histology.
- Demonstrate an awareness of the connections between disciplines and develop the ability to engage critically with scientific literature and to critically review and present their own research data for the protection and promotion of the animal health.
- A Good grade in Master can serve as a basis for admission to PhD of veterinary medical science in the field of the Cytology and Histology and biotechnology thereafter.

#### **2- Academic standards:**

**Academic reference standards (ARS) adopted by the faculty committee No 1 (14-9-2014)**

#### **3-Graduate attributes:**

*Upon successful completion of the program, the graduate has the ability for:*

- 1) Perfect application the basics and methodologies of scientific research in



cytology and histology with the use of its different tools.

- 2) Application and use of analytical methods in evaluating laboratory results.
- 3) Differentiation of the gained knowledge in cytology and histology to interpret the laboratory data.
- 4) Awareness with the ongoing problems and modern concepts in the cytology and histology laboratory regarding instruments and techniques.
- 5) Identification of problems facing laboratory diagnosis and suggest solutions for them.
- 6) Mastering an appropriate domain in specialized professional skills regarding the laboratory work and use modern technology in the cytology and histology laboratory.
- 7) Effective communication with students, histologists and laboratory staff and lead work team through professional scale.
- 8) Decision making under different professional situations based on laboratory results.
- 9) Employing the available resources efficiently including specimens, laboratory equipment and histological techniques.
- 10) Awareness with the role laboratory medicine in maintenance of animal and human health and thus the society development and community preservation.
- 11) Reflection of the commitment to act with the integrity and credibility according to the ethical rules of laboratory work.
- 12) Academic and professional self-development and ability for life-long learning and progress by studying new aspects in cytology and histology.

#### **4-Programme outcomes [intended learning outcomes (ILOs)]**

##### **a. Knowledge and understanding:**

*By the end of this program the graduate should be able to:*

- a.1. Recognize the theories and principles of cytology and histology and related fields.
- a.2. Impact the histological findings in diagnosis and its role in making critical decisions concerning the animal and human health.
- a.3. Indicate the scientific progress in the field of laboratory diagnosis regarding instruments and techniques.
- a.4. Clarify Cytology and Histology laboratory safety, risk assessments, laboratory regulations, instrumentation, calibration and automation.
- a.5. Realize the principles and basics of quality assurance in the area of specialization.
- a.6. Outline the legal and ethical basics in scientific research in the field of Cytology and Histology.



## **b. Intellectual skills:**

*By the end of this program the graduate should be able to:*

- b.1.** Evaluate of histological and histochemical findings in different organs and relating them to cell function to solve problems
- b.2.** Solve clues for detection of histological structure of the tissues .Based on the available laboratory data even in scarcity of resources such as unavailability of instruments and technicians.
- b.3.** Realize the histological structure of the different organs in the body regarding histological staining and histochemistry and interpret them to detect the specific histologic structure
- b.4.** Identify, summarize and evaluate the different knowledge prior researches in cytology and histology and efficiently present his plan and data.
- b.5.** Assess risks of professional practices in cytology and histology and their possible consequences.
- b.6.** Plan for improvement of professional performance.
- b.7.** Make safe laboratory decisions under unexpected situations based on laboratory data

## **c. Practical and professional skills:**

*By the end of this program the graduate should be able to:*

- c.1.** Master basic and recent professional skills in histological techniques.
- c.2.** Write, conclude and evaluate a professional and conclusive report about the tissue of concern.
- c.3.** Evaluating laboratory instruments and methods of histological technique, interpreting laboratory data and planning a research project in the field of Cytology and Histology with a consideration to the technical, ethical and safety issues and associated costs.

## **d. General and transferable skills:**

*By the end of this program, the graduate should be able to:*

- d.1.** Communicate effectively with his professors, collages and animal owner(s).
- d.2.** Utilize different sources of knowledge and information.
- d.3.** Assess himself and identify his personal educational needs.
- d.4.** Demonstrate interpersonal skills and team working ability
- d.5.** Demonstrate an ability to learn independently for a career of lifelong learning.
- d.6.** Use information technology to serve the professional practice.
- d.7.** Manage time efficiently.

**d.8.** Set tools and indicators for assessment of the performance of others.

### 5-Program structure:

a) Program duration (years): Master degree from 2-4 years

b) Premaster courses – at least one academic year

Course	Lecture (hours/week)	Practical (hours/week)
Fundamental (core) course	3	4
Research methodology	1	3
2-5 Elective Courses Offered by other departments and are selected from the list below according to thesis topic (10-12 hours)	5-6	5-6

c) Master of Veterinary Medicine Thesis (at least one academic year)

- All master-degree students should prepare a master thesis.
- The department and the ethical committees must approve the protocol of the research.
- The thesis should include a review part and a research part.
- The thesis is supervised by one or more senior staff members of the department responsible for the program and may include other specialties according to the nature of the research.
- The thesis should be evaluated and approved by a committee of three professors including one of the supervisors and an external professor.

*A number of subsidiar  
research work:*

Subject	Code	Course title	No of hours/week	
			Lecture	Practical Lab
Anatomy and embryology	101/1	<b>1- Applied anatomy</b>	2	2
	102/1	<b>2- Anatomical techniques and surface anatomy</b>	2	2
	103/1	<b>3- Osteology and arthrology</b>	2	2



	104/1	<b>4- Comparative digestive system</b>	2	2
	105/1	<b>5- Comparative uro-genital system</b>	2	2
	106/1	<b>6-Comparative respiratory system</b>	2	2
	107/1	<b>7- Comparative cardiovascular system</b>	2	2
	108/1	<b>8- Comparative nervous system and endocrine glands</b>	2	2
	109/1	<b>9- General and special embryology</b>	2	2
	110/1	<b>10- Avian anatomy</b>	1	2
<b>Physiology</b>	123/1	<b>23- Physiology of mammalian endocrine and reproduction</b>	2	2
	124/1	<b>24- poultry physiology (advanced)</b>	2	2
	125/1	<b>25- physiology of muscle and nerve</b>	1	2
	126/1	<b>26- physiology of ruminants</b>	2	2
	127/1	<b>27- physiology of environment, adaptation and cell</b>	2	2
	128/1	<b>28- physiology of blood</b>	2	2
	129/1	<b>29- physiology of digestion, metabolism and energy</b>	2	2
	130/1	<b>30- Physiology in pollution</b>	1	2
	131/1	<b>31- Radioactive isotopes and biological uses</b>	2	2
	132/1	<b>32- Physiology of heights</b>	1	1
	133/1	<b>33-Fish physiology.</b>	1	2
<b>Biochemistry</b>	134/1	<b>34- Basics of biochemistry</b>	2	3
	135/1	<b>35- Metabolism</b>	2	2
	136/1	<b>36- Biochemistry of tissue and body fluids .</b>	2	2
	137/1	<b>37- Biochemistry of hormones and reproduction</b>	2	2
	138/1	<b>38- Feeding biochemistry</b>	2	2
	139/1	<b>39- Clinical biochemistry</b>	2	2
	140/1	<b>40- Avian biochemistry</b>	2	2
	141/1	<b>41- Microbial biochemistry</b>	2	2
	142/1	<b>42- Biochemistry of radiation</b>	1	2
	143/1	<b>43- Fish biochemistry</b>		
<b>Animal behavior and management</b>	144/1	<b>44- Behavior and management of ruminants ( specific courses in cattle, buffalo, sheep, camels and goats)</b>	2	3
	145/1	<b>45- Behavior and management of horses</b>	2	3
	146/1	<b>46- Behavior and management of pet animals</b>	1	2
	147/1	<b>47- Behavior and management of laboratory animals</b>	1	2
	148/1	<b>48- Behavior and management of wild animals</b>	2	2
	149/1	<b>49- Behavior and management of poultry</b>	2	2
	150/1	<b>50- Behavior and management of rabbit</b>	1	2
	151/1	<b>51- Behavior of experimental animals</b>	1	2



<b>Nutrition and clinical nutrition</b>	152/1	<b>52- Basics of animal nutrition</b>	2	2
	153/1	<b>53- feedstuff</b>	2	2
	154/1	<b>54- nutrition of farm animals and fish specific courses in ( cattle and buffalo nutrition – sheep and goat nutrition – camel nutrition- equine nutrition – fish nutrition)</b>	2	2
	155/1	<b>55- poultry and rabbit nutrition( advanced)</b>	2	2
	156/1	<b>56- wild animal nutrition</b>	1	2
	157/1	<b>57- laboratory animal nutrition</b>	1	2
	158/1	<b>58- feed additives</b>	1	2
	159/1	<b>59- feedstuff analysis</b>	2	2
	160/1	<b>60- Quality control of feed and feed factories</b>	2	2
	161/1	<b>61- Clinical nutrition and malnutrition</b>	2	2
	162/1	<b>62- Fish nutrition</b>	1	2
<b>Pathology</b>	163/1	<b>63- General pathology and neoplasm( progressive)</b>	2	2
	164/1	<b>64-pathology of microbial and parasitic diseases in animal</b>	2	2
	165/1	<b>65- pathology of bad nutrition</b>	1	2
	166/1	<b>66- pathology of environmental pollution</b>	1	2
	167/1	<b>67- pathology of reproductive diseases</b>	1	2
	168/1	<b>68- Avian pathology</b>	2	2
	169/1	<b>69-Experimental pathology</b>	2	2
	170/1	<b>70- toxins pathology</b>	2	2
	171/1	<b>71- surgical pathology</b>	2	2
	172/1	<b>72- Pathology of experimental animals.</b>		
	173/1	<b>73- Pathology of genetics</b>		
174/1	<b>74-- Fish pathology</b>	2	2	
<b>Clinical pathology</b>	175/1	<b>75- Advanced clinical pathology</b>	2	2
	176/1	<b>76-Organ function tests and body and urine balance</b>	2	2
	177/1	<b>77- Clinical hematology and bone marrow examination</b>	1	2
<b>Bacteriology, immunology and mycology</b>	178/1	<b>78- General bacteriology(advanced)</b>	1	2
	179/1	<b>79-systemic bacteriology</b>	2	3
	182/1	<b>80- Advanced immunology</b>	2	2
	183/2	<b>81- Advanced mycology</b>	1	2
<b>Virology</b>	180/3	<b>82- General virology</b>	1	2
	181/4	<b>83-Systemic virology( specific courses)</b>	2	3
	182/5	<b>84- Advanced immunology</b>	2	2
<b>Mixed courses between</b>	184/1	<b>85- Microbiology of poultry</b>	2	2
	185/1	<b>86- Microbiology of ??????</b>	1	2



<b>Bacteriology and Virology</b>	186/1	<b>87- Microbiology of animal product</b>	2	2
	187/1	<b>88- Fish Microbiology</b>	1	2
<b>81- Advanced immunology</b>			2	2
<b>Parasitology</b>	188/1	<b>89- Veterinary medical entomology and acarology</b>	2	2
	189/1	<b>90-helminthology</b>	2	2
	190/1	<b>91- protozoology</b>	2	2
	191/1	<b>92- Avian and rabbits parasitology</b>	2	2
	192/1	<b>93Malacology and its vet. Importance</b>	1	2
	193/1	<b>94- parasitic Immunology</b>	1	2
	194/1			
	195/1			
	196/1	<b>95- Specific courses on parasitology</b>	-	-
	197/1	<b>98- Physiology and biochemistry of parasites</b>	2	2
	198/1	<b>99- Fish parasitology</b>	1	2
<b>Pharmacology</b>				
<b>Pharmacology</b>	199/1	<b>100- Aeneral pharmacology ( advanced)</b>	2	2
	200/1	<b>101- pharmacology of autonomic nervous system and autocoid</b>	2	2
	201/1	<b>102- pharmacology of central nervous system</b>	2	2
	202/1	<b>103 pharmacology of anesthesia</b>	2	2
	203/1	<b>104- Systemic pharmacology</b>	2	2
	204/1	<b>105- pharmacology of metabolism</b>	2	2
	205/1	<b>106- pharmacology of hormones</b>	2	2
	206/1	<b>107-Chemotherapy</b>	2	2
	207/1	<b>108-Biological evolution of drug</b>	1	1
<b>Hygiene and control of milk and dairy products</b>				
<b>Hygiene and control of milk and dairy products</b>	208/1	<b>108- Hygiene and control of milk and dairy products</b>	2	2
	209	<b>109- Microbiology of milk and dairy products</b>	2	2
	210/1	<b>110- Milk technology and preservation</b>	2	2
	211/1	<b>111- Food analysis</b>	2	2
	212/1	<b>112- Food poisoning</b>	1	2
	213/1	<b>113- Specific courses on sources of contamination, disturbances of milk production, milk born diseases, hygiene of table egg, edible fats and oils</b>	1	1
	214/1	<b>114- The sanitation of dairy plant</b>	2	2
<b>Control of meat hygiene and their products</b>				
<b>Control of meat hygiene and their products</b>	215/1	<b>115- Slaughter animal Hygiene</b>	1	2
	216/1	<b>116- Abattoir management and hygiene</b>	2	2
	217/1	<b>117- Hygienic control of meat and their product</b>	2	2
	218/1	<b>118 inspection of poultry meat.</b>	1	2
	219/1	<b>119- Food technology</b>	1	2
	220/1	<b>120- Microbiology of meat and fish meats and</b>	2	1



		<b>their product</b>		
	221/1	<b>121- Chilled meal microbiology</b>	1	2
	222/1	<b>122- Analysis of meat and fish and their product</b>	1	2
	223/1	<b>123- Preservation of meat, poultry, fish and their products</b>	1	2
	224/1	<b>124- Sanitation affairs of meat and fish plants.</b>	2	2
<b>Internal medicine</b>	225/1	<b>125- advanced general medicine</b>	2	2
	226/1	<b>126- disease of ruminants( cattle, buffalo, camels, sheep and goats)</b>	3	3
	227/1	<b>127- diseases of equines</b>	2	2
	228/1	<b>128 diseases of pet animals</b>	2	2
	229/1	<b>129- diseases of wild animals</b>	2	2
	230/1	<b>130- diseases of metabolic disorders</b>	2	2
	231/1	<b>131- nutritional deficiency diseases</b>	2	2
	232/1	<b>132- Skin diseases</b>	1	2
	233/1	<b>133 - diseases of newly born animals</b>	2	2
	234/ 1	<b>134- Stress diseases during animals transport.</b>		
<b>Infectious diseases</b>	235/ 1	<b>135- Infectious diseases of cattle</b>	2	2
	236/ 1	<b>136- Infectious diseases of sheep and goat</b>	2	2
	237/ 1	<b>137- Infectious diseases camel</b>	2	2
	238/ 1	<b>138 Infectious diseases of equine</b>	2	2
	239/ 1	<b>139- Infectious diseases of pet animals</b>	2	2
	240/ 1	<b>140- Infectious diseases lab animals</b>	1	2
	241/ 1	<b>141- Infectious diseases of udder and newly born animals</b>	2	2
	242/ 1	<b>142- Infectious diseases buffaloes</b>	2	1
	243/1	<b>143- Infectious diseases of wild animals.</b>		
<b>Forensic medicine and toxicology</b>	244/1	<b>144- Forensic medicine and veterinary procedures</b>	2	2
	245/1	<b>145- general toxicology</b>	2	2
	246/1	<b>146- environmental toxicology</b>	2	2
	247/1	<b>147- forensic toxicology</b>	2	2
	248/1	<b>148- laboratory diagnostic toxicology</b>	2	2
	249/1	<b>149- Drug toxicology</b>		
<b>Therigenology</b>	250/1	<b>150- Female infertility (special specific courses in ruminants- equine- pet animals)</b>	2	2
	251/1	<b>151- Male infertility (special specific courses in ruminants- equine- pet animals)</b>	2	2
	252/1	<b>152- Genital diseases.</b>		
	253/1	<b>153 - obstetrics (special specific courses in farm and pet Animals)</b>	2	2





	254/1	<b>153- reproduction and immunity</b>	1	2
	255/1	<b>155- artificial insemination in ruminants</b>	2	2
	256/1	<b>156- artificial insemination in equine</b>	2	2
	257/1	<b>157- artificial insemination in pet animals</b>	1	2
	258/1	<b>158- embryo transfer</b>	1	2
<b>Veterinary Surgery</b>	259/1	<b>159- General surgery (advanced)</b>	2	2
	260/1	<b>160- Special surgery( organs)</b>	2	3
	261/1	<b>161- surgery of eye, ear, nose and larynx</b>	2	2
	262/1	<b>162 digestive system surgery</b>	2	2
	263/1	<b>163- surgery of the limbs, hoof and claws</b>	2	2
	264/1	<b>164- experimental surgery</b>	2	2
	265/1	<b>165- anesthesiology</b>	1	1
	266/1	<b>166- radiology and ultrasonography</b>	2	2
<b>Poultry and rabbit diseases</b>	267/1	<b>167- bacterial diseases of poultry</b>	2	2
	268/1	<b>168- viral diseases of poultry</b>	2	2
	269/1	<b>169- fungal diseases of poultry</b>	2	2
	270/1	<b>170 parasitic diseases of poultry</b>	1	2
	271/1	<b>171 - nutritional diseases of poultry</b>	1	2
	272/1	<b>172-diseases of rabbit (advanced)</b>	2	2
	273/1	<b>173-Diseases of wild and migrating birds</b>	2	2
	274/1	<b>174- Preventive vaccines and their evaluation in poultry</b>	2	2
	275/1	<b>175- Laboratory diagnosis of poultry diseases.</b>		
<b>Animal and environmental hygiene</b>	276/1	<b>176- farm animal hygiene ( advanced)</b>	2	2
	277/1	<b>177- poultry hygiene ( advanced)</b>	2	2
	278/1	<b>178- environmental hygiene and pollution</b>	2	2
	279/1	<b>179- control of contagious diseases</b>	2	2
	280/1	<b>180- eradication of rodents and disease vector</b>	2	2
	281/1	<b>181- insecticides and public health</b>	2	2
	282/1	<b>182-hygiene of animal enclosures- specific courses in :- cattle houses – poultry houses – rabbit houses- pet animals house3s – experimental animals houses</b>	2	2
	283/1	<b>183-disinfections and disinfectants</b>	2	2
	284/1	<b>184- veterinary epidemiology – specific courses in animal environment</b>	2	-
<b>Zoonoses</b>	285/1	<b>185- advanced zoonoses ( specific courses in bacterial and Mycotic diseases – viral diseases – parasitic diseases)</b>	2	2
	286/1	<b>186- role of rodents in transmission of zoonoses</b>	2	2
	287/1	<b>187- role of wild animals in transmission of zoonoses</b>	2	2



	288/1	<b>188- role of birds (special courses in: poultry, wild migrating or pets) in transmission of zoonoses</b>		
<b>Genetics and genetic engineering</b>	289/1	<b>189- Genetics of microorganisms .</b>	1	2
	290/1	<b>190- Genetic engineering( advanced)</b>	1	2
	291/1	<b>191- Cytological genetics</b>	1	-
	292/1	<b>192- Genetics of genuses.</b>	2	-
	293/1	<b>193- physiological genetics</b>	2	-
	294/1	<b>194- Chemical and radiological genetics.</b>	1	2
<b>Animal production</b>	295/1	<b>195- Animal breeding and improvement (advanced).</b>	2	-
	296/1	<b>196- Poultry breeding and improvement(advanced).</b>	2	-
	297/1	<b>197- Cattle and buffalo production (advanced).</b>	2	2
	298/1	<b>198- Sheep and goat production (advanced).</b>	2	2
	299/1	<b>199- Poultry production (advanced).</b>	2	2
	300	<b>200-Rabbit production (advanced).</b>	2	2
	301	<b>201-Improving by artificial insemination in poultry and rabbits.</b>	2	2
<b>Fish diseases and management</b>	302/1	<b>202- Biology of fish.</b>	2	2
	303/1	<b>203-Fish diseases (advanced)</b>	2	2
	304/1	<b>204-Fish farms.</b>	1	2
	305/1	<b>205-Fish breeding .</b>	2	2
<b>Economic and farms management</b>	306/1	<b>206- economics of animals and dairy production</b>	2	-
	307/1	<b>207- economics of poultry farms</b>	2	-
	308/1	<b>208-economics of fish farms</b>	2	-
	309/1	<b>209- feasibility studies</b>	2	-
	310/1	<b>210- farm management</b>	2	-
	311/1	<b>211- economics of beef production</b>	2	-
<b>Biostatistics</b>	312/1	<b>212- Biostatistics (advanced)</b>	2	-
	313/1	<b>213- Experimental design</b>	2	2
	314/1	<b>214- Computer and data processing</b>	2	1

## 6-Teaching and Learning Methods:

*The program features a variety of teaching approaches for different intended learning objectives including:*

- Lectures to gain knowledge and understanding skills
- Writing a review paper to gain the skills of self-learning and presentation



- Practical and lab sessions to gain practical skills
- Seminars

## 7- Students assessments:

The program depends on different assessment ways:

### a. Course assessment:

1- Written examination	For assessment of knowledge, back calling and Intellectual skills
2- Practical examination	For assessment of practical and professional skill
3- Oral examination	For assessment of knowledge and Intellectual skills
4- Student activities	For assessment of knowledge and general and transferable skills

### b. Master Thesis

- Annual reports adopted by the Faculty
- Finally, the assessment of thesis measure the individual student ability to work independently in the field specialization
- Final evaluation and approval by a judging committee of at least three professors including one or more of the supervisors and an external professor. This assesses the ability to write a review article, perform the needed practical steps and to present the results in tables and graphs. In addition, the skills of analysis of results and discussion with previous findings obtained by other authors are also assessed.

### *Assessment of program intended learning outcomes*

Tool or method	ILOs
1- Written	a1,2,3; b1,2,3
2- Oral	a1,2,5; b2,3,4,6
3- Practical	b1,7; c1-3
4- Assignments	a1,2; b4; d1-8
5- Thesis	a4-7; b4-7, c1-5, d1-8

## 8. Marking scale as follow:-

Excellent	> 90
Very good	>80
Good	>70



<b>Pass</b>		>60
<b>Fail</b>	<b>Weak</b>	45 to less than 60
	<b>very weak</b>	Less than 45

### 9. Program evaluation methods

Evaluator	Tool	Sample
Postgraduate Student	Questioners	20%
	meeting	1
Postgraduate alumni	Questioners	5
Stakeholders (employers)	Questioners	10
	Meeting	1
External evaluator/External examiner	Reports	1

### 10. Program Admission Requirements:

The Applicant must normally satisfy the faculty of veterinary medicine- kafrelsheikh University general entrance and requirement. The normal minimum entrance qualification for registration at the faculty on a master's program

- 1- Bachelor degree in Veterinary Medical Sciences of one of the Egyptian Universities or hold a degree in Veterinary Medical Sciences equivalent through the Supreme Council of Universities with general grade at least "Good" and at least grade "Very Good" in specialization.
- 2- Diploma of general grade at least "Good" and at least grade "Very Good" in specialization. The total number of study hours must be not less than 3 weekly in that specialization.
- 3- After he has passed the courses studied during premaster he must perform a research work in a subject approved by the faculty council at least for one year. He must submit the results of this work in thesis that should be approved by the discussion committee.

### 11. Regulations for progression of program

- a) Registration period for the Master in veterinary medicine is at least 2 years after the approval date by the faculty council and it should not exceed a period of 4 years, an extension could be approved by the faculty council depending on the supervisor report that approved by the department council and postgraduate and research committee refers to the universities regulation law.
- b) The student should conduct the courses proposed by both department council and approved by postgraduate and research committee and faculty council and include, 2-5 courses of the postgraduates stated in article (28) in regulation law



- list and the student will be entitled to apply for the exam only after meeting attendance rate for each course.
- c) The student should pass written, practical and oral exams successfully in all courses, and the examination is held two times annually.
  - d) The Faculty council should deprive the student from entering the exam if his attendance rate in the course is less than 75%.
  - e) Failure or depriving from entering one or more course did not require reexamination of successful passed courses.
  - f) The applicant should conduct an innovative research on the subject that has been registered for at least 2 years from the date of registration approved by the faculty council. And the faculty council depending on a request from the supervisor has the right to authorize the student to do scientific experiments at recognized scientific institute.
  - g) The applicant should submit the thesis that accepted by the judging committee in an open discussion and the following policies should be met:
    - h) Pass all courses.
    - i) The applicant should submit 4 copies of his thesis concerned department council to form committee examining the thesis to be presented to the postgraduate studies committee and the faculty council, and in case of thesis approval by the department council, the applicant will submit 6 copies for the faculty library, 1 copy for public university library before introducing the report of examination committee to the post graduate studies committee and the faculty council.
    - j) Registration will be during March and September of each year.
    - k) The applicant should submit a request enrolment for the dean who forwards it to the concerned department council to determine the research subject and the study program and then take calendar after complete documentation on the faculty council for approval.
    - l) The thesis title should be identified before being submitted at least 2 months and the judging committee has the right to amend the title without prejudice the subject of research.
    - m) The Faculty council has the right to suspend the student enrolment for a certain period if he has acceptable excuse preventing him from continuing his study or research, and his period will not be counted within the period stated in article 25.



- n) The applicant should submit 5 hard copies and 10 electronic copies (CDs) of the thesis after its validity approved by the judging committee and head of department to be distributed to the committee members and faculty library and the judging committee can decide the exchange of the thesis with other universities or printing at the expense of the university.

### **12. Registration will be cancelled in one of the following cases:**

1. If the supervisors report during the registration period is unsatisfactory (2 reports).
2. If he did not submit his thesis before the end of registration period.
3. If the judging committee rejected the thesis twice.

### **13. Examination Regulations**

- a- Time of written exam, 3 hours for each course that has 3 hours or more for lecture / practical /week. **If has less than 3 hours/week, the time of exam, is 2 hours only.**
- b-The final degree of each course which has 3 hours (lecture and practical) per week is **100 and less than 3 hours is 50 degrees and divided into 50% for written exam, and 50% for practical and oral exam.**

### **14. Program completion:**

- Successfully completion of the required courses and submission of a thesis.

**Program Coordinator**

**Prof. Dr. Mohamed Mohamed  
Kassab**

**Head of Department**

**Prof. Dr. Mohamed Mohamed  
Kassab**



## Matching program ILOs with ARS - Matrix

Program ILOs	ARS																							
	K&U (a)						I.S. (b)							P.P. (c)			G.T. (d)							
	1	2	3	4	5	6	1	2	3	4	5	6	7	1	2	3	1	2	3	4	5	6	7	8
<b>K&amp;U</b>	1	2	3	4	5	6																		
<b>I.S.</b>							1	2	3	4	5	6	7											
<b>P.P.</b>														1	2	3								
<b>G.T.</b>																	1	2	3	4	5	6	7	8





---

## ARS for Master in Veterinary Medical Sciences (Cytology and Histology)

### 1) **Graduate attributes**

*The graduate should have the ability for:*

- 1) Perfect application of the basics and methodologies of scientific research in Cytology and Histology with the use of its different tools.
- 2) Application and use of analytical methods in evaluating laboratory results in Cytology and Histology.
- 3) Application of the gained knowledge in Cytology and Histology to interpret the Microscopical findings.
- 4) Awareness with the ongoing problems and modern concepts in the Cytology and Histology laboratory regarding instruments and techniques.
- 5) Identification of problems facing laboratory reading of microscopical findings and suggesting solutions for them.
- 6) Mastering an appropriate domain in specialized professional skills regarding the laboratory work and use modern technology in the Cytology and Histology laboratory.
- 7) Effective communication with students, histologists and laboratory staff and leading work team through professional scale.
- 8) Decision making under different professional situations based on micro- and ultrastructural findings.
- 9) Employing the available resources efficiently including specimens, laboratory equipment and histological techniques.
- 10) Awareness with his role in society development and community by clarification of normal structure of tissues which helps in future for diagnosis of diseases.
- 11) Reflection of the commitment to act with the integrity and credibility according to the ethical rules of histological field.
- 12) Academic and professional self-development and ability for life-long learning and progress by studying new aspects in Cytology and Histology.

## A) Knowledge and understanding

Adopted ARS		NARS (Master)
	<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	The theories and basics of Cytology and Histology and related fields.	Theories and principles in the field of specialization and related fields.
2)	The impact of histological findings in diagnosis and its role in making critical decisions concerning the animal and human health.	Mutual effect between professional practice and its impact on environment
3)	The scientific progress in the field of Cytology and Histology including Microscopical and ultrastructural findings	Scientific progress in the field of specialization
4)	The legal and ethical basics in the laboratory work regarding histology laboratory and interpreting the results.	Legal and ethical basics in professional practice in the field of specialization
5)	Cytology and Histology laboratory safety, risk assessments, laboratory regulations, instrumentation, calibration and automation.	Principles and basics of quality assurance in the area of specialization
6)	The basics and ethics of scientific research in the field of Cytology and Histology.	Basics and ethics of scientific research

## B) Intellectual skills

Adopted ARS		NARS (Master)
	<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Interpretation of histological and histochemical findings in different organs and relating them to cell function to solve problems	Analysis and judgment of information in the field of specialization and analog to solve problems.
2)	Solving professional problems on Microscopical and ultrastructural levels even in scarcity of data.	Solving professional problems even in scarcity of data.
3)	Relate between structure of the organ and its related function to know its importance in that site in the body.	Relating between different knowledge to solve professional problems.
4)	Identification, summarizing and evaluating prior researches in Cytology and Histology and efficiently present his plan and data.	Preparing research plan in specialization and/ or writing scientific article on a research problem.
5)	Assessment of risks of laboratory work as improper	Risk-assessment of professional

	use of some hazardous instruments or handling samples of body tissues.	practices in specialization.
6)	Plan to improve performance in the field of immunohistochemistry.	Planning for improvement of professional performance.
7)	Make safe laboratory decisions under complex and unpredictable situations based on laboratory data.	Taking professional decisions in a variety of professional contexts.

### C) Professional and practical skills

Adopted ARS		NARS (Master)
	<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Mastering basic and recent practical skills including taking samples, use of instruments and performing different methods and techniques related to Cytology and Histology.	Mastering basic and recent professional skills in the field of specialization
2)	Application of the principles of good experimental design and writing and evaluating laboratory report.	Writing and evaluating professional reports.
3)	Evaluating laboratory instruments and methods of histological technique, interpreting laboratory data and planning a research project in the field of Cytology and Histology with a consideration to the technical, ethical and safety issues and associated costs.	Evaluating existing materials and methods in the area of specialization.

### D) General and transferable skill

Adopted ARS		NARS (Master)
	<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Communicating effectively with his professors, collages and students	Effective communication.
2)	Using information technology to serve the professional practice.	Utilizing information technology to serve development of professional practice.
3)	Self-assessment and identify his personal educational needs.	Self-assessment and determination of personal educational needs.
4)	Utilizing different sources of knowledge and information.	Using different resources to obtain knowledge and information.

5)	Using appropriate attitude and rules towards teaching staff and colleagues and use evidence based evaluations.	Establishing rules and indicators for assessment of the performance of others.
6)	Demonstrating interpersonal skills and team working ability.	Team working and leading a team in familiar professional contexts.
7)	Managing time efficiently.	Efficient time management.
8)	Demonstrating an ability to learn independently for a career of lifelong learning.	Self and continuous learning.

## ثانياً: برامج الماجستير

### ١- مواصفات الخريج

- خريج برنامج الماجستير في أي تخصص يجب أن يكون قادراً على:
١. إجادة تطبيق أساسيات و منهجيات البحث العلمي واستخدام أدواته المختلفة
  ٢. تطبيق المنهج التحليلي واستخدامه في مجال التخصص
  ٣. تطبيق المعارف المتخصصة و دمجها مع المعارف ذات العلاقة في ممارسته المهنية
  ٤. إظهار وعيا بالمشاكل الجارية و الرؤى الحديثة في مجال التخصص
  ٥. تحديد المشكلات المهنية و إيجاد حلول لها
  ٦. إتقان نطاق مناسب من المهارات المهنية المتخصصة، واستخدام الوسائل التكنولوجية المناسبة بما يخدم ممارسته المهنية
  ٧. التواصل بفاعلية و القدرة على قيادة فرق العمل
  ٨. اتخاذ القرار في سياقات مهنية مختلفة
  ٩. توظيف الموارد المتاحة بما يحقق أعلى استفادة و الحفاظ عليها
  ١٠. إظهار الوعي بدوره في تنمية المجتمع و الحفاظ على البيئة في ضوء المتغيرات العالمية و الإقليمية
  ١١. التصرف بما يعكس الالتزام بالنزاهة و المصداقية و الالتزام بقواعد المهنة
  ١٢. تنمية ذاته أكاديمياً و مهنياً و قادراً على التعلم المستمر

### ١٢- المعايير القياسية العامة

#### ١ المعرفة و الفهم

- بانتهاؤ دراسة برنامج الماجستير يجب ان يكون الخريج على فهم و دراية بكل من:
- أ- النظريات و الأساسيات المتعلقة بمجال التعلم وكذا في المجالات ذات العلاقة
  - ب- التأثير المتبادل بين الممارسة المهنية وانعكاسها على البيئة
  - ت- التطورات العلمية في مجال التخصص
  - ث- المبادئ الأخلاقية و القانونية للممارسة المهنية في مجال التخصص

ج- مبادئ و أساسيات الجودة في الممارسة المهنية في مجال التخصص  
ح- أساسيات وأخلاقيات البحث العلمي

### ٢ المهارات الذهنية

بانتهاء دراسة برنامج الماجستير يجب ان يكون الخريج قادرا على:  
أ- تحليل و تقييم المعلومات في مجال التخصص و القياس عليها لحل المشاكل  
ب- حل المشاكل المتخصصة مع عدم توافر بعض المعطيات  
ت- الربط بين المعارف المختلفة لحل المشاكل المهنية  
ث- إجراء دراسة بحثية و /أو كتابة دراسة علمية منهجية حول مشكلة بحثية  
ج- تقييم المخاطر في الممارسات المهنية في مجال التخصص  
ح- التخطيط لتطوير الأداء في مجال التخصص  
خ- اتخاذ القرارات المهنية في سياقات مهنية متنوعة

### ٣ المهارات المهنية

بانتهاء دراسة برنامج الماجستير يجب ان يكون الخريج قادرا على:  
أ- إتقان المهارات المهنية الأساسية و الحديثة في مجال التخصص  
ب- كتابة و تقييم التقارير المهنية  
ت- تقييم الطرق و الأدوات القائمة في مجال التخصص

### ٤ المهارات العامة و المنتقلة

بانتهاء دراسة برنامج الماجستير يجب أن يكون الخريج قادرا على:  
أ- التواصل الفعال بأنواعه المختلفة  
ب- استخدام تكنولوجيا المعلومات بما يخدم الممارسة المهنية  
ت- التقييم الذاتي و تحديد احتياجاته التعليمية الشخصية  
ث- استخدام المصادر المختلفة للحصول على المعلومات و المعارف  
ج- وضع قواعد و مؤشرات تقييم أداء الآخرين  
ح- العمل في فريق ، وقيادة فرق في سياقات مهنية مختلفة  
خ- إدارة الوقت بكفاءة  
د- التعلم الذاتي و المستمر

## Course specification (2021 / 2022)

### 1 - Basic Information:

**Code number: BASIC COURSE**

**Course title: Cytology and Histology**

**Academic Year: Master of Veterinary Medicine Program**

**Total teaching hours: 336 hrs.**

Lectures: 144 hrs. (48 weeks- 3hrs/week)

Practical: 192 hrs. (48 weeks- 4hrs/week)

### 2 - OVERALL AIMS OF THE COURSE:

*By the end of this course, the student should acquire the concepts, principles and skills related to Animal, poultry and fish histology. The major topics covered are membranous and non-membranous organelles, Nucleus, body tissues and different systems in all animals described.*

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

*By the end of this course the graduates should be able to:*

- a1- Recognize the Principles and theories in the Cytology (membranous, non-membranous organelles as well as Nucleus), as well as of the other related fields.
- a2- Memorize tissue types and its construction on the structure of different organs.
- a3- Explain different histological structure of body systems in animals, birds and fish.
- a4- Explain the records obtained from slides and electronmicrographs in all tissues.
- a5- Relate the structure-function relationship in different systems in birds and fish

#### 3-B: INTELLECTUAL SKILLS:

*By the end of this course the graduates should be able to:*

- b1- Interpret ultrastructure finding in case of EM micrographs in cytology.
- b2. Demonstrate the cellular difference among the cells in the same organs in different animals, birds and fish.
- b3. Evaluate the role of various tissue in the construction of organs.
- b4- Comment accurately upon the obtained results on cells and tissue.
- b5. Relate the structure-function relationship in different systems.

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

*By the end of this course the graduates should be able to:*

- c1. Apply the practical histological course instructions for preparation of histological sections in body tissues.
- c2. Detect the microscopic differences of organs in different animals species.
- c3. Identify the electron microscopic characterization of cell.
- c4. Differentiate between the histological structure of organs in fowl and fish

#### 4- D: GENERAL SKILLS:

*By the end of this course the graduates should be able to:*

- d.1. Communicate effectively with his professors, and collages.
- d.2. Utilize different sources of knowledge and information
- d.3. Use information technology to serve the professional practice.
- d.4. Manage time efficiently.

### 4 - COURSE CONTENTS:

TOPIC	Total hours (Semester)	Hours for lecture	Hours for practical

1. Introduction and Course description	7	4	3
2. Cytology	30	15	15
3. General histology	57	25	32
4. Body systems.	188	80	110
5. Fowl histology and Fish histology	58	20	38
<b>Total</b>	<b>336</b>	<b>144</b>	<b>192</b>

## 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library

Making individual reports about histology and histochemistry of cytology, tissues and systems.

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a5	b1 to b5		d1, d4
Practical sessions		b1 to b5	c1 to c4	d2, d4
Self-Learning activities				d2, d3, d4
Distance Teaching and Learning	a1 to a5	b1 to b5	c1 to c4	d1 to d4

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	Allover the academic year
<b>7.c grads</b>	50	20	20	10

7. Student Assessment				
Intended Learning Outcomes Covered				
7.1. Methods	KU	IS	PPS	GTS
Written exams	a1 to a5	b1 to b5		d4
Practical exams			c1 to c4	d2, d3
Oral exams	a1 to a5	b1 to b5		d1
Student activities	a1, a5,			d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## **8. LEARNING AND REFERENCE MATERIALS:**

### **8-1: Essential Book**

- John Bancroft (2013) Bancroft's Theory and Practice of Histological Techniques. Seventh Edition.
- A. J. MARSHALL (1960) Biology and Comparative Physiology of BIRDS. ACADEMIC PRESS
- Kuehnel, (2003) Color Atlas of Cytology, Histology, and Microscopic Anatomy .
- JOANN EURELL ( 2010 ) Dellman's Comparative veterinary histology. Six Edition.
- FRANCK GENTEN et al ( 2009 ) ATLAS OF FISH HISTOLOGY. Science Publishers

### **8-2: Recmended books:**

- Hans-Georg Liebich. (2019): Veterinary Histology of Domestic Mammals and Birds.
- Anthony L. Mescher (2018): Junqueira's Basic Histology: Text and Atlas 16th Edition.
- Leslie P. Gartner (2018) : BRS Cell Biology and Histology.
- Eroschenko PhD, Victor P.(2017) : Atlas of Histology with Functional Correlations.
- -Anthony L. Mescher(2013) Junqueira's Basic Histolog T E X T AND AT LAS, 13th edition, McGraw-Hill Education New York Chicago San Francisco Lisbon London Madrid Mexico City Milan New Delhi San Juan Seoul Singapore Sydney Toronto.
- Bloom and Fawcett(1994) A text book of Histology, Twelfth Edition, Chapman and Hall, New York and London.
- Jo Ann C. Eurell ( 2004 ) VETERINARY HISTOLOGY

### **8-3: Egyptian Knowledge Bank:**

- Jennings R, Premanandan C. Veterinary histology. Ohio State University; 2017 Aug 22.
- Eurell JA, Frappier BL, editors. Dellmann's textbook of veterinary histology. John Wiley & Sons; 2013 Mar 19.
- Bacha Jr WJ, Bacha LM. Color atlas of veterinary histology. John Wiley & Sons; 2012 Jan 19.
- Aughey E, Frye FL. Comparative veterinary histology with clinical correlates. CRC Press; 2001
- Eurell JA. Histology. Teton NewMedia; 2004 Mar 15.

### **8.4: web sites and jouranls**

- WWW.PubMed.com
- Intrnational of veterinary information services (IVIS)
- www.Vet.net.com
- journal of molecular histology
- Anatomia histologia embryologia journal
- Journal of veterinary anatomy.
- Journal of veterinary anatomy.
- Journal of Acta Histochemica
- Journal of Microscopy and Microanalysis
- Journal of microscopy and research.

**Course Coordinator:**

**Head of Department:**

**Prof. Dr. Farouk Abdelmohdy**

**Prof. Dr. Mohamed Kassab**



### Course Matrix for achievement of Intended Learning Outcomes

Topics	Knowledge & Understanding					Intellectual Skills					Practical & Professional Skills				General & Transferable Skills			
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	1	2	3	4
. Introduction and Course description	X														X	X	X	X
Cytology	X					X	X		X				X		X	X	X	X
General histology		X		X			X	X		X	X				X	X	X	X
Body systems		X	X				X	X		X		X			X	X	X	X
Fowl histology			X		X		X						X	X	X	X	X	X

## Course specification (2021 / 2022)

### 1 - Basic Information:

**Code number:** 111/1

**Course title:** Cytology and cell biology

**Academic Year:** Master of Veterinary Medicine Program

**Total teaching hours:** 144 hrs.

Lectures: 48 hrs. (48 weeks- 1hrs/week)

Practical: 96 hrs. (48 weeks- 2 hrs/week)

### 2 - OVERALL AIMS OF THE COURSE:

*By the end of this course, the student should acquire the concepts, principles and skills related to Structure of cells under different microscopes with molecular characterization. The major topics covered are membranous and non-membranous organelles, Nucleus and cell cycle,*

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

*By the end of this course the graduates should be able to:*

- a1-Describe the Principles and theories in the membranous organelles.
- a2-Memorize types of non-membranous organells.
- a3- Explain different structure of nucleus with molecular structure and cell cycle.
- a4- Explain the records obtained from slides and electron micrographs..
- a5- Discuss the ultrastructure of cell with its function

#### 3-B: INTELLECTUAL SKILLS:

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

- b1- Interpret ultrastructure finding in case of EM micrographs in membranous organelles.
- b2 - Choose the proper approach with different non-membranous organelles and cell inclusion.
- b3- Discriminate structure and function relationship of nuclei.
- b4-Comment accurately upon the obtained results on each cellular organelles.
- b5-Determine area where further research is necessary in nucleus .

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

*By the end of this course the graduates should be able to:*

- c1- Examine any structure of inside the cells in case membranous organells .
- c2- Use available information in designing and implementing appropriate techniques in nucleus.
- c3- Apply sound techniques to differentiate between different structure of non membranous organelles .
- c4- Construct essential laboratory skills that underpin techniques associate with cytoplasm and its molecular biology

#### 3- D: GENERAL SKILLS:

*By the end of this course the graduates should be able to:*

- d.1. Communicate effectively with his professors, and collages.
- d.2. Utilize different sources of knowledge and information
- d.3. Use information technology to serve the professional practice.
- d.4. Manage time efficiently.

### 4 - COURSE CONTENTS:

TOPIC	Total hours	Hours for	Hours for
-------	-------------	-----------	-----------

		lecture	practical
1. Introduction and Course description	7	4	3
2. Membranous organelles	47	14	33
3. Non membranous organelles and inclusions	42	14	28
4. Nucleus and cell cycle	48	16	32
Total	144	48	96

### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library  
Making individual reports about cytology and cytochemistry .

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a5	b1 to b5		d1, d4
Practical sessions		b1 to b5	c1 to c4	d2, d4
Self-Learning activities				d2, d3, d4
Distance Teaching and Learning	a1 to a5	b1 to b5	c1 to c4	d1 to d4

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	Allover the academic year
<b>7.c grads</b>	50	20	20	10

7.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a5	b1 to b5		d4
Practical exams			c1 to c4	d2, d3
Oral exams	a1 to a5	b1 to b5		d1

Student activities	a1, a5,			d1 to d4
--------------------	---------	--	--	----------

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## **8. LEARNING AND REFERENCE MATERIALS:**

### **8-1: Essential Books**

- John Bancroft (2013) Bancroft's Theory and Practice of Histological Techniques. Seventh Edition.
- Kuehnel, (2003) Color Atlas of Cytology, Histology, and Microscopic Anatomy .
- JOANN EURELL (2010) Dellman's Comparative veterinary histology. Six Edition.
- FRANCK GENTEN et al (2009) ATLAS OF FISH HISTOLOGY. Science Publishers

### **8-2: Recmended books:**

- Hans-Georg Liebich. (2019): Veterinary Histology of Domestic Mammals and Birds.
- Anthony L. Mescher (2018): Junqueira's Basic Histology: Text and Atlas 16th Edition.
- Leslie P. Gartner (2018) : BRS Cell Biology and Histology.
- Eroschenko PhD, Victor P.(2017) : Atlas of Histology with Functional Correlations.
- -Anthony L. Mescher (2013) Junqueira's Basic Histolog T E X T AND AT LAS, 13th edition, McGraw-Hill Education New York Chicago San Francisco Lisbon London Madrid Mexico City Milan New Delhi San Juan Seoul Singapore Sydney Toronto.
- Bloom and Fawcett(1994) A text book of Histology, Twelfth Edition, Chapman and Hall, New York and London.
- Jo Ann C. Eurell ( 2004 ) VETERINARY HISTOLOGY

### **8-3: Egyptian Knowledge Bank:**

- Jennings R, Premanandan C. Veterinary histology. Ohio State University; 2017 Aug 22.
- Eurell JA, Frappier BL, editors. Dellmann's textbook of veterinary histology. John Wiley & Sons; 2013 Mar 19.
- Bacha Jr WJ, Bacha LM. Color atlas of veterinary histology. John Wiley & Sons; 2012 Jan 19.
- Aughey E, Frye FL. Comparative veterinary histology with clinical correlates. CRC Press; 2001
- Eurell JA. Histology. Teton NewMedia; 2004 Mar 15.

### **8.4: web sites and jouranls**

- WWW.PubMed.com
- Intrnational of veterinary information services (IVIS)
- www.Vet.net.com
- journal of molecular histology
- Anatomia histologia embryologia journal
- Journal of veterinary anatomy.
- Journal of veterinary anatomy.
- Journal of Acta Histochemica
- Journal of Microscopy and Microanalysis
- Journal of microscopy and research

**Course Coordinator:**

**Prof. Dr. Khalil Abu Easa**

**Head of Department:**

**Prof. Dr. Mohamed Kassab**

### Course Matrix for achievement of Intended Learning Outcomes

Topics	Knowledge & Understanding					Intellectual Skills					Practical & Professional Skills				General & Transferable Skills			
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	1	2	3	4
Introduction and Course description	X														X	X	X	X
Membranous organelles	X			X		X			X		X			X	X	X	X	X
Non membranous organelles and inclusions		X		X	X		X		X				X	X	X	X	X	X
Nucleus and cell cycle			X	X				X		X		X			X	X	X	X

## Course specification (2021 / 2022)

### 1 - Basic Information:

**Code number:** 112/1

**Course title:** general Histology

**Academic Year:** Master of Veterinary Medicine Program

**Total teaching hours:** 192 hrs.

Lectures: 96 hrs. (48 weeks- 2hrs/week)

Practical: 96 hrs. (48 weeks- 2 hrs/week)

### 2 - OVERALL AIMS OF THE COURSE:

*By the end of this course, the student should acquire the concepts, principles and skills related to Animal, poultry and fish general histology. The major topics covered epithelium, connective tissue, muscular tissue in different animals, birds and fish.*

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

*By the end of this course the graduates should be able to:*

- a1-Recognize the Principles and theories in the epithelial tissue as well as glands.
- a2- Memorize cells types and its construction on the structure of connective tissue
- a3- Explain different histological structure of different types of muscles and nervous tissue.
- a4- Explain the records obtained from slides and electronmicrographs.
- a5- Discuss the histological structure of arises from mesoderm, endoderm .

#### 3-B: INTELLECTUAL SKILLS:

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

- b1. Interpret ultrastructure finding in case of EM micrographs connective tissue cells
- b2. Demonstrate the cellular difference among the four primary tissues.
- b3. Evaluate the role of various cells lined or covers the forming organs.
- b4. Comment accurately upon the obtained results on different tissues.
- b5. Relate the structure-function relationship in different types of muscle as well as nervous tissue.

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

*By the end of this course the graduates should be able to:*

- c1. Apply the practical histological course instructions for preparation of histological sections in epithelium and nervous tissues.
- c2. Detect the microscopic differences of epithelial tissues, their specialization and distribution in animal body.
- c3. Identify the microscopic characterization of connective tissue cells and nervous tissue.
- c4. Detect the differences between cartilages and bone types as well as different types of muscles.

#### 3-D: GENERAL AND TRANSFERABLE SKILL

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

- d.1. Communicate effectively with his professors, and collages.
- d.2. Utilize different sources of knowledge and information
- d.3. Use information technology to serve the professional practice.
- d.4. Manage time efficiently.

### 4 - COURSE CONTENT

TOPIC	Total hours	Hours for lecture	Hours for practical

1. Introduction and Course description	7	4	3
2. Epithelium	40	20	20
3.C.T proper	37	18	19
4. Supportive connective tissue	36	18	18
5. Muscular tissue	36	18	18
6. Nervous tissue	36	18	18
Total	192	96	96

## 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library

Making individual reports about histology and histochemistry of cytology, tissues and systems.

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a5	b1 to b5		d1, d4
Practical sessions		b1 to b5	c1 to c4	d2, d4
Self-Learning activities				d2, d3, d4
Distance Teaching and Learning	a1 to a5	b1 to b5	c1 to c4	d1 to d4

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	Allover the academic year
<b>7.c grads</b>	50	20	20	10

Methods	I.L.O.S Evaluation			
	Knowledge	Intellectual	Practical	general
Written examination	A1.A2.A3.A4.A5.	B1.B2		D2
Oral examination	A1.A2.A3.A4.A5.	B1.B2.B3. <b>B4.B5</b>		<b>D4</b>
Practical examination		B1.B2	C1.C2.C3.	D1,D3

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Essential Books

- Overhead projections, Microscopes, TV closed center, slides and computer presentations used during teaching.
- John Bancroft (2013) Bancroft's Theory and Practice of Histological Techniques. Seventh Edition.
- A. J. MARSHALL (1960) Biology and Comparative Physiology of BIRDS. ACADEMIC PRESS
- Kuehnel, (2003) Color Atlas of Cytology, Histology, and Microscopic Anatomy .
- JOANN EURELL ( 2010 ) Dellman's Comparative veterinary histology. Six Edition.
- FRANCK GENTEN et al ( 2009 ) ATLAS OF FISH HISTOLOGY. Science Publishers

### **8-2: Recmended books:**

- Hans-Georg Liebich. (2019): Veterinary Histology of Domestic Mammals and Birds.
- Anthony L. Mescher (2018): Junqueira's Basic Histology: Text and Atlas 16th Edition.
- Leslie P. Gartner (2018) : BRS Cell Biology and Histology.
- Eroschenko PhD, Victor P.(2017) : Atlas of Histology with Functional Correlations.
- -Anthony L. Mescher(2013) Junqueira's Basic Histolog T E X T AND AT LAS, 13th edition, McGraw-Hill Education New York Chicago San Francisco Lisbon London Madrid Mexico City Milan New Delhi San Juan Seoul Singapore Sydney Toronto.
- Bloom and Fawcett(1994) A text book of Histology, Twelfth Edition, Chapman and Hall, New York and London.
- Jo Ann C. Eurell ( 2004 ) VETERINARY HISTOLOGY

### **8-3: Egyptian Knowledge Bank:**

- Jennings R, Premanandan C. Veterinary histology. Ohio State University; 2017 Aug 22.
- Eurell JA, Frappier BL, editors. Dellmann's textbook of veterinary histology. John Wiley & Sons; 2013 Mar 19.
- Bacha Jr WJ, Bacha LM. Color atlas of veterinary histology. John Wiley & Sons; 2012 Jan 19.
- Aughey E, Frye FL. Comparative veterinary histology with clinical correlates. CRC Press; 2001
- Eurell JA. Histology. Teton NewMedia; 2004 Mar 15.

### **8.4: web sites and jouranls**

- WWW.PubMed.com
- Intrnational of veterinary information services (IVIS)
- www.Vet.net.com
- journal of molecular histology
- Anatomia histologia embryologia journal
- Journal of veterinary anatomy.
- Journal of veterinary anatomy.
- Journal of Acta Histochemica
- Journal of Microscopy and Microanalysis
- Journal of microscopy and research

**Course Coordinator:**

**Prof. Dr. Mona Ali**

**Head of Department:**

**Prof. Dr. Mohamed Kassab**



### Course Matrix for achievement of Intended Learning Outcomes

Topics	Knowledge & Understanding					Intellectual Skills					Practical & Professional Skills				General & Transferable Skills			
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	1	2	3	4
. Introduction and Course description	X														X	X	X	X
Epithelium	X				X		X	X			X	X			X	X	X	X
C.T proper		X			X	X	X		X				X		X	X	X	X
Supportive connective tissue		X			X		X		X				X		X	X	X	X
Muscular tissue			X	X			X			X				X	X	X	X	X
Nervous tissue			X	X					X	X	X		X		X	X	X	X

## Course specification (2021 / 2022)

### 1 - Basic Information:

**Code number:** 113/1

**Course title:** Histological and histochemical structure of comparative blood and lymphatic system.

**Academic Year:** Master of Veterinary Medicine Program

**Total teaching hours:** 96 hrs.

Lectures: 48 hrs. (48 weeks- 1hrs/week)

Practical: 48 hrs. (48 weeks- 1 hrs./week)

### 2 - OVERALL AIMS OF THE COURSE:

*By the end of this course, the student should acquire the concepts, principles and skills related to Animal, poultry and fish blood, bone marrow and lymphatic organs. The major topics covered blood cells, bone marrow and hematopoietic cells and lymphatic organs in different animals, birds and fish.*

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

**By the end of this course the graduates should be able to:**

- a1- Recognize the Principles and theories in the blood cells.
- a2- Memorize cells types and its construction on the structure of blood
- a3- Explain different histological structure of different types of lymphatic organs.
- a4- explain the records obtained from slides and electron micrographs.
- a5- Discuss the histological structure arises from bone marrow and hematopoietic tissue

#### 3-B: INTELLECTUAL SKILLS:

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

- b1- Interpret light and electron microscopic finding in case blood cells
- b2. Demonstrate the cellular difference among the hematopoietic cells line.
- b3. Evaluate the role of various cells in lymphatic organs
- b4- Comment accurately upon the obtained results on different structures.
- b5. Relate the structure-function relationship in different blood cells

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

- c1. Apply the practical histological course instructions for preparation of histological sections in lymphatic organs.
- c2. Detect the microscopic differences of blood cells, their specialization and their percentage between different species.
- c3. Identify the microscopic characterization of blood and lymph vessels as well as bone marrow.
- c4. Differentiate between the early and late developing blood cells.

#### 3- D GENERAL AND TRANSFERABLE SKILL

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

- d.1. Communicate effectively with his professors, and collages.
- d.2. Utilize different sources of knowledge and information
- d.3. Use information technology to serve the professional practice.
- d.4. Manage time efficiently.

### 4 - COURSE CONTENTS:

TOPIC	Total hours	Hours for	Hours for
-------	-------------	-----------	-----------

		lecture	practical
1. Introduction and Course description	7	4	3
2. Structure of the blood cells and marrow	32	16	16
3. Study of hemopoiesis and, stem cells	18	9	9
4. Lymphatic organs	39	19	20
Total	96	48	48

## 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library

Making individual reports about histology and histochemistry of blood and lymphatic organs

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a5	b1 to b5		d1, d4
Practical sessions		b1 to b5	c1 to c4	d2, d4
Self-Learning activities				d2, d3, d4
Distance Teaching and Learning	a1 to a5	b1 to b5	c1 to c4	d1 to d4

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:-

<u>7.a Used methods</u>	Written examination	Oral examination	Practical examination	Activities
<u>7.b time</u>	At the end of the academic year	At the end of the academic year	At the end of the academic year	All over the academic year
<u>7.c grads</u>	50	20	20	10

Methods	I.L.O.S Evaluation			
	Knowledge	Intellectual	Practical	general
Written examination	a1 to a5.	b1 to b5		
Oral examination	a1.a2.a3.	b1.b2		d1-d2
Practical		b1.b2.b3	c1.c2.c3.c4.	d2-d4

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Essential Books

- Overhead projections, Microscopes, TV closed center, slides and computer presentations used during teaching.
- John Bancroft (2013) Bancroft's Theory and Practice of Histological Techniques. Seventh Edition.
- A. J. MARSHALL (1960) Biology and Comparative Physiology of BIRDS. ACADEMIC PRESS
- Kuehnel, (2003) Color Atlas of Cytology, Histology, and Microscopic Anatomy .
- JOANN EURELL ( 2010 ) Dellman's Comparative veterinary histology. Six Edition.
- FRANCK GENTEN et al ( 2009 ) ATLAS OF FISH HISTOLOGY. Science Publishers

### 8-2: Recommended books:

- Hans-Georg Liebich. (2019): Veterinary Histology of Domestic Mammals and Birds.
- Anthony L. Mescher (2018): Junqueira's Basic Histology: Text and Atlas 16th Edition.
- Leslie P. Gartner (2018) : BRS Cell Biology and Histology.
- Eroschenko PhD, Victor P.(2017) : Atlas of Histology with Functional Correlations.
- -Anthony L. Mescher(2013) Junqueira's Basic Histology T E X T AND AT LAS, 13th edition, McGraw-Hill Education New York Chicago San Francisco Lisbon London Madrid Mexico City Milan New Delhi San Juan Seoul Singapore Sydney Toronto.
- Bloom and Fawcett(1994) A text book of Histology, Twelfth Edition, Chapman and Hall, New York and London.
- Jo Ann C. Eurell ( 2004 ) VETERINARY HISTOLOGY

### 8-3: Egyptian Knowledge Bank:

- Jennings R, Premanandan C. Veterinary histology. Ohio State University; 2017 Aug 22.
- Eurell JA, Frappier BL, editors. Dellmann's textbook of veterinary histology. John Wiley & Sons; 2013 Mar 19.
- Bacha Jr WJ, Bacha LM. Color atlas of veterinary histology. John Wiley & Sons; 2012 Jan 19.
- Aughey E, Frye FL. Comparative veterinary histology with clinical correlates. CRC Press; 2001
- Eurell JA. Histology. Teton NewMedia; 2004 Mar 15.

### 8.4: web sites and journals

- WWW.PubMed.com
- International of veterinary information services (IVIS)
- www.Vet.net.com
- journal of molecular histology
- Anatomia histologia embryologia journal
- Journal of veterinary anatomy.
- Journal of veterinary anatomy.
- Journal of Acta Histochemica
- Journal of Microscopy and Microanalysis
- Journal of microscopy and research

Course Coordinator:

Head of Department:

Prof. Dr. Farouk Abdelmohdy

Prof. Dr. Mohamed Kassab

### Course Matrix for achievement of Intended Learning Outcomes

Topics	Knowledge & Understanding					Intellectual Skills					Practical & Professional Skills				General & Transferable Skills			
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	1	2	3	4
. Introduction and Course description	X														X	X	X	X
Structure of the blood cells and marrow	X	X			X	X				X		X			X	X	X	X
Study of hemopieosis , stem cells and gene therapy			X				X		X				X	X	X	X	X	X
Lymphatic organs				X				X	X		X				X	X	X	X

**Department of Animal, Poultry and environmental hygiene.**

# **Programme Specification for Master Degree in Animal, Poultry and Environmental Hygiene**

## **Faculty of Veterinary Medicine**

### **Kafrelshikh University**

#### **2021-2022**

# **Programme Specification for Master Degree In Animal, Poultry and Environmental Hygiene**

## **(2021-2022)**

### **A- Basic information:**

- 1- Awarding Body:** Kafrelshiekh University
- 2- Teaching Body:** Faculty of Veterinary Medicine
- 3- Department(s) responsible:** Hygiene and preventive medicine
- 4- Programme Title:** Animal, Poultry Environmental Hygiene
- 5- Final award:** Master Degree (MSc)
- 6- Programme accredited by:** Not accredited by any other body
- 7- Date of production and revision:** ...October 2016
- 8- Study year start date:** March and September
- 9- Relevant QA subject benchmark:** Not acceptable
- 10- Registration period :**Minimum period required is usually 2 academic years, and the maximum period is 5 academic years
- 11- Average time of graduation:** About 3-4 years

### **B- Professional information:**

#### **1- Educational aims of the Programme:**

- Provides graduates the opportunity to develop communication and teaching skills and the experience of scientific research.
- Develops the ability of graduate to engage critically with recent techniques and diagnostic tools in the field of animal and Environmental hygiene.
- Supplies the graduates with the most recent knowledge in science and technological applications in animal and Environmental hygiene.
- Demonstrates an awareness of the connections between disciplines and develop the ability to engage critically with scientific literature and to critically review and present their own research data for the protection and promotion of the animal

health.

- Allows graduates to develop practical research project.
- Enables graduates to achieve competency in modern laboratory technology.

## **2- Academic standards:**

**Academic reference standards (ARS) adopted by the faculty committee No (1) 14-9-2014)**

## **3-Graduate attributes:**

*Upon successful completion of the program, the graduate has the ability to:*

- 1) Apply a scientific research basics and methodologies in Animal and Environment Hygiene, and using its varied tools.
- 2) Apply and use of analytical methods in detection of Hygienic problems and identification of the main cause.
- 3) Apply the gained specialized knowledge and integrating them with the relevant knowledge in Animal and Environment Hygiene.
- 4) Aware with ongoing hygienic and field problems and recent concepts of pathogens interactions.
- 5) Identify the hygienic problems and suggesting suitable and economic methods of prevention and control.
- 6) Master the proper scope of a rate specialized professional skills, and using appropriate technological means to serve the diagnosis and treatment of problems in addition to identification of the source of infection.
- 7) Communicate effectively with students, veterinarians and animal owners, and leading work team.
- 8) Make a decision for suggesting the cause of infection.
- 9) Employ available resources efficiently including history, clinical signs, and laboratory findings.
- 10) Aware with his role in society development and fighting diseases for preservation of animal health.
- 11) Reflect of the commitment to act with integrity, credibility and the rules of profession.
- 12) Improve Academic and professional self- development and ability for life-long learning and progress by studying new cases.





#### 4-Programme outcomes [intended learning outcomes (ILOs)]

##### **a) Knowledge and understanding**

*By the end of this program the graduate should be able to:*

- a.1. Recognize theories and principles in the field of animal and environmental hygiene and related fields.
- a.2. Identify the impact of pathogens on the environment and methods of keeping the environment clean from different sources of pollution.
- a.3. Describe the utility of knowledge of Animal and Environment Hygiene in diagnosis of certain pathogens.
- a.4. Clarify mechanisms of transmission of pathogens to man.
- a.5. Study Health and safety risk assessments for the animal hygiene laboratory.
- a.6. Characterize Basics and ethics of scientific research especially that involving laboratory animals.

##### **b) Intellectual skills**

*By the end of this program the graduate should be able to:*

- b.1. Analyze the data about evidences in hygienic problems.
- b.2. Identify the causes of the diseases.
- b.3. Mange technical problems or issues associated with running and researches project.
- b.4. Analyze prior researches finding in Animal and Environment Hygiene.
- b.5. Characterize areas where further researches necessary and which would be beyond current ethical cods.
- b.6. Maximize performance in laboratory practice with automation.
- b.7. Illustrate how can deal with laboratory diagnostic problems.

##### **c) Professional and practical skills**

*By the end of this program the graduate should be able to:*

- c.1. Use recent techniques and tools necessary to diagnose and characterize hygienic problems.
- c.2. Apply the principles of good experimental design and analysis to their own research project
- c.3. Operate a research project in the field of animal hygiene with a consideration to the technical, ethical and safety issues and associated costs.
- c.4. Apply essential laboratory skills that underpin techniques associated with

sampling, pathogen isolation different techniques for pathogen detection

**b) General and transferable skill**

*By the end of this program, the graduate should be able to:*

- d.1.** Join effectively with teaching staff, colleagues and the community.
- d.2.** Incorporate information technology in scientific research and publications.
- d.3.** Develop appropriate attitude towards teaching staff and colleagues.
- d.4.** Handle different sources of information and knowledge.
- d.5.** Develop appropriate attitude and rules towards teaching staff and colleagues and use evidence based evaluations.
- d.6.** Improve team work ability.
- d.7.** Manage time effectively.
- d.8.** Perform continuous self-learning.

**5- Program structure**

a) Program duration (years): Master degree from 2-4 years

b) Premaster courses – at least one academic year

Course	Lecture (hours/week)	Practical (hours/week)
Fundamental (core) course	3	4
Research methodology	1	3
2-5 Elective Courses Offered by other departments and are selected from the list below according to thesis topic (10-12 hours)	5-6	5-6

c) Master of Veterinary Medicine Thesis (at least one academic year)

- All Master-degree students should prepare a master thesis.
- The department and the ethical committees must approve the protocol of the research.
- The thesis should include a review part and a research part.
- The thesis is supervised by one or more senior staff members of the department responsible for the program and may include other specialties according to the nature of the research.



- The thesis should be evaluated and approved by a committee of three professors including one of the supervisors and an external professor.

The elective courses are selected from the list below according to thesis topic:

Subject	Code	Course title	No of hours/week	
			Lecture	Practical Lab
Histology	111/1	11- cytology and cytochemistry	1	2
	112/1	12- general histology	2	2
	113/1	13- Histology and histochemistry of blood, lymph and cardiovascular system.	1	1
	114/1	14- Comparative histology and histochemistry of body muscles, heart and blood vessels	1	1
	115/1	15- Comparative histology and histochemistry of respiratory system	1	1
	116/1	16-Comparative histology and histochemistry of digestive system	2	2
	117/1	17- Comparative histology and histochemistry of uro-genital system	2	2
	118/1	18- Comparative histology and histochemistry of nervous and endocrine systems	2	2
	119/1	19- Histology and histochemistry of special sensors	1	2
	120/1	20-Histology and histochemistry of skin, hooves, claws and Nails	2	2
	121/1	21- Avian histology	2	2
	122/1	22- Fish histology	1	2
Physiology	123/1	23- Physiology of mammalian endocrine and reproduction	2	2
	124/1	24- poultry physiology (advanced)	2	2
	125/1	25- physiology of muscle and nerve	1	2
	126/1	26- physiology of ruminants	2	2
	127/1	27- physiology of environment, adaptation and cell	2	2
	128/1	28- physiology of blood	2	2
	129/1	29- physiology of digestion, metabolism and energy	2	2



	130/1	<b>30- Physiology in pollution</b>	1	2
	131/1	<b>31- Radioactive isotopes and biological uses</b>	2	2
	132/1	<b>32- Physiology of heights</b>	1	1
	133/1	<b>33-Fish physiology.</b>	1	2
<b>biochemistry</b>	134/1	<b>34- Basics of biochemistry</b>	2	3
	135/1	<b>35- Metabolism</b>	2	2
	136/1	<b>36- Biochemistry of tissue and body fluids .</b>	2	2
	137/1	<b>37- Biochemistry of hormones and reproduction</b>	2	2
	138/1	<b>38- Feeding biochemistry</b>	2	2
	139/1	<b>39- Clinical biochemistry</b>	2	2
	140/1	<b>40- Avian biochemistry</b>	2	2
	141/1	<b>41- Microbial biochemistry</b>	2	2
	142/1	<b>42- Biochemistry of radiation</b>	1	2
	143/1	<b>43- Fish biochemistry</b>		
<b>animal behavior and management</b>	144/1	<b>44- Behavior and management of ruminants ( specific courses in cattle, buffalo, sheep, camels and goats)</b>	2	3
	145/1	<b>45- Behavior and management of horses</b>	2	3
	146/1	<b>46- Behavior and management of pet animals</b>	1	2
	147/1	<b>47- Behavior and management of laboratory animals</b>	1	2
	148/1	<b>48- Behavior and management of wild animals</b>	2	2
	149/1	<b>49- Behavior and management of poultry</b>	2	2
	150/1	<b>50- Behavior and management of rabbit</b>	1	2
	151/1	<b>51- Behavior of experimental animals</b>	1	2
<b>nutrition and animal nutrition</b>	152/1	<b>52- Basics of animal nutrition</b>	2	2
	153/1	<b>53- feedstuff</b>	2	2
	154/1	<b>54- nutrition of farm animals and fish specific courses in ( cattle and buffalo nutrition – sheep and goat nutrition – camel nutrition- equine nutrition – fish nutrition)</b>	2	2
	155/1	<b>55- poultry and rabbit nutrition( advanced)</b>	2	2
	156/1	<b>56- wild animal nutrition</b>	1	2
	157/1	<b>57- laboratory animal nutrition</b>	1	2
	158/1	<b>58- feed additives</b>	1	2
	159/1	<b>59- feedstuff analysis</b>	2	2
	160/1	<b>60- Quality control of feed and feed factories</b>	2	2
	161/1	<b>61- Clinical nutrition and malnutrition</b>	2	2
	162/1	<b>62- Fish nutrition</b>	1	2



Pathology	163/1	<b>63- General pathology and neoplasm( progressive)</b>	2	2
	164/1	<b>64-pathology of microbial and parasitic diseases in animal</b>	2	2
	165/1	<b>65- pathology of bad nutrition</b>	1	2
	166/1	<b>66- pathology of environmental pollution</b>	1	2
	167/1	<b>67- pathology of reproductive diseases</b>	1	2
	168/1	<b>68- Avian pathology</b>	2	2
	169/1	<b>69-Experimental pathology</b>	2	2
	170/1	<b>70- toxins pathology</b>	2	2
	171/1	<b>71- surgical pathology</b>	2	2
	172/1	<b>72- Pathology of experimental animals.</b>		
	173/1	<b>73- Pathology of genetics</b>		
	174/1	<b>74-- Fish pathology</b>	2	2
Clinical pathology	175/1	<b>75- Advanced clinical pathology</b>	2	2
	176/1	<b>76-Organ function tests and body and urine balance</b>	2	2
	177/1	<b>77- Clinical hematology and bone marrow examination</b>	1	2
Bacteriology, immunology and mycology	178/1	<b>78- General bacteriology(advanced)</b>	1	2
	179/1	<b>79-systemic bacteriology</b>	2	3
	182/1	<b>80- Advanced immunology</b>	2	2
	183/2	<b>81- Advanced mycology</b>	1	2
Virology	180/3	<b>82- General virology</b>	1	2
	181/4	<b>83-Systemic virology( specific courses)</b>	2	3
	182/5	<b>84- Advanced immunology</b>	2	2
Mixed courses between bacteriology and virology	184/1	<b>85- Microbiology of poultry</b>	2	2
	185/1	<b>86- Microbiology of ??????</b>	1	2
	186/1	<b>87- Microbiology of animal product</b>	2	2
	187/1	<b>88- Fish Microbiology</b>	1	2
		<b>81- Advanced immunology</b>	2	2
Parasitology	188/1	<b>89- Veterinary medical entomology and acarology</b>	2	2
	189/1	<b>90-helminthology</b>	2	2
	190/1	<b>91- protozoology</b>	2	2
	191/1	<b>92- Avian and rabbits parasitology</b>	2	2
	192/1	<b>93Malacology and its vet. Importance</b>	1	2
	193/1	<b>94- parasitic Immunology</b>	1	2
	194/1	<b>95- Clinical parasitology</b>	2	2
	195/1	<b>96-Wild life parasitology</b>	1	2
	196/1	<b>97-Special vet. Parasitology</b>	2	2
	197/1	<b>98- Physiology and biochemistry of parasites</b>	2	2



	198/1	<b>99- Fish parasitology</b>	1	2
<b>Pharmacology</b>	199/1	<b>100- Aeneral pharmacology ( advanced)</b>	2	2
	200/1	<b>101- pharmacology of autonomic nervous system and autocoid</b>	2	2
	201/1	<b>102- pharmacology of central nervous system</b>	2	2
	202/1	<b>103 pharmacology of anesthesia</b>	2	2
	203/1	<b>104- Systemic pharmacology</b>	2	2
	204/1	<b>105- pharmacology of metabolism</b>	2	2
	205/1	<b>106- pharmacology of hormones</b>	2	2
	206/1	<b>107-Chemotherapy</b>	2	2
	207/1	<b>108-Biological evolution of drug</b>	1	1
<b>Hygiene and control of milk and dairy products</b>	208/1	<b>108- Hygiene and control of milk and dairy products</b>	2	2
	209	<b>109- Microbiology of milk and dairy products</b>	2	2
	210/1	<b>110- Milk technology and preservation</b>	2	2
	211/1	<b>111- Food analysis</b>	2	2
	212/1	<b>112- Food poisoning</b>	1	2
	213/1	<b>113- Specific courses on sources of contamination, disturbances of milk production, milk born diseases, hygiene of table egg, edible fats and oils</b>	1	1
	214/1	<b>114- The sanitation of dairy plant</b>	2	2
<b>Control of meat hygiene and their products</b>	215/1	<b>115- Slaughter animal Hygiene</b>	1	2
	216/1	<b>116- Abattoir management and hygiene</b>	2	2
	217/1	<b>117- Hygienic control of meat and their product</b>	2	2
	218/1	<b>118 inspection of poultry meat.</b>	1	2
	219/1	<b>119- Food technology</b>	1	2
	220/1	<b>120- Microbiology of meat and fish meats and their product</b>	2	1
	221/1	<b>121- Chilled meal microbiology</b>	1	2
	222/1	<b>122- Analysis of meat and fish and their product</b>	1	2
	223/1	<b>123- Preservation of meat, poultry, fish and their products</b>	1	2
	224/1	<b>124- Sanitation affairs of meat and fish plants.</b>	2	2
<b>Internal medicine</b>	225/1	<b>125- advanced general medicine</b>	2	2
	226/1	<b>126- disease of ruminants( cattle, buffalo, camels, sheep and goats)</b>	3	3
	227/1	<b>127- diseases of equines</b>	2	2
	228/1	<b>128 diseases of pet animals</b>	2	2



	229/1	<b>129- diseases of wild animals</b>	2	2
	230/1	<b>130- diseases of metabolic disorders</b>	2	2
	231/1	<b>131- nutritional deficiency diseases</b>	2	2
	232/1	<b>132- Skin diseases</b>	1	2
	233/1	<b>133 - diseases of newly born animals</b>	2	2
	234/ 1	<b>134- Stress diseases during animals transport.</b>		
<b>Infectious diseases</b>	235/ 1	<b>135- Infectious diseases of cattle</b>	2	2
	236/ 1	<b>136- Infectious diseases of sheep and goat</b>	2	2
	237/ 1	<b>137- Infectious diseases camel</b>	2	2
	238/ 1	<b>138 Infectious diseases of equine</b>	2	2
	239/ 1	<b>139- Infectious diseases of pet animals</b>	2	2
	240/ 1	<b>140- Infectious diseases lab animals</b>	1	2
	241/ 1	<b>141- Infectious diseases of udder and newly born animals</b>	2	2
	242/ 1	<b>142- Infectious diseases buffaloes</b>	2	1
	243/1	<b>143- Infectious diseases of wild animals.</b>		
<b>Forensic medicine and toxicology</b>	244/1	<b>144- Forensic medicine and veterinary procedures</b>	2	2
	245/1	<b>145- general toxicology</b>	2	2
	246/1	<b>146- environmental toxicology</b>	2	2
	247/1	<b>147- forensic toxicology</b>	2	2
	248/1	<b>148- laboratory diagnostic toxicology</b>	2	2
	249/1	<b>149- Drug toxicology</b>		
<b>Reproductive physiology</b>	250/1	<b>150- Female infertility (special specific courses in ruminants- equine- pet animals)</b>	2	2
	251/1	<b>151- Male infertility (special specific courses in ruminants- equine- pet animals)</b>	2	2
	252/1	<b>152- Genital diseases.</b>		
	253/1	<b>153 - obstetrics (special specific courses in farm and pet Animals)</b>	2	2
	254/1	<b>153- reproduction and immunity</b>	1	2
	255/1	<b>155- artificial insemination in ruminants</b>	2	2
	256/1	<b>156- artificial insemination in equine</b>	2	2
	257/1	<b>157- artificial insemination in pet animals</b>	1	2
	258/1	<b>158- embryo transfer</b>	1	2
<b>Veterinary surgery</b>	259/1	<b>159- General surgery (advanced)</b>	2	2
	260/1	<b>160- Special surgery( organs)</b>	2	3
	261/1	<b>161- surgery of eye, ear, nose and larynx</b>	2	2



	262/1	<b>162 digestive system surgery</b>	2	2
	263/1	<b>163- surgery of the limbs, hoof and claws</b>	2	2
	264/1	<b>164- experimental surgery</b>	2	2
	265/1	<b>165- anesthesiology</b>	1	1
	266/1	<b>166- radiology and ultrasonography</b>	2	2
<b>Poultry and rabbit diseases</b>				
Poultry and rabbit diseases	267/1	<b>167- bacterial diseases of poultry</b>	2	2
	268/1	<b>168- viral diseases of poultry</b>	2	2
	269/1	<b>169- fungal diseases of poultry</b>	2	2
	270/1	<b>170 parasitic diseases of poultry</b>	1	2
	271/1	<b>171 - nutritional diseases of poultry</b>	1	2
	272/1	<b>172-diseases of rabbit (advanced)</b>	2	2
	273/1	<b>173-Diseases of wild and migrating birds</b>	2	2
	274/1	<b>174- Preventive vaccines and their evaluation in poultry</b>	2	2
	275/1	<b>175- Laboratory diagnosis of poultry diseases.</b>		
<b>Animal and environmental hygiene</b>				
Animal and environmental hygiene	276/1	<b>176- farm animal hygiene ( advanced)</b>	2	2
	277/1	<b>177- poultry hygiene ( advanced)</b>	2	2
	278/1	<b>178- environmental hygiene and pollution</b>	2	2
	279/1	<b>179- control of contagious diseases</b>	2	2
	280/1	<b>180- eradication of rodents and disease vector</b>	2	2
	281/1	<b>181- insecticides and public health</b>	2	2
	282/1	<b>182-hygiene of animal enclosures- specific courses in :- cattle houses – poultry houses – rabbit houses- pet animals house3s – experimental animals houses</b>	2	2
	283/1	<b>183-disinfections and disinfectants</b>	2	2
	284/1	<b>184- veterinary epidemiology – specific courses in animal environment</b>	2	-
<b>Zoonoses</b>				
Zoonoses	285/1	<b>185- advanced zoonoses ( specific courses in bacterial and Mycotic diseases – viral diseases – parasitic diseases)</b>	2	2
	286/1	<b>186- role of rodents in transmission of zoonoses</b>	2	2
	287/1	<b>187- role of wild animals in transmission of zoonoses</b>	2	2
	288/1	<b>188- role of birds (special courses in: poultry, wild migrating or pets) in transmission of zoonoses</b>		
<b>Genetics and genetic engineering</b>				
Genetics and genetic engineering	289/1	<b>189- Genetics of microorganisms .</b>	1	2
	290/1	<b>190- Genetic engineering( advanced)</b>	1	2
	291/1	<b>191- Cytological genetics</b>	1	-
	292/1	<b>192- Genetics of genuses.</b>	2	-





	293/1	<b>193- physiological genetics</b>	2	-
	294/1	<b>194- Chemical and radiological genetics.</b>	1	2
<b>Animal production</b>	295/1	<b>195- Animal breeding and improvement (advanced).</b>	2	-
	296/1	<b>196- Poultry breeding and improvement(advanced).</b>	2	-
	297/1	<b>197- Cattle and buffalo production (advanced).</b>	2	2
	298/1	<b>198- Sheep and goat production (advanced).</b>	2	2
	299/1	<b>199- Poultry production (advanced).</b>	2	2
	300	<b>200-Rabbit production (advanced).</b>	2	2
	301	<b>201-Improving by artificial insemination in poultry and rabbits.</b>	2	2
<b>Fish diseases and management</b>	302/1	<b>202- Biology of fish.</b>	2	2
	303/1	<b>203-Fish diseases (advanced)</b>	2	2
	304/1	<b>204-Fish farms.</b>	1	2
	305/1	<b>205-Fish breeding .</b>	2	2
<b>Economic and farms management</b>	306/1	<b>206- economics of animals and dairy production</b>	2	-
	307/1	<b>207- economics of poultry farms</b>	2	-
	308/1	<b>208-economics of fish farms</b>	2	-
	309/1	<b>209- feasibility studies</b>	2	-
	310/1	<b>210- farm management</b>	2	-
	311/1	<b>211- economics of beef production</b>	2	-
<b>Biostatistics</b>	312/1	<b>212- Biostatistics (advanced)</b>	2	-
	313/1	<b>213- Experimental design</b>	2	2
	314/1	<b>214- Computer and data processing</b>	2	1

## 6-Teaching and Learning Methods:

*The program features a variety of teaching approaches for different intended learning objectives including:*

- Lectures to gain knowledge and understanding skills
- Writing a review paper to gain the skills of self-learning and presentation
- Practical and lab sessions to gain practical skills

- Seminars

## 7- Students assessments:

The program depends on different assessment ways:

### a. Course assessment:

1- Written examination	For assessment of knowledge, back calling and Intellectual skills
2- Practical examination	For assessment of practical and professional skill
3- Oral examination	For assessment of knowledge and Intellectual skills
4- Student activities	For assessment of knowledge and general and transferable skills

### b. Master Thesis

- Annual reports adopted by the Faculty
- Finally, the assessment of thesis measure the individual student ability to work independently in the field specialization
- Final evaluation and approval by a judging committee of at least three professors including one or more of the supervisors and an external professor. This assesses the ability to write a review article, perform the needed practical steps and to present the results in tables and graphs. In addition, the skills of analysis of results and discussion with previous findings obtained by other authors are also assessed.

#### *Assessment of program intended learning outcomes*

Tool or method		ILOs
1-	Written	a1-5; b2,3,7
2-	Oral	a1,2,5; b1,2,4,6
3-	Practical	b1,2,6,7; c1-4
4-	Assignments	a1,2; b1,6,7; d1-8
5-	Thesis	a2-6; b1-7; c1-4, d1-8

### 8. Marking scale as follow:-

Excellent	> 90
Very good	>80

<b>Good</b>		>70
<b>Pass</b>		>60
<b>Fail</b>	<b>Weak</b>	45 to less than 60
	<b>very weak</b>	Less than 45

### 9. Program evaluation methods

<b>Evaluator</b>	<b>Tool</b>	<b>Sample</b>
Postgraduate Student	Questioners	<b>20%</b>
	meeting	<b>1</b>
Postgraduate alumni	Questioners	<b>5</b>
Stakeholders (employers)	Questioners	<b>10</b>
	Meeting	<b>1</b>
External evaluator/External examiner	Reports	<b>1</b>

### 10. Program Admission Requirements:

The Applicant must normally satisfy the faculty of veterinary medicine- Kafrelsheikh University general entrance and requirement. The normal minimum entrance qualification for registration at the faculty on a master's program

- 1- Bachelor degree in Veterinary Medical Sciences of one of the Egyptian Universities or hold a degree in Veterinary Medical Sciences equivalent through the Supreme Council of Universities with general grade at least "Good" and at least grade "Very Good" in specialization.
- 2- Diploma of general grade at least "Good" and at least grade "Very Good" in specialization. The total number of study hours must be not less than 3 weekly in that specialization.
- 3- After he has passed the courses studied during premaster he must perform a research work in a subject approved by the faculty council at least for one year. He must submit the results of this work in thesis that should be approved by the discussion committee.

### 11. Regulations for progression of program

- a) Registration period for the Master in veterinary medicine is at least 2 years after the approval date by the faculty council and it should not exceed a period of 4 years, an extension could be approved by the faculty council depending on the supervisor



report that approved by the department council and postgraduate and research committee refers to the universities regulation law.

- b) The student should conduct the courses proposed by both department council and approved by postgraduate and research committee and faculty council and include, 2-5 courses of the postgraduates stated in article (28) in regulation law list and the student will entitled to apply for the exam only after meeting attendance rate for each courses.
- c) The student should pass written, practical and oral exams successfully in all courses, and the examination is held two times annually.
- d) The Faculty council should deprive the student from entering the exam if his attendance rate in the course is less than 75%.
- e) Failure or depriving from entering one or more course did not require reexamination of successful passed courses.
- f) The applicant should conduct an innovate research on the subject that has been registered for at least 2 years from the date of registration approved by the faculty council. And the faculty council depending on a request from the supervisor has the right to authorize the student to do scientific experiments at recognized scientific institute.
- g) The applicant should submit the thesis that accepted by the judging committee in an open discussion and the following policies should be met:
- h) Pass all courses.
- i) The applicant should submit 4 copies of his thesis concerned department council to form committee examining the thesis to be presented to the postgraduate studies committee and the faculty council, and in case of thesis approval by the department council, the applicant will submit 6 copies for the faculty library, 1 copy for public university library before introducing the report of examination committee to the post graduate studies committee and the faculty council.
- j) Registration will be during March and September of each year.



- k) The applicant should submit a request enrolment for the dean who forwards it to the concerned department council to determine the research subject and the study program and then take a calendar after complete documentation on the faculty council for approval.
- l) The thesis title should be identified before being submitted at least 2 months and the judging committee has the right to amend the title without prejudice to the subject of research.
- m) The Faculty council has the right to suspend the student enrolment for a certain period if he has an acceptable excuse preventing him from continuing his study or research, and his period will not be counted within the period stated in article 25.
- n) The applicant should submit 5 hard copies and 10 electronic copies (CDs) of the thesis after its validity is approved by the judging committee and head of department to be distributed to the committee members and faculty library and the judging committee can decide the exchange of the thesis with other universities or printing at the expense of the university.

### **12. Registration will be cancelled in one of the following cases:**

1. If the supervisors report during the registration period is unsatisfactory (2 reports).
2. If he did not submit his thesis before the end of registration period.
3. If the judging committee rejected the thesis twice.

### **13. Examination Regulations**

- a- Time of written exam, 3 hours for each course that has 3 hours or more for lecture / practical /week. **If has less than 3 hours/week, the time of exam, is 2 hours only.**
- b- The final degree of each course which has 3 hours (lecture and practical) per week is **100 and less than 3 hours is 50 degrees and divided into 50% for written exam, and 50% for practical and oral exam.**

**14. Program completion:**

- Successfully completion of the required courses and submission of a thesis.

**Program Coordinator**

**Head of Department**

*Dr. Fatma Ali Abouelenien*

*Prof. Dr. Tarek Moussa Blabel*

**Matching program ILOs with ARS - Matrix**

Program ILOs	ARS																								
	K&U (a)						I.S. (b)							P.P. (c)				G.T. (d)							
	1	2	3	4	5	6	1	2	3	4	5	6	7	1	2	3	4	1	2	3	4	5	6	7	8
K&U	1	2	3	4	5	6																			
I.S.							1	2	3	4	5	6	7												
P.P.														1	2	3	4								
G.T.																		1	2	3	4	5	6	7	8

## Program Specification Matrix

### Master in Veterinary Medical Sciences (Animal, Poultry and Environmental Hygiene)

Courses		Total Contact hours/ course	No. of hours / week			K.U (a)						I.S (b)						P.P (c)			G.T (d)								
Code	Name		Lect.	Lab.	Total	1	2	3	4	5	6	1	2	3	4	5	6	7	1	2	3	1	2	3	4	5	6	7	8
-	Fundamental (core) course	308	3	4	7	x	x					x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x
-	Research methodology	176	1	3	4			x		x		x		x						x	x	x			x				x
	Elective courses	10-12 hours/ week										x	x																
	<b>Total</b>																												
	<b>Thesis</b>							x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

## **ARS for Master in Veterinary Medical Sciences (Animal, Poultry and Environmental Hygiene)**

### **Graduate attributes**

*The graduate should have the ability for:*

- (1) Perfect application of scientific research basics and methodologies in Animal and Environment Hygiene, and using its varied tools.
- (2) Application and use of analytical methods in detection of Hygienic problems and identification of the main cause.
- (3) Application of gained specialized knowledge and integrating them with the relevant knowledge in Animal and Environment Hygiene.
- (4) Awareness with ongoing hygienic and field problems and recent concepts of pathogens interactions..
- (5) Identification of hygienic problems and suggesting suitable and economic methods of prevention and control.
- (6) Mastering the proper scope of a rate specialized professional skills, and using appropriate technological means to serve the diagnosis and treatment of problems in addition to identification of the source of infection.
- (7) Effective communication with students, veterinarians and animal owners, and leading work team.
- (8) Decision making for suggesting the cause of infection.
- (9) Employ available resources efficiently including history, clinical signs, and laboratory findings.
- (10) Awareness with his role in society development and fighting diseases for preservation of animal health.
- (11) Reflection of the commitment to act with integrity, credibility and the rules of profession.
- (12) Academic and professional self- development and ability for life-long learning and progress by studying new cases.



مقارنة ما يقدمه البرنامج من نتائج تعليمية مستهدفة مع  
 المعايير المرجعية القياسية

### A) Knowledge and understanding

Adopted ARS		NARS
	<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Theories and principles in the field of Animal and Environment Hygiene and related fields.	Theories and principles in the field of specialization and related fields.
2)	The impact of pathogens on the environment and methods of keeping the environment clean from different sources of pollution	Mutual effect between professional practice and its impact on environment
3)	Application of his knowledge of Animal and Environment Hygiene research methods by evaluating the utility of those techniques to specific research question about diagnosis of certain pathogens.	Scientific progress in the field of specialization
4)	Applying his knowledge and understanding of mechanisms of transmission of pathogens to man and discussion of the scientific literature.	Legal and ethical basics in professional practice in the field of specialization
5)	Health and safety risk assessments for the animal hygiene laboratory.	Principles and basics of quality assurance in the area of specialization
6)	Basics and ethics of scientific research especially that involving laboratory animals	Basics and ethics of scientific research

### B) Intellectual skills

Adopted ARS		NARS
	<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Analysis of data about evidences in hygienic problems.	Analysis and judgment of information in the field of specialization and analog to solve problems.
2)	Solving problems about the cause of infection in addition to identification of the cause of the diseases.	Solving professional problems even in scarcity of data.



3)	Development of creative approaches to solve technical problems or issues associated with running and researches project.	Relating between different knowledge to solve professional problems.
4)	Identification, summarizing and evaluating prior researches finding in Animal and Environment Hygiene.	Preparing research plan in specialization and/ or writing scientific article on a research problem.
5)	Comprehending areas where further researches necessary and be aware of any which would be beyond current ethical cods.	Risk-assessment of professional practices in specialization.
6)	Development of plans to improve performance in laboratory practice with automation.	Planning for improvement of professional performance.
7)	Using appropriate intellectual strategy to deal with laboratory diagnostic problems.	Taking professional decisions in a variety of professional contexts.

### C) Professional and practical skills

Adopted ARS		NARS
	<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Investigating using recent techniques and tools necessary to diagnose and characterize hygienic problems.	Mastering basic and recent professional skills in the field of specialization
2)	Application of the principles of good experimental design and analysis to their own research project	Writing and evaluating professional reports.
3)	Planning a research project in the field of animal hygiene with a consideration to the technical, ethical and safety issues and associated costs.	Evaluating existing materials and methods in the area of specialization.
4)	Performing essential laboratory skills that underpin techniques associated with sampling, pathogen isolation different techniques for pathogen detection	

### D) General and transferable skill

Adopted ARS	NARS
-------------	------

	<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Communicating effectively with teaching staff, colleagues and the community.	Effective communication.
2)	Using information technology in scientific research and publications.	Utilizing information technology to serve development of professional practice.
3)	Demonstrating appropriate attitude towards teaching staff and colleagues.	Self-assessment and determination of personal educational needs.
4)	Identifying and use different sources of information and knowledge.	Using different resources to obtain knowledge and information.
5)	Using appropriate attitude and rules towards teaching staff and colleagues and use evidence based evaluations.	Establishing rules and indicators for assessment of the performance of others.
6)	Respecting the importance of team work.	Team working and leading a team in familiar professional contexts.
7)	Doing good control of timing.	Efficient time management.
8)	Performing continuous self-learning.	Self and continuous learning.

## ثانياً: برامج الماجستير

### ١- مواصفات الخريج

- خريج برنامج الماجستير في أي تخصص يجب أن يكون قادراً على:
١. إجادة تطبيق أساسيات و منهجيات البحث العلمي واستخدام أدواته المختلفة
  ٢. تطبيق المنهج التحليلي واستخدامه في مجال التخصص
  ٣. تطبيق المعارف المتخصصة و دمجها مع المعارف ذات العلاقة في ممارسته المهنية
  ٤. إظهار وعيا بالمشاكل الجارية و الرؤى الحديثة في مجال التخصص
  ٥. تحديد المشكلات المهنية و إيجاد حلول لها
  ٦. إتقان نطاق مناسب من المهارات المهنية المتخصصة، واستخدام الوسائل التكنولوجية المناسبة بما يخدم ممارسته المهنية
  ٧. التواصل بفاعلية و القدرة على قيادة فرق العمل
  ٨. اتخاذ القرار في سياقات مهنية مختلفة
  ٩. توظيف الموارد المتاحة بما يحقق أعلى استفادة و الحفاظ عليها
  ١٠. إظهار الوعي بدوره في تنمية المجتمع و الحفاظ على البيئة في ضوء المتغيرات العالمية و الإقليمية

- ١١ . التصرف بما يعكس الالتزام بالنزاهة و المصداقية و الالتزام بقواعد المهنة  
١٢ . تنمية ذاته أكاديميا و مهنيا و قادرا علي التعلم المستمر

## ١٢ - المعايير القياسية العامة

### ١ المعرفة و الفهم

- بانتهاء دراسة برنامج الماجستير يجب ان يكون الخريج على فهم و دراية بكل من:  
أ - النظريات و الأساسيات المتعلقة بمجال التعلم وكذا في المجالات ذات العلاقة  
ب - التأثير المتبادل بين الممارسة المهنية وانعكاسها علي البيئة  
ت - التطورات العلمية في مجال التخصص  
ث - المبادئ الأخلاقية و القانونية للممارسة المهنية في مجال التخصص  
ج - مبادئ و أساسيات الجودة في الممارسة المهنية في مجال التخصص  
ح - أساسيات وأخلاقيات البحث العلمي

### ٢ المهارات الذهنية

- بانتهاء دراسة برنامج الماجستير يجب ان يكون الخريج قادرا على:  
أ - تحليل و تقييم المعلومات في مجال التخصص و القياس عليها لحل المشاكل  
ب - حل المشاكل المتخصصة مع عدم توافر بعض المعطيات  
ت - الربط بين المعارف المختلفة لحل المشاكل المهنية  
ث - إجراء دراسة بحثية و /أو كتابة دراسة علمية منهجية حول مشكلة بحثية  
ج - تقييم المخاطر في الممارسات المهنية في مجال التخصص  
ح - التخطيط لتطوير الأداء في مجال التخصص  
خ - اتخاذ القرارات المهنية في سياقات مهنية متنوعة

### ٣ المهارات المهنية

- بانتهاء دراسة برنامج الماجستير يجب ان يكون الخريج قادرا على:  
أ - إتقان المهارات المهنية الأساسية و الحديثة في مجال التخصص  
ب - كتابة و تقييم التقارير المهنية  
ت - تقييم الطرق و الأدوات القائمة في مجال التخصص

### ٤ المهارات العامة و المنتقلة

- بانتهاء دراسة برنامج الماجستير يجب أن يكون الخريج قادرا على:  
أ - التواصل الفعال بأنواعه المختلفة



- ب- استخدام تكنولوجيا المعلومات بما يخدم الممارسة المهنية
- ت- التقييم الذاتي وتحديد احتياجاته التعليمية الشخصية
- ث- استخدام المصادر المختلفة للحصول على المعلومات و المعارف
- ج- وضع قواعد ومؤشرات تقييم أداء الآخرين
- ح- العمل في فريق ، وقيادة فرق في سياقات مهنية مختلفة
- خ- إدارة الوقت بكفاءة
- د- التعلم الذاتي و المستمر

**DEPARTMENT OF Hygiene and Preventive Medicine**  
**Basic Course specification**  
**(2016 / 2017)**

**1 - Basic Information:**

Code number: -

Course title: **Animal, Poultry and Environmental Hygiene (Basic)**

Academic Year: *pre Master of B. V. Sc. Programme*

Total teaching hours: . 336 hrs/year

Lectures: 144hrs

Practical: 192 hrs

**2 - OVERALL AIMS OF THE COURSE:**

To provide students with basic knowledge and skills concerning;the effect of stress, air and water pollution, on animal health and production. And methods of environmental analysis. In addition to studying epidemiology, combating of infectious diseases, hygiene of animal housing and different veterinary establishment.

**3 - INTENDED LEARNING OUTCOMES (I. L. Os.):**

**3-A: KNOWLEDGE and UNDERSTANDING:**

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

A1- Define normal environmental parameters and the effect of hostile environmental conditions on animal health and productivity.

A2- Recognize air hygiene and pollution

A3- Illustrate water hygiene and pollution

A4- Describe disease occurrence in a population

A5- Identify appropriate management of animal wastes and control of hostile environmental conditions.

A6- Illustrate the designation of animal houses and different veterinary establishment.

A7- Summarize appropriate measures for control of animal diseases.

A8- Determine the role of hygiene in prevention of some farm animal diseases.

**3-B: INTELLECTUAL SKILLS:**

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

B1- Judge the most important symptoms and signs of environmental disease in animals.



- B2- Asses hygienic problems in the farms to provide suitable means for control.
- B3- Analyze the collected data about occurrence, distribution and possible risk factors of diseases in animal populations.
- B4- Design appropriate plans for animal houses and veterinary establishment design.
- B5- Compare between different strategies for management of animal wastes.
- B6- create different methods for prevention, control and eradication of infectious diseases

### **3- C: PRACTICAL AND PROFESSIONAL SKILLS:**

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

- C.1. Collect representative samples from air, water source and soil for laboratory examination.
- C.2. Apply simple chemical tests to judge air and water quality.
- C.3- Construct a proper control of environmental pollution.
- C.4- Diagnose animal diseases related to environmental conditions.
- C.5- Obtain history about disease occurrence in a population
- C.6- Scan problems in the design of animal houses
- C.7- Employ the practical methods for control of animal diseases.

### **3- D: GENERAL SKILLS:**

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

- D1 work effectively as a member of a team in the delivery of services to community.
- D2 Support effective communication with the public, colleagues and appropriate authorities.
- D3 Apply communicating skills, have access to the internet and retrieve information
- D4 Write reports in a form that is satisfactory and understandable.
- D5 point out primary research techniques and critical evaluation.

### **4 - COURSE CONTENTS:**

TOPIC	Total hours	Hours for lecture	Hours for practical
Stress	12	12	-
Air pollution	44	14	30
Water pollution	78	30	48
Veterinary Epidemiology	24	24	-
Animal Housing	24	24	-
Animal Waste Management	62	14	48
Combating of animal diseases	34	14	20

Disinfection	52	6	46
Biosecurity	6	6	-
Total	336	144	192

**5-  
TE  
AC**

## **TEACHING & LEARNING METHODS:**

### **\*Lectures**

( using data show, white board, overhead projector and brain storming)

### **\*Practical and small group sessions:**

1: Practical training.

(Practical demonstrations, practice of skills, and discussions)

### **\* Self learning**

Computer researches and faculty library visits to prepare essays and presentations.

- Library researches.
- Internet researches.
- Discussion in the researches.
- Preparation of posters
- Preparation of scientific reports.

### **\* Audiovisual**

Video show.

## **6. METHODS FOR STUDENTS With limited capabilities:-**

\*Activation of office hours.

\*Discussion with them during practical session.

## **7. STUDENT ASSESSMENT:-**

7.a Used methods	Written examination	Oral examination	Practical examination
7.b time	After the end of 48 weeks	After the end of 48 weeks	After the end of 43 weeks
7.c grade	50	20	30

## **8. LEARNING AND REFERENCE MATERIALS:**

### **8-1: BASIC MATERIALS:**



- Power point presentations used during teaching.

### **8-2: Recomedned books:**

- Animal Welfare (1989): Mahmoud A. Metwally, Zagazig University.
- Farm animal health (1991): Patrick T. Cullen, Pregamon Press. PLC. UK.
- Farm animal and the environment (1992): Clive Philips and David Piggs. CAB International. UK.
- Livestock health and Housing (1982): David Sainsbury and peter Sainsbury and peter Sainsbury. Butler and tanner LTD, Frome and London.
- Pollution in Livestock production systems (1994): I.A.P. Dewi, R.F.E. Axford, I. Fayed M. Marai and H. Omed. CAB International. UK.
- APHA. (2012). Standard methods for the examination of water and wastewater (22nd ed.).Washington, DC: APHA, AWWA, WEF.
- Climate Change Impact on Livestock: Adaptation and Mitigation (2015) ; Veerasamy Sejian, John Gaughan, Lance Baumgard, Cadaba Prasad. Springer New Delhi Hiedlberg Newyork Dordrecht London.
- 

### **8-3: SUGGESTED BOOKS:**

- APHA. (2012). Standard methods for the examination of water and wastewater (22nd ed.).Washington, DC: APHA, AWWA, WEF.
- Climate Change Impact on Livestock: Adaptation and Mitigation (2015) ; Veerasamy Sejian, John Gaughan, Lance Baumgard, Cadaba Prasad. Springer New Delhi Hiedlberg Newyork Dordrecht London.

### **8.4: web sites and jouranls .....and so on**

- [WWW.PubMed.com](http://WWW.PubMed.com)
- <http://www.foodispower.org/pollution-water-air-chemicals/www.Vet.net.com>
- <http://aduveterinaryjournal.com/index.php>
- <http://www.academicjournals.org/journal/JVMAH>

## **9.1- Course content ILOs Matrex**

TOPIC	K.U (a)	I.S (b)	P.P.S (c)	G.T.S (d)
Stress	A1	B1	-	D.1,2,3,4,5
Air pollution	A2	B2	C.1, C.2, C.3	D.1,2,3,4,5

<b>Water pollution</b>	A3	B2	C.1 C.2, C.3	D.1,2,3,4,5
<b>Veterinary Epidemiology</b>	A4	B.2 B.3	-	D.1,2,3,4,5
<b>Animal Housing</b>	A6	B4	-	D.1,2,3,4,5
<b>Animal Waste Management</b>	A5	B5	C.1 C.2, C.3	D.1,2,3,4,5
<b>Combating of animal diseases</b>	A7	B6	C3, C.5, C7	D.1,2,3,4,5
<b>Disinfection</b>	A8	B6	C3, C.7	D.1,2,3,4,5
<b>Biosecurity</b>	A7- A8	B6	-	D.1,2,3,4,5

## 9.2- Intended learning out comes Evaluation

Methods	I.L.O.S Evaluation				Marks allocated
	Knowledge	Intellectual	Practical	general	
Written examination	A1.A2.A3.A4.A5.A6.A7. A8.	B1		D3,D4, D5	50
Oral examination	A1.A2.A3.A4.A5.A6.A7. A8	B1.B2.B3.B4		D2	20
Practical examination		B1.B2.B3, B4, B5	C1.C2.C3. C4.C5,C6, C7	D1.	30

**Course Coordinator:**  
**Dr. Fatma Abo Elanin**  
**Dr. Nagham Rafeek El Saidy**

**Head of Department:**  
**Professor Dr. Tarek Moussa Blabel**

## COURSE SPECIFICATION (2021 / 2022)

### 1 - Basic Information:

Code number: 276 (1)

Course title: "Farm animals' hygiene (advanced) (متقدم) صحة حيوانات المزرعة

Academic Year: Master of Veterinary Medicine Program

Total teaching hours: 192..... hrs

Lectures: ...96 hrs (48 weeks- 2hrs/week)

Practical/small group sessions: ...96 hrs (48 weeks- 2hrs/week)

### 2 - OVERALL AIMS OF THE COURSE:

To provide students with basic knowledge on farm animal's hygiene to improve their health and productivity. Identification of the role of the environment around the animals (air, water and soil) in transmission of diseases and maintenance of infection.

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- a.1. State the principles of farm animals and environmental hygiene
- a.2. Recite the role of the environment around the animals (air, water and soil) in transmission of diseases and maintenance of infection.
- a.3. Knowing appropriate management of animal wastes and control of hostile environmental conditions
- a.4. Identify the role of hygiene in prevention of infection in farm animal dwellings.
- a.5. listing the appropriate hygienic measures in farm animal dwellings.

#### 3-B: INTELLECTUAL SKILLS:

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

- b.1. Evaluate the principles and concepts of hygiene for solving health problems of farm animals.
- b.2. Recommend scientific techniques to collect and analyze data about occurrence, distribution and possible risk factors of environment-related diseases.
- b.3. Recommend strategies for prevention, control and eradication of infectious diseases.
- b.4. labeling the appropriate method of management of animal wastes.



### **3- C: PRACTICAL AND PROFESSIONAL SKILLS:**

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

- c.1. Solving the hygienic problems in farm animals
- c.2. Organize and execute safely a series of experiments related to farm animal hygiene
- c.3. Analyze different environmental samples (water, air, soil, bedding) from animal farms
- c.4. Prepare a technical report in the field of study.
- c.5. organize a technical presentation and effectively use scientific literature.

### **3- D: GENERAL SKILLS:**

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

- d.1. Show how to work effectively as a member of a team in the delivery of services to community.
- d.2. Support effective communication with the public, colleagues and appropriate authorities.
- d.3. Apply communicating skills, have access to the internet and retrieve information
- d.4 Write reports in a form that is satisfactory and understandable.
- d.5. point out primary research techniques and critical evaluation.

## **4 - COURSE CONTENTS:**

TOPIC	No. of hours		
	Lectures	Practical	Total
1-Stress in Cattle, Buffalo, Sheep ,Goat and equine	12	-	12
2-Air and Water Pollution in Cattle, Buffalo, Sheep ,Goat and equine farms	24	48	72
3- Housing hygiene in Cattle, Buffalo, Sheep ,Goat and equine.	36	-	36
4- Waste Management	12	-	12
5- Combating of animal diseases	12	48	60
<b>Total</b>	<b>96</b>	<b>96</b>	<b>192</b>

## **5- TEACHING & LEARNING METHODS:**



**\*Lectures**

( using data show, white board, overhead projector and brain storming)

**\*Practical and small group sessions:**

1: Practical training.

(Practical demonstrations, practice of skills, and discussions)

**\* Site visits**

Two visits (one each term) to the dairy farm in the first term and to the dairy plant in the second term for practical application

**\* Self learning**

Computer researches and faculty library visits to prepare essays and presentations.

- Library researches.
- Internet researches.
- Discussion in the researches.
- Preparation of posters
- Preparation of scientific reports.

**\* Audiovisual**

Video show.

**\*Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a5	b1 to b4	c 1 to c 5	d1, d4
Self-Learning activities		b1 to b4	c 1 to c 5	d2, d3, d4
Distance Teaching and Learning	a1 to a5	b1 to b4	c 1 to c 5	d1 to d5

\*Lectures may be offered face to face or via distance teaching and learning.

**KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.**

**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: -**

<b>7.a Used methods</b>	Written	Oral	Practical
-------------------------	---------	------	-----------

	examination	examination	examination
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year
<b>7.c grads</b>	50	20	30

6.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a5	b1 to b4		d4
Practical exams	-----	-----	- c 1 to c 5	-----
Oral exams	a1 to a5	b1 to b4		d1

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Essential books:

- Livestock Housing: Modern Management to Ensure Optimal Health and Welfare of farm animals (2013); Andres Aland, Thomas Banhazi, Wageningen Academic Publisher, Netherland.
- Veterinary Epidemiology (2013); [Michael Thrusfield](#) ; Butterworth-Heinemann

### 8-2: Recommended books:

- Animal Health. Sainsbury. D (2003)
- Herd Health. Food Animal Production Medicine. Radostits et al. (1994)
- Managing Livestock Wastes to Preserve Environment (2000): Miner, J.R. et al. Iowa, Iowa State University Press.
- Farm animals and the environment. Phillips and Piggins (1992)
- Livestock health and housing. Sainsbury. D (1988)
- Environmental Contaminants: Assessment and Control (2004):Vallero, D.A. Amsterdam, Elsevier

### 8-3: Egyptian Knowledge Bank:

- **How to measure biosecurity and the hygiene status of farms. (2019)**  
Author: Dewulf, J. • Postma, M. • Immerseel, F. van • Vanbeselaere, B. • Luyckx, K.

### Scientific Journals

- *Agriculture*
- **Journal of food protection**
- **Journal of Occupational and Environmental Hygiene**

- **Animals**
- **Journal of Dairy Science,**

**web sites**

- 
- ***WWW.PubMed.com***
- ***<https://www.gov.uk/guidance/controlling-disease-in-farm-animals>www.Vet.net.com***
- ***<https://www.gov.uk/guidance/keeping-livestock-healthy-disease-controls-and-prevention>***
- ***<http://www.journals.elsevier.com/international-journal-of-veterinary-science-and-medicine/>***
- ***<http://www.springer.com/environment/journal/11356>***

***Course Coordinator:***  
***Dr. Fatma Ali Abouelenien***  
***Dr. Nagham Elsaïdy***

***Head of Department:***  
***Professor Dr. Tarek Moussa Blabel***

### Course Matrix for achievement of Intended Learning Outcomes

Topic	Hours	Knowledge & Understanding					Intellectual Skills				Practical & Professional Skills					General & Transferable Skills				
		1	2	3	4	5	1	2	3	4	1	2	3	4	5	1	2	3	4	5
1. Stress in Cattle, Buffalo, Sheep ,Goat and equine	12	✓	✓	✓			✓	✓	✓	✓						✓	✓	✓	✓	✓
2. Air and Water Pollution in Cattle, Buffalo, Sheep ,Goat and equine farms	72	✓	✓				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3. Housing giene in Cattle, ffalo, Sheep oat and equine.	36			✓	✓	✓	✓	✓	✓						✓	✓	✓	✓	✓	
4. Waste Management	12			✓			✓	✓	✓	✓										
5. Combating of animal diseases	60				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓						



## COURSE SPECIFICATION (2021 / 2022)

### 1 - Basic Information:

Code number: 277(1)

Course title: " Poultry hygiene (advanced) صحة دواجن متقدم

Academic Year: Master of Veterinary Medicine Program

Total teaching hours: .192hrs

Lectures: 96 hrs (48 weeks- 2hrs/week)

Practical/small group sessions: 96 hrs (48 weeks- 2hrs/week)

### 2 - OVERALL AIMS OF THE COURSE:

Detailed knowledge on appropriate hygienic measures in poultry farms and to identify hygienic problems of poultry farms and how to solve them according to hygienic principles. Providing the students with an overview on air, water and soil pollutants. Highlight the importance of hygienic measures of the farms and general principles for efficient ventilation of animal buildings

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- A1. Describe appropriate hygienic measures in poultry farms.
- A2. locate the role of the environment around the poultry (air, water and soil) in transmission of diseases and maintenance of infection.
- A3. Identify appropriate management of poultry wastes and control of hostile environmental conditions.
- A4. State the role of hygiene in disease prevention in poultry farms.
- A5. Describe and illustrate different types of poultry housing.
- A6. List and explain different ventilation systems used for different types of poultry housing

#### 3-B: INTELLECTUAL SKILLS:

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

- B1. Judge the principles and concepts of hygiene in solving hygienic problems in poultry farms.
- B2. Ability to use modern techniques in collecting and analyzing data about occurrence, distribution and possible risk factors of poultry diseases.



- B3. Recommend measures to prevent, control and eradicate infectious diseases in poultry farms.
- B4. Summarize the appropriate method of management of poultry wastes.
- B5. Judge a general layout of commercial poultry farms.

**3- C: PRACTICAL AND PROFESSIONAL SKILLS:**

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

- C.1- Classifying and solving hygienic problems in poultry farms.
- C.2- prepare and execute safely a series of experiments related to poultry farms' hygiene.
- C.3- Ability to analyze different environmental samples (water, air, soil, bedding) from poultry farms.
- C.4- Solving the different housing disorder or environment stress in house poultry house.
- C.5- Preparing a technical report in the field of study.

**3- D: GENERAL SKILLS:**

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

- D1. Show how to work effectively as a member of a team in the delivery of services to community.
- D2. Support effective communication with the public, colleagues and appropriate authorities.
- D3. Apply communicating skills, have access to the internet and retrieve information
- D4. Write reports in a form that is satisfactory and understandable.
- D5. point out primary research techniques and critical evaluation.

**4 - COURSE CONTENTS:**

TOPIC	No. of hours		
	Lectures	Practical	Total
1- Stress in poultry and Methods of stress hormones measurement	6	8	14
2- The environmental requirements for poultry: - Water hygiene. - Air hygiene.	16	32	48
3- Poultry housing	16	14	30
4- Ventilation	18	-	18
5- The disinfection and disinfectants of poultry houses	22	20	42
6-Insecticides	14	18	32
7- Biosecurity	4	4	8



<b>Total</b>	<b>96</b>	<b>96</b>	<b>192</b>
--------------	-----------	-----------	------------

## 5- TEACHING & LEARNING METHODS:

### \*Lectures

( using data show, white board, overhead projector and brain storming)

### \*Practical and small group sessions:

1: Practical training.

(Practical demonstrations, practice of skills, and discussions)

### \* Site visits

Two visits (one each term) to the dairy farm in the first term and to the dairy plant in the second term for practical application

### \* Self learning

Computer researches and faculty library visits to prepare essays and presentations.

- Library researches.
- Internet researches.
- Discussion in the researches.
- Preparation of posters
- Preparation of scientific reports.

### \* Audiovisual

Video show.

**\*Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a6	b1 to b5	c 1 to c 5	d1, d5
Self-Learning activities		b1 to b5	c 1 to c 5	d2, d3, d4
Distance Teaching and Learning	a1 to a6	b1 to b5	c 1 to c 5	d1 to d5

\*Lectures may be offered face to face or via distance teaching and learning.

**KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.**

## 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: -

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year
<b>7.c grads</b>	50	20	30

6.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a6	b1 to b5		D5
Practical exams	-----	-----	- c 1 to c 5	-----
Oral exams	a1 to a6	b1 to b5		d1

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Essential books:

- **Livestock Housing: Modern Management to Ensure Optimal Health and Welfare of farm animals** (2013); Andres Aland, Thomas Banhazi, Wageningen Academic Publisher, Netherland.
- **Veterinary Epidemiology** (2013); [Michael Thrusfield](#) ; Butterworth-Heinemann

### 8-2: Recommended books:

- **Poultry Housing and Management** 2019 DOI: [10.5772/intechopen.83811](https://doi.org/10.5772/intechopen.83811)
- **Processing of Poultry** G. C. Mead (1995)
- **Managing Livestock Wastes to Preserve Environment** (2000): Miner, J.R. et al. Iowa, Iowa State University Press.
- **Farm animals and the environment.** Phillips and Piggins (1992)
- **Livestock health and housing.** Sainsbury. D (1988)
- **Environmental Contaminants: Assessment and Control** (2004): Vallero, D.A. Amsterdam, Elsevier

### 8-3: Egyptian Knowledge Bank:

- **How to measure biosecurity and the hygiene status of farms.** (2019)  
Author: Dewulf, J. • Postma, M. • Immerseel, F. van • Vanbeselaere, B. • Luyckx, K.

### Scientific Journals

- Poultry Science
- Preventive Veterinary Medicine
- Agriculture
- Journal of food protection
- Journal of Occupational and Environmental Hygiene
- Animals

web sites

- 
- [WWW.PubMed.com](http://WWW.PubMed.com)
- <https://www.gov.uk/guidance/controlling-disease-in-farm-animals>[www.Vet.net.com](http://www.Vet.net.com)
- <https://www.gov.uk/guidance/keeping-livestock-healthy-disease-controls-and-prevention>
- <http://www.journals.elsevier.com/international-journal-of-veterinary-science-and-medicine/>
- <http://www.springer.com/environment/journal/11356>

*Course Coordinator:*  
*Dr. Fatma Ali Abouelenien*  
*Dr. Nagham Elsaidy*

*Head of Department:*  
*Professor Dr. Tarek Moussa Blabel*

## Course Matrix for achievement of Intended Learning Outcomes

Topic	Hours	Knowledge & Understanding						Intellectual Skills					Practical & Professional Skills					General & Transferable Skills				
		1	2	3	4	5	6	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
1- Stress in poultry and Methods of stress hormones measurement	14			✓				✓	✓	✓	✓	✓				✓	✓	✓	✓	✓		✓
2- The environmental requirements for poultry: Water hygiene. Air hygiene.	48	✓	✓					✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3-Poultry housing	30	✓				✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
4- Ventilation	18						✓	✓	✓	✓	✓						✓	✓	✓	✓		✓
5- The disinfection and disinfectants of poultry houses	42	✓			✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓
6-Insecticides	32	✓			✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓
7- Biosecurity	8	✓			✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓

## COURSE SPECIFICATION (2021 / 2022)

### 1 - Basic Information:

Code number: 278 (1)

Course title: " Environmental Hygiene and Pollution صحة البيئة والتلوث

Academic Year: Master of Veterinary Medicine Program

Total teaching hours: 240 hrs

Lectures: 96 hrs (48 weeks- 2hrs/week)

Practical/small group sessions: 144 hrs (48 weeks- 3hrs/week)

### 2 - OVERALL AIMS OF THE COURSE:

Basic and detailed knowledge on environmental hygiene with special reference to environment-related hygienic problems in animals and poultry farms. Air and water pollution as stress factors leading to health problems and economic losses in farm animals and poultry. Basic knowledge about environmental analysis.

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

A1- Recognize the principles of environmental hygiene and pollution.

A2- Locate the role of air pollution and water pollution in induction of health problems.

A3- Describing the appropriate management of animal wastes and control of hostile environmental conditions.

A4- Describing the role of hygiene in prevention of environment-related diseases in farm animals and poultry

A5- State the role of environmental elements in transmission of diseases and maintenance of infection.

#### 3-B: INTELLECTUAL SKILLS:

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

B1. Summarize the principles and concepts of environmental hygiene in solving hygienic problems in animal farms.

- B2. Ability to analyze data about occurrence, distribution and possible risk factors of environment-related diseases.
- B3. Criticizing strategies for prevention, control and eradication of infectious diseases.
- B4. Recommend the appropriate method of management of animal wastes.
- B5. Judge different types of pollutants in air inside and outside the animal building.
- B6. Evaluating different types of pollutants in drinking water inside and outside the animal building
- B7. Summarize different types of pollutants in drinking water inside and outside the animal building

### **3- C: PRACTICAL AND PROFESSIONAL SKILLS:**

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

- C.1. Showing the hygienic problems in animals and poultry farms.
- C2. Point out and execute safely a series of experiments related to environmental hygiene and pollution.
- C3. Ability to analyze different environmental samples (water, air, soil, bedding) from animal farms.
- C4. Prepare a technical report in the field of study.
- C5. Producing a technical presentation.

### **3- D: GENERAL SKILLS:**

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

- D1. Show how to work effectively as a member of a team in the delivery of services to community.
- D2. Support effective communication with the public, colleagues and appropriate authorities.
- D3. Apply communicating skills, have access to the internet and retrieve information
- D4. Write reports in a form that is satisfactory and understandable.
- D5. point out primary research techniques and critical evaluation.





#### 4 - COURSE CONTENTS:

TOPIC	No. of hours		
	Lectures	Practical	Total
1- Water pollution	18	28	46
2- Air pollution	18	28	46
3- Stress	6	8	14
4- Epidemiology	18	26	44
5- Animal housing Hygiene	24	36	60
6- Waste and carcass disposal management.	12	18	30
<b>Total</b>	<b>96</b>	<b>144</b>	<b>240</b>

#### 5- TEACHING & LEARNING METHODS:

**\*Lectures**

(using data show, white board, overhead projector and brain storming)

**\*Practical and small group sessions:**

1: Practical training.

(Practical demonstrations, practice of skills, and discussions)

**\* Site visits**

Two visits (one each term) to the dairy farm in the first term and to the dairy plant in the second term for practical application

**\* Self learning**

Computer researches and faculty library visits to prepare essays and presentations.

- Library researches.
- Internet researches.
- Discussion in the researches.
- Preparation of posters
- Preparation of scientific reports.

**\* Audiovisual**

Video show.

**\*Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous



Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a5	b1 to b7	c 1 to c 5	d1, d5
Self-Learning activities		b1 to b7	c 1 to c 5	d2, d3, d4
Distance Teaching and Learning	a1 to a5	b1 to b7	c 1 to c 5	d1 to d5

\*Lectures may be offered face to face or via distance teaching and learning.

**KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.**

## 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: -

<u>7.a Used methods</u>	Written examination	Oral examination	Practical examination
<u>7.b time</u>	At the end of the academic year	At the end of the academic year	At the end of the academic year
<u>7.c grads</u>	50	20	30

6.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a7	b1 to b7		D5
Practical exams	-----	-----	- c 1 to c 5	-----
Oral exams	a1 to a6	b1 to b7		D1

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Essential books:

- Environmental Pollution and Health, The Energy and Resources Institute, TERI (2014)
- Environmental Hygiene B. Thriene, K.-H. Weege and S. Schulz (1990)

### **8-2: Recommended books:**

- **Environmental Contaminants: Assessment and Control (2004): Vallero, D.A. Amsterdam, Elsevier**
- **Poultry Housing and Management 2019 DOI: [10.5772/intechopen.83811](https://doi.org/10.5772/intechopen.83811)**
- **Processing of Poultry G. C. Mead (1995)**
- **Managing Livestock Wastes to Preserve Environment (2000): Miner, J.R. et al. Iowa, Iowa State University Press.**
- **Farm animals and the environment. Phillips and Piggins (1992)**
- **Livestock health and housing. Sainsbury. D (1988)**

### **8-3: Egyptian Knowledge Bank:**

- **Pollutants, Human Health and the Environment: A Risk Based Approach 2012**
  - **How to measure biosecurity and the hygiene status of farms. (2019)**
- Author: Dewulf, J. • Postma, M. • Immerseel, F. van • Vanbeselaere, B. • Luyckx, K.**

### **Scientific Journals**

- *Environmental Pollution*
- **Journal of Air Pollution and Health**
- **Journal of Occupational and Environmental Hygiene**

### **web sites**

- 
- [WWW.PubMed.com](http://WWW.PubMed.com)
- <https://www.gov.uk/guidance/controlling-disease-in-farm-animals>[www.Vet.net.com](http://www.Vet.net.com)
- <https://www.gov.uk/guidance/keeping-livestock-healthy-disease-controls-and-prevention>
- <http://www.journals.elsevier.com/international-journal-of-veterinary-science-and-medicine/>
- <http://www.springer.com/environment/journal/11356>

**Course Coordinator:**  
**Dr. Fatma Ali Abouelenien**  
**Dr. Nagham Elsaidy**

**Head of Department:**  
**Professor Dr. Tarek Moussa Blabel**

## Course Matrix for achievement of Intended Learning Outcomes

Topic	Hours	Knowledge & Understanding					Intellectual Skills							Practical & Professional Skills					General & Transferable Skills				
		1	2	3	4	5	1	2	3	4	5	6	7	1	2	3	4	5	1	2	3	4	5
1- Water pollution	46	✓	✓			✓	✓	✓	✓	✓						✓		✓	✓	✓	✓	✓	✓
2- Air pollution.	46	✓	✓			✓	✓	✓	✓	✓			✓	✓	✓	✓		✓	✓	✓	✓	✓	✓
3- Stress	14			✓	✓		✓	✓	✓	✓			✓	✓	✓	✓		✓	✓	✓	✓	✓	✓
4- Epidemiology	44	✓										✓	✓					✓	✓	✓	✓	✓	✓
5- Animal housing Hygiene	60			✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓		✓	✓	✓	✓	✓	✓
6- Waste and carcass disposal management.	30	✓				✓	✓	✓	✓	✓			✓	✓	✓	✓		✓	✓	✓	✓	✓	✓

## COURSE SPECIFICATION (2021 / 2022)

### 1 - Basic Information:

Code number: 279 (1)

Course title: **Combating of infectious diseases** مكافحة الأمراض الوبائية

Academic Year: **Master of Veterinary Medicine Program**

Total teaching hours: .19 hrs

Lectures: **96 hrs (48 weeks- 2hrs/week)**

Practical/small group sessions: **96 hrs (48 weeks- 2hrs/week)**

### 2 - OVERALL AIMS OF THE COURSE:

Provide basic and detailed knowledge on appropriate hygienic measures for prevention and control of infectious diseases.

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- A1- Recognizing the principles of infectious diseases combating.
- A2- Describe appropriate hygienic measures for combating of infectious diseases.
- A3- Identifying the role of the environment around the animals (air, water and soil) in transmission of diseases and maintenance of infection.
- A4- Reciting how and why outbreaks of infectious animal diseases occur and spread and how they can be prevented and controlled.
- A5- labeling the role of hygiene in disease prevention in farm animals

#### 3-B: INTELLECTUAL SKILLS:

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

- B1- Recommend principles and concepts of hygiene in controlling infectious diseases problems in farm animals.
- B2- Evaluate different techniques used in collecting and analyzing data about occurrence, distribution and possible risk factors of infectious diseases.
- B3- Evaluating the strategy for prevention, control and eradication of infectious diseases.

### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

- C1- Solving hygienic problems in animal farms.
- C2- Prepare and execute safely a series of experiments related to environmental hygiene and pollution.
- C3- Analyze different environmental samples (water, air, soil, bedding) from animal farms.
- C4- Prepare a technical report in the field of study.
- C5- Producing a technical presentation.
- C6- choose and point out scientific literature.

### 3- D: GENERAL SKILLS:

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

- D1 Show how to work effectively as a member of a team in the delivery of services to community.
- D2 Support effective communication with the public, colleagues and appropriate authorities.
- D3 Apply communicating skills, have access to the internet and retrieve information
- D4 Write reports in a form that is satisfactory and understandable.
- D5 point out primary research techniques and critical evaluation.

### **4 - COURSE CONTENTS:**

TOPIC	No. of hours		
	Lectures	Practical	Total
<b>1- Introduction</b>	4	-	4
<b>2- Sources of infection</b>	12	-	12
<b>3- Spread of infectious diseases Methods of spread of infectious diseases</b>	12	12	24
<b>4- Control of infectious diseases</b>	18	10	28
<b>5- Eradication of skin parasites Eradication of mange</b>	16	16	32
<b>6- Snail control</b>	6	6	12
<b>7- Collection and analysis of environmental samples (Air, water and soil)</b>	4	12	16
<b>8- Disinfection Test of disinfectants</b>	12	20	32
<b>9- Disinfestations Test of insecticides</b>	12	20	32
<b>Total</b>	<b>96</b>	<b>96</b>	<b>192</b>



## 5- TEACHING & LEARNING METHODS:

### \*Lectures

(using data show, white board, overhead projector and brain storming)

### \*Practical and small group sessions:

1: Practical training.

(Practical demonstrations, practice of skills, and discussions)

### \* Site visits

Two visits (one each term) to the dairy farm in the first term and to the dairy plant in the second term for practical application

### \* Self learning

Computer researches and faculty library visits to prepare essays and presentations.

- Library researches.
- Internet researches.
- Discussion in the researches.
- Preparation of posters
- Preparation of scientific reports.

### \* Audiovisual

Video show.

**\*Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a5	b1 to b3	c 1 to c 6	d1, d5
Self-Learning activities		b1 to b3	c 1 to c 6	d2, d3, d4
Distance Teaching and Learning	a1 to a5	b1 to b3	c 1 to c 6	d1 to d5

\*Lectures may be offered face to face or via distance teaching and learning.

**KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.**

## 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: -



<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year
<b>7.c grads</b>	50	20	30

6.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a5	b1 to b3		D5
Practical exams	-----	-----	- c 1 to c 6	-----
Oral exams	a1 to a5	b1 to b3		D1

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Essential books:

- Infectious Disease Management in Animal Shelters Wiley-Blackwell; 2nd edition (2021)
- Environmental Pollution and Health, The Energy and Resources Institute, TERI (2014)
- Environmental Hygiene B. Thriene, K.-H. Weege and S. Schulz (1990)

### 8-2: Recommended books:

- Environmental Contaminants: Assessment and Control (2004): Vallero, D.A. Amsterdam, Elsevier
- Poultry Housing and Management 2019 DOI: [10.5772/intechopen.83811](https://doi.org/10.5772/intechopen.83811)
- Processing of Poultry G. C. Mead (1995)
- Managing Livestock Wastes to Preserve Environment (2000): Miner, J.R. et al. Iowa, Iowa State University Press.
- Farm animals and the environment. Phillips and Piggins (1992)
- Livestock health and housing. Sainsbury. D (1988)

### 8-3: Egyptian Knowledge Bank:

- Pollutants, Human Health and the Environment: A Risk Based Approach 2012
  - How to measure biosecurity and the hygiene status of farms. (2019)
- Author: Dewulf, J. • Postma, M. • Immerseel, F. van • Vanbeselaere, B. • Luyckx, K.

### Scientific Journals

- Animal Diseases



- **Veterinary Infectious Diseases**
- *Environmental Pollution*
- **Journal of Air Pollution and Health**
- **Journal of Occupational and Environmental Hygiene**

web sites

- 
- [WWW.PubMed.com](http://WWW.PubMed.com)
- <https://www.gov.uk/guidance/controlling-disease-in-farm-animals>[www.Vet.net.com](http://www.Vet.net.com)
- <https://www.gov.uk/guidance/keeping-livestock-healthy-disease-controls-and-prevention>
- <http://www.journals.elsevier.com/international-journal-of-veterinary-science-and-medicine/>
- <http://www.springer.com/environment/journal/11356>

**Course Coordinator:**  
*Dr. Fatma Ali Abouelenien*  
*Dr. Nagham Elsaidy*

**Head of Department:**  
*Professor Dr. Tarek Moussa Blabel*

## Course Matrix for achievement of Intended Learning Outcomes

Topic	Hours	Knowledge & Understanding					Intellectual Skills			Practical & Professional Skills						General & Transferable Skills				
		1	2	3	4	5	1	2	3	1	2	3	4	5	6	1	2	3	4	5
1- Introduction	4	✓					✓	✓	✓							✓	✓	✓	✓	✓
2- Sources of infection	12	✓	✓				✓	✓	✓							✓	✓	✓	✓	✓
3- Spread of infectious diseases Methods of spread of infectious diseases	24						✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
4- Control of infectious diseases	28	✓					✓	✓	✓				✓	✓	✓	✓	✓	✓	✓	✓
5- Eradication of skin parasites Eradication of mange	32						✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
6- Snail control	12	✓					✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
7- Collection and analysis of environmental samples (Air, water and soil)	16						✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
8- Disinfection Test of disinfectants	32						✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
9- Disinfestations Test of insecticides	32						✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

## COURSE SPECIFICATION (2021 / 2022)

### 1 - Basic Information:

**Code number: 280 (1)**

**Course title: Combating of rodents and disease transmitters.** مكافحة القوارض وناقلات الامراض

**Academic Year: Master of Veterinary Medicine Program**

**Total teaching hours: 192 hrs**

Lectures: **96 (48 weeks- 2hrs/week)**

Practical/small group sessions: **96 (48 weeks- 2hrs/week)**

### 2 - OVERALL AIMS OF THE COURSE:

To provide students with basic knowledge on damage that can be caused by rodents, as well as rodents as source of diseases for human and animals. Provide knowledge on behavior and breeding of rodents. Additionally, identify signs of presence of rodents in animal facility and identify appropriate hygienic measures for control of rodents.

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- A.1- Memorize the basic knowledge on damage that can be caused by rodents.
- A2- Locate the principles of rodents combating.
- A3- Describe appropriate hygienic measures for rodent combating.
- A.4- Identify appropriate management of animal facilities for control of rodents.
- A.5- Recognize rodents and their control measures.
- A6- Identify the most suitable rodenticide.

#### 3-B: INTELLECTUAL SKILLS:

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

- B1- Weigh the hygienic problems associated with spread of rodents in animals and poultry farms.
- B2- Evaluate the possible risk factors for presence of rodents in animals and poultry farms.
- B3- Consider principles and concepts of hygiene in solving hygienic problems associated with spread of rodents.

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

- C1- Analyze and collect data about the occurrence and distribution of rodents in animals and poultry farms.
- C2- Solve hygienic problems associated with rodents occurrence in animal and poultry farms.
- C3- Apply plans and executes safely a series of experiments related to farm animals' hygiene and rodent combating.



C4- Prepare a technical report in the field of study.

C5- Give a technical presentation.

### **3- D: GENERAL SKILLS:**

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

D1- Coach and work in group.

D2- Classify different duties.

D3- Utilize computer and internet skills

D4. work under pressure and or / contradictory conditions.

D5- communicate verbally and non-verbally with lectures and class-mates.

D6- conducts research papers and project.

## **4 - COURSE CONTENTS:**

TOPIC	No. of hours		
	Lectures	Practical	Total
1- Introduction	6	2	8
2- Why Control Rodents?	10	2	12
3- Understanding Rodents	10	2	12
4- Does Your Farm Have a Problem	12	-	12
5- Rodent Control (The Principles)	12	12	24
6- Rodent Proofing Farm Buildings	6	6	12
7- Control of Existing Population	6	6	12
8- Rodenticides (Toxic Baits)	6	6	12
9- Methods of rodent s control	6	10	16
10- Mode of action of rodenticides	4	20	24
11- Method of protection of the farms	4	20	24
12- Choosing appropriate rodenticide	14	10	24
<b>Total</b>	<b>96</b>	<b>96</b>	<b>192</b>



## 5- TEACHING & LEARNING METHODS:

### \*Lectures

(using data show, white board, overhead projector and brain storming)

### \*Practical and small group sessions:

1: Practical training.

(Practical demonstrations, practice of skills, and discussions)

### \* Self learning

- Computer researches and faculty library visits to prepare essays and presentations.
- Library researches.
- Internet researches.
- Discussion in the researches.
- Preparation of posters
- Preparation of scientific reports.

### \* Audiovisual

Video show.

**\*Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a6	b1 to b3	c 1 to c 5	d1, d5
Self-Learning activities		b1 to b3	c 1 to c 5	d2, d3, d4
Distance Teaching and Learning	a1 to a6	b1 to b3	c 1 to c 5	d1 to d6

\*Lectures may be offered face to face or via distance teaching and learning.

**KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.**

## 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: -

<u>7.a Used methods</u>	Written examination	Oral examination	Practical examination
<u>7.b time</u>	At the end of the academic year	At the end of the academic year	At the end of the academic year
<u>7.c grads</u>	50	20	30

6.1. Methods	7. Student Assessment
--------------	-----------------------

	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a6	b1 to b3		D6
Practical exams	-----	-----	- c 1 to c 5	-----
Oral exams	a1 to a6	b1 to b3		D1

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Essential books:

- **Infectious Diseases of Mice and Rats. National Research Council (US) Committee on Infectious Diseases of Mice and Rats. Washington (DC): National Academies Press (US); 1991**
- **Infectious Disease Management in Animal Shelters Wiley-Blackwell; 2nd edition (2021)**
- **Environmental Pollution and Health, The Energy and Resources Institute, TERI (2014)**
- **Environmental Hygiene B. Thriene, K.-H. Weege and S. Schulz (1990)**

### 8-2: Recommended books:

- **Environmental Contaminants: Assessment and Control (2004): Vallero, D.A. Amsterdam, Elsevier**
- **Poultry Housing and Management 2019 DOI: [10.5772/intechopen.83811](https://doi.org/10.5772/intechopen.83811)**
- **Processing of Poultry G. C. Mead (1995)**
- **Managing Livestock Wastes to Preserve Environment (2000): Miner, J.R. et al. Iowa, Iowa State University Press.**
- **Farm animals and the environment. Phillips and Piggins (1992)**
- **Livestock health and housing. Sainsbury. D (1988)**

### 8-3: Egyptian Knowledge Bank:

- **Pollutants, Human Health and the Environment: A Risk Based Approach 2012**
- **How to measure biosecurity and the hygiene status of farms. (2019)**  
**Author: Dewulf, J. • Postma, M. • Immerseel, F. van • Vanbeselaere, B. • Luyckx, K.**

### **Scientific Journals**

- **Animal Diseases**
- **Veterinary Infectious Diseases**
- ***Environmental Pollution***
- **Journal of Air Pollution and Health**
- **Journal of Occupational and Environmental Hygiene**

**web sites**

- [WWW.PubMed.com](http://WWW.PubMed.com)
- <https://www.gov.uk/guidance/controlling-disease-in-farm-animals>[www.Vet.net.com](http://www.Vet.net.com)
- <https://www.gov.uk/guidance/keeping-livestock-healthy-disease-controls-and-prevention>
- <http://www.journals.elsevier.com/international-journal-of-veterinary-science-and-medicine/>
- <http://www.springer.com/environment/journal/11356>

**Course Coordinator:**  
**Dr. Fatma Ali Abouelenien**  
**Dr. Nagham Elsaidy**

**Head of Department:**  
**Professor Dr. Tarek Moussa Blabel**

## Course Matrix for achievement of Intended Learning Outcomes

Topic	Hours	Knowledge & Understanding						Intellectual Skills			Practical & Professional Skills					General & Transferable Skills					
		1	2	3	4	5	6	1	2	3	1	2	3	4	5	1	2	3	4	5	6
1- Introduction	8	✓	✓					✓			✓					✓	✓	✓	✓	✓	✓
2- Why Control Rodents?	12		✓					✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3- Understanding Rodents	12	✓						✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
4- Does Your Farm Have a Problem	12							✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
5- Rodent Control (The Principles)	24		✓	✓	✓			✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
6- Rodent Proofing Farm Buildings	12				✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
7- Control of Existing Population	12	✓	✓	✓	✓				✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓
8- Rodenticides (Toxic Baits)	12						✓	✓	✓	✓	✓				✓	✓	✓	✓	✓	✓	✓
9- Methods of rodent s control	16		✓			✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
10- Mode of action of rodenticides	24						✓	✓	✓	✓	✓	✓				✓	✓	✓	✓	✓	✓
11- Method of protection of the farms	24		✓	✓	✓					✓	✓	✓				✓	✓	✓	✓	✓	✓
12- Choosing appropriate rodenticide	24						✓			✓	✓	✓			✓	✓	✓	✓	✓	✓	✓



## COURSE SPECIFICATION (2021 / 2022)

### 1 - Basic Information:

**Code number: 281 (1)**

**Course title: Insecticides and public health (advanced) المبيدات الحشرية والصحة العامة**

**Academic Year: Master of Veterinary Medicine Program**

**Total teaching hours: 192 hrs**

Lectures: **96(48 weeks- 2hrs/week)**

Practical/small group sessions: **96(48 weeks- 2hrs/week)**

### 2 - OVERALL AIMS OF THE COURSE:

To provide students with knowledge and skills concerning interaction between insecticides & environment, and evaluation of insecticides. Control of skin parasites and prevention of environmental pollution by insecticides.

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- A1- Identify different kinds of insecticides.
- A2- Describe the impact of skin parasite on animal and public health.
- A3- Explain the most popular methods for control of skinparasites
- A4- Locate the importance of prevention of environmental pollution.
- A5- Recognize the role of insecticides in control of skin parasites.

#### 3-B: INTELLECTUAL SKILLS:

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

After successful completion of the course, the students should be able to:

- B1- Recommend a strategy to control skin parasites .
- B2- Evaluate most suitable conditions for application of insecticides.
- B.3- Consider the prevention of environmental pollution by insecticides.
- B4- Compare between different types of insecticides.

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

- C.1- Show the proper use of insecticides.
- C2- Report the public health hazards of uncontrolled use of insecticides.
- C3- Choose the suitable insecticides.



C4- Analyze the efficiency of insecticides.

### **3- D: GENERAL SKILLS:**

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

D1 Show how to work effectively as a member of a team in the delivery of services to community.

D2 Support effective communication with the public, colleagues and appropriate authorities.

D3 Apply communicating skills, have access to the internet and retrieve information

D4 Write reports in a form that is satisfactory and understandable.

D5 point out primary research techniques and critical evaluation.

### **4 - COURSE CONTENTS:**

TOPIC	No. of hours		
	Lectures	Practical	Total
<b>1- Classification of insecticides</b>	<b>16</b>	<b>8</b>	<b>24</b>
<b>2- Eradication of skin parasites</b>	<b>20</b>	<b>10</b>	<b>30</b>
<b>3- Public health importance</b>	<b>30</b>	<b>12</b>	<b>42</b>
<b>4- Mode of action of insecticide</b>	<b>14</b>	<b>10</b>	<b>24</b>
<b>5- Application of insecticides</b>	<b>10</b>	<b>20</b>	<b>30</b>
<b>6- Test the efficiency of insecticides</b>	<b>6</b>	<b>36</b>	<b>42</b>
<b>Total</b>	<b>96</b>	<b>96</b>	<b>192</b>

### **5- TEACHING & LEARNING METHODS:**

#### **\*Lectures**

(using data show, white board, overhead projector and brain storming)

#### **\*Practical and small group sessions:**

1: Practical training.

(Practical demonstrations, practice of skills, and discussions)

#### **\* Self learning**

- Computer researches and faculty library visits to prepare essays and presentations.
- Library researches.
- Internet researches.
- Discussion in the researches.
- Preparation of posters
- Preparation of scientific reports.

**\* Audiovisual**

Video show.

**\*Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a5	b1 to b4	c 1 to c 4	d1, d5
Self-Learning activities		b1 to b4	c 1 to c 4	d2, d3, d4
Distance Teaching and Learning	a1 to a5	b1 to b4	c 1 to c 4	d1 to d5

\*Lectures may be offered face to face or via distance teaching and learning.

**KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.**

**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: -**

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year
<b>7.c grads</b>	50	20	30

6.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a5	b1 to b4		D5
Practical exams	-----	-----	- c 1 to c 4	-----
Oral exams	a1 to a5	b1 to b4		D1

**8. LEARNING AND REFERENCE MATERIALS:**

**8-1: Essential books:**

- **Infectious Diseases of Mice and Rats. National Research Council (US) Committee on Infectious Diseases of Mice and Rats. Washington (DC): National Academies Press (US); 1991**

- **Infectious Disease Management in Animal Shelters** Wiley-Blackwell; 2nd edition (2021)
- **Environmental Pollution and Health**, The Energy and Resources Institute, TERI (2014)
- **Environmental Hygiene** B. Thriene, K.-H. Weege and S. Schulz (1990)

#### **8-2: Recommended books:**

- **Environmental Contaminants: Assessment and Control (2004):** Vallero, D.A. Amsterdam, Elsevier
- **Poultry Housing and Management** 2019 DOI: [10.5772/intechopen.83811](https://doi.org/10.5772/intechopen.83811)
- **Processing of Poultry** G. C. Mead (1995)
- **Managing Livestock Wastes to Preserve Environment (2000):** Miner, J.R. et al. Iowa, Iowa State University Press.
- **Farm animals and the environment.** Phillips and Piggins (1992)
- **Livestock health and housing.** Sainsbury. D (1988)

#### **8-3: Egyptian Knowledge Bank:**

- **Pollutants, Human Health and the Environment: A Risk Based Approach 2012**
- **How to measure biosecurity and the hygiene status of farms. (2019)**  
Author: Dewulf, J. • Postma, M. • Immerseel, F. van • Vanbeselaere, B. • Luyckx, K.

#### **Scientific Journals**

- **Animal Diseases**
- **Veterinary Infectious Diseases**
- ***Environmental Pollution***
- **Journal of Air Pollution and Health**
- **Journal of Occupational and Environmental Hygiene**

#### **web sites**

- [WWW.PubMed.com](http://WWW.PubMed.com)
- <https://www.gov.uk/guidance/controlling-disease-in-farm-animals> [www.Vet.net.com](http://www.Vet.net.com)
- <https://www.gov.uk/guidance/keeping-livestock-healthy-disease-controls-and-prevention>
- <http://www.journals.elsevier.com/international-journal-of-veterinary-science-and-medicine/>
- <http://www.springer.com/environment/journal/11356>

**Course Coordinator:**  
**Dr. Fatma Ali Abouelenien**  
**Dr. Nagham Elsaidy**

**Head of Department:**  
**Professor Dr. Tarek Moussa Blabel**

## Course Matrix for achievement of Intended Learning Outcomes

Topic	Hours	Knowledge & Understanding					Intellectual Skills				Practical & Professional Skills				General & Transferable Skills				
		1	2	3	4	5	1	2	3	4	1	2	3	4	1	2	3	4	5
1- Classification of insecticides	24	✓							✓		✓			✓	✓			✓	
2- Eradication of skin parasites	30		✓	✓		✓	✓	✓			✓		✓					✓	✓
3- Public health importance	42		✓		✓				✓		✓			✓	✓	✓	✓	✓	✓
4- Mode of action of insecticide	24	✓							✓	✓		✓		✓	✓	✓	✓	✓	✓
5- Application of insecticides	30			✓			✓	✓			✓		✓	✓	✓			✓	✓
6- Test the efficiency of insecticides	42	✓	✓					✓						✓	✓	✓		✓	✓

## COURSE SPECIFICATION (2021 / 2022)

### 1 - Basic Information:

**Code number:** 282 (1)

**Course title:** Animal housing hygiene (advanced) صحة مساكن الحيوانات

**Academic Year:** Master of Veterinary Medicine Program

**Total teaching hours:** 192 hrs

Lectures: 96(48 weeks- 2hrs/week)

Practical/small group sessions: 96(48 weeks- 2hrs/week)

### 2 - OVERALL AIMS OF THE COURSE:

To provide students with knowledge and skills concerning design of different livestock houses (indoors and outdoors) and animal establishments and their hygienic significance.

Identification of hygienic problems of Livestock houses and how to solve them according to hygienic principles. Gaining detailed knowledge of appropriate ventilation system to reduce energy costs. Monitoring temperature, humidity, and CO2 concentration in livestock houses.

Understanding the effect of climate and micro-climate on the animal performance. As well as, identify hygienic problems (Diseases related to housing) of farm animals and how to solve them according to hygienic principles.

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

A.1- Identify the importance of ideal housing design to the animal health and performance.

A.2- Recognize the role of bad housing in favoring disease occurrence.

A.3- Memorize the proper housing of different animals kept for different purposes.

A.4- Locate the role of livestock building in environmental pollution.

#### 3-B: INTELLECTUAL SKILLS:

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

B1- Consider the proper housing of animals with different stocking densities.

B2- Weigh the preventive measures for different air pollutants.

B3-Recommend the corrective measures for minimizing climatic stress.

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

- C1- Distinguish different housing systems used for different purposes and at different stocking densities.
- C2- Examine air for pollution with different hazardous gases.
- C3- Use methods for isolation and identification of different microbes in air.
- C4- Investigate physical, chemical and microbiological examination of air.
- C5- Analyze physical, chemical and bacteriological properties of water to judge its fitness for use for animals and animal products.
- C6- Apply risk analysis studies for diseases originated from bad house.

### **3- D: GENERAL SKILLS:**

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

- D1 Show how to work effectively as a member of a team in the delivery of services to community.
- D2 Support effective communication with the public, colleagues and appropriate authorities.
- D3 Apply communicating skills, have access to the internet and retrieve information
- D4 Write reports in a form that is satisfactory and understandable.
- D5 point out primary research techniques and critical evaluation.

### **4 - COURSE CONTENTS:**

TOPIC	No. of hours		
	Lectures	Practical	Total
1- General housing	6	6	12
2- Horse stables	10	10	20
3- Cattle -house systems (milk house system, calf housing, beef housing and bull pen)	24	24	48
4- Sheep shelters	4	4	8
5- Goat house	4	4	8
6- Poultry house systems	24	24	48
7- Rabbit house	2	2	4
8- Dog house	2	2	4
9- Animal establishment houses (slaughter house, hatchery, feed factories)	20	20	40
<b>Total</b>	<b>96</b>	<b>96</b>	<b>192</b>

## 5- TEACHING & LEARNING METHODS:

### \*Lectures

(using data show, white board, overhead projector and brain storming)

### \*Practical and small group sessions:

1: Practical training.

(Practical demonstrations, practice of skills, and discussions)

### \* Self learning

- Computer researches and faculty library visits to prepare essays and presentations.
- Library researches.
- Internet researches.
- Discussion in the researches.
- Preparation of posters
- Preparation of scientific reports.

### \* Audiovisual

Video show.

**\*Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous

Teaching and Learning Methods	Intended Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a4	b1 to b3	c 1 to c 6	d1, d5
Self-Learning activities		b1 to b3	c 1 to c 6	d2, d3, d4
Distance Teaching and Learning	a1 to a4	b1 to b3	c 1 to c 6	d1 to d5

\*Lectures may be offered face to face or via distance teaching and learning.

**KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.**

## 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: -

<u>7.a Used methods</u>	Written examination	Oral examination	Practical examination
<u>7.b time</u>	At the end of the academic year	At the end of the academic year	At the end of the academic year
<u>7.c grads</u>	50	20	30



6.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a4	b1 to b3		D5
Practical exams	-----	-----	- c 1 to c 6	-----
Oral exams	a1 to a4	b1 to b3		D1

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Essential books:

- **Infectious Diseases of Mice and Rats. National Research Council (US) Committee on Infectious Diseases of Mice and Rats. Washington (DC): National Academies Press (US); 1991**
- **Infectious Disease Management in Animal Shelters Wiley-Blackwell; 2nd edition (2021)**
- **Environmental Pollution and Health, The Energy and Resources Institute, TERI (2014)**
- **Environmental Hygiene B. Thriene, K.-H. Weege and S. Schulz (1990)**

### 8-2: Recommended books:

- **Environmental Contaminants: Assessment and Control (2004): Vallero, D.A. Amsterdam, Elsevier**
- **Poultry Housing and Management 2019 DOI: [10.5772/intechopen.83811](https://doi.org/10.5772/intechopen.83811)**
- **Processing of Poultry G. C. Mead (1995)**
- **Managing Livestock Wastes to Preserve Environment (2000): Miner, J.R. et al. Iowa, Iowa State University Press.**
- **Farm animals and the environment. Phillips and Piggins (1992)**
- **Livestock health and housing. Sainsbury. D (1988)**

### 8-3: Egyptian Knowledge Bank:

- **Pollutants, Human Health and the Environment: A Risk Based Approach 2012**
- **How to measure biosecurity and the hygiene status of farms. (2019)**  
**Author: Dewulf, J. • Postma, M. • Immerseel, F. van • Vanbeselaere, B. • Luyckx, K.**

### **Scientific Journals**

- **Animal Diseases**
- **Veterinary Infectious Diseases**
- ***Environmental Pollution***
- **Journal of Air Pollution and Health**
- **Journal of Occupational and Environmental Hygiene**

**web sites**

- [WWW.PubMed.com](http://WWW.PubMed.com)
- <https://www.gov.uk/guidance/controlling-disease-in-farm-animals>[www.Vet.net.com](http://www.Vet.net.com)
- <https://www.gov.uk/guidance/keeping-livestock-healthy-disease-controls-and-prevention>
- <http://www.journals.elsevier.com/international-journal-of-veterinary-science-and-medicine/>
- <http://www.springer.com/environment/journal/11356>

**Course Coordinator:**  
**Dr. Fatma Ali Abouelenien**  
**Dr. Nagham Elsaidy**

**Head of Department:**  
**Professor Dr. Tarek Moussa Blabel**

## Course Matrix for achievement of Intended Learning Outcomes

Topic	Hours	Knowledge & Understanding				Intellectual Skills			Practical & Professional Skills						General & Transferable Skills				
		1	2	3	4	1	2	3	1	2	3	4	5	6	1	2	3	4	
1- General housing	12	✓				✓			✓										✓
2- Horse stables	20	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3- Cattle -house systems (milk house system, calf housing, beef housing and bull pen)	48	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
4- Sheep shelters	8	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
5- Goat house	8	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
6- Poultry house systems	48	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
7- Rabbit house	4	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
8- Dog house	4	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
9- Animal establishment houses (slaughter house, hatchery, feed factories)	40	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

## COURSE SPECIFICATION (2021 / 2022)

### 1 - Basic Information:

Code number: 283 (1)

Course title: Disinfectant and disinfection

Academic Year: Master of Veterinary Medicine Program

Total teaching hours: 192hrs

Lectures: 96 (48 weeks- 2hrs/week)

Practical/small group sessions: 96 (48 weeks- 2hrs/week)

### 2 - OVERALL AIMS OF THE COURSE:

To provide students with knowledge and skills concerning evaluation of disinfectants against bacteria, viruses, fungi and some parasites. Testing the efficiency of disinfection processes in the environment. Gaining detailed knowledge about interaction between disinfectants and environment

### 3 - INTENDED LEARNING OUTCOMES (I. L.Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

A1- Locate different disinfectants commonly used in veterinary field.

A2 - Describe the importance of sanitation and disinfection.

A3- Identify different tests used for measuring the efficiency of disinfectants (laboratory and in use tests).

A4- Estimate the procedures of disinfection processes.

#### 3-B: INTELLECTUAL SKILLS:

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

B1 Summarize the proper sanitation and disinfection process for animal houses.

B.2- Recommend the suitable disinfectants for use.

B3- Consider the role of livestock building in environmental pollution.

B4- Judge the efficiency of applied disinfectants.

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

c.1-Apply disinfectants efficiency tests in laboratory (suspension, carrier and surface tests).

c.2- Apply disinfectants efficiency tests in use tests.

c.3- Analyze air, water and surface microbial pollution.



c.4- Investigate methods for isolation and identification of different microbes in air, water and surfaces.

c.5- Apply suitable disinfectants for different environmental samples.

### **3- D: GENERAL SKILLS:**

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

D1 Show how to work effectively as a member of a team in the delivery of services to community.

D2 Support effective communication with the public, colleagues and appropriate authorities.

D3 Apply communicating skills, have access to the internet and retrieve information

D4 Write reports in a form that is satisfactory and understandable.

D5 point out primary research techniques and critical evaluation.

## **4 - COURSE CONTENTS:**

TOPIC	No. of hours		
	Lectures	Practical	Total
1- Classification of disinfectants	12	12	24
2- Evaluation of disinfectants in laboratory (suspension, carrier and surface tests)	20	20	40
3- Evaluation of disinfectants in use test (Field test)	16	16	32
4- Air disinfection	16	16	32
5- Water disinfection	20	20	40
6- Interaction between disinfectants	12	12	24
<b>Total</b>	<b>96</b>	<b>96</b>	<b>192</b>

## **5- TEACHING & LEARNING METHODS:**

### **\*Lectures**

(using data show, white board, overhead projector and brain storming)

### **\*Practical and small group sessions:**

1: Practical training.

(Practical demonstrations, practice of skills, and discussions)

### **\* Self learning**

- Computer researches and faculty library visits to prepare essays and presentations.
- Library researches.
- Internet researches.
- Discussion in the researches.



- Preparation of posters
- Preparation of scientific reports.

**\* Audiovisual**

Video show.

**\*Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a4	b1 to b4	c 1 to c 5	d1, d5
Self-Learning activities		b1 to b4	c 1 to c 5	d2, d3, d4
Distance Teaching and Learning	a1 to a4	b1 to b4	c 1 to c 5	d1 to d5

**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: -**

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year
<b>7.c grads</b>	50	20	30

6.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a4	b1 to b4		D5
Practical exams	-----	-----	- c 1 to c 5	-----
Oral exams	a1 to a4	b1 to b4		D1

**8. LEARNING AND REFERENCE MATERIALS:**

**8-1: Essential books:**

- Disinfectants and Disinfection Robert Angus Smith **TheClassics.us (September 12, 2013) 2013**

- **Infectious Disease Management in Animal Shelters** Wiley-Blackwell; 2nd edition (2021)
- **Environmental Pollution and Health**, The Energy and Resources Institute, TERI (2014)
- **Environmental Hygiene** B. Thriene, K.-H. Weege and S. Schulz (1990)

#### **8-2: Recommended books:**

- Environmental Contaminants: Assessment and Control (2004): Vallero, D.A. Amsterdam, Elsevier
- Poultry Housing and Management 2019 DOI: [10.5772/intechopen.83811](https://doi.org/10.5772/intechopen.83811)
- Processing of Poultry G. C. Mead (1995)
- Managing Livestock Wastes to Preserve Environment (2000): Miner, J.R. et al. Iowa, Iowa State University Press.
- Farm animals and the environment. Phillips and Piggins (1992)
- Livestock health and housing. Sainsbury. D (1988)

#### **8-3: Egyptian Knowledge Bank:**

- Pollutants, Human Health and the Environment: A Risk Based Approach 2012
  - How to measure biosecurity and the hygiene status of farms. (2019)
- Author: Dewulf, J. • Postma, M. • Immerseel, F. van • Vanbeselaere, B. • Luyckx, K.

#### **Scientific Journals**

- Antimicrobial Resistance & Infection Control
- American Journal of Infection Control
- Animal Diseases
- Veterinary Infectious Diseases
- Environmental Pollution
- Journal of Air Pollution and Health
- Journal of Occupational and Environmental Hygiene

#### **web sites**

- [WWW.PubMed.com](http://WWW.PubMed.com)
- <https://www.gov.uk/guidance/controlling-disease-in-farm-animals>[www.Vet.net.com](http://www.Vet.net.com)
- <https://www.gov.uk/guidance/keeping-livestock-healthy-disease-controls-and-prevention>
- <http://www.journals.elsevier.com/international-journal-of-veterinary-science-and-medicine/>
- <http://www.springer.com/environment/journal/11356>

**Course Coordinator:**  
**Dr. Fatma Ali Abouelenien**  
**Dr. Nagham Elsaidy**

**Head of Department:**  
**Professor Dr. Tarek Moussa Blabel**

## Course Matrix for achievement of Intended Learning Outcomes

Topic	Hours	Knowledge & Understanding					Intellectual Skills				Practical & Professional Skills					General & Transferable Skills					
		1	2	3	4	5	1	2	3	4	1	2	3	4	5	1	2	3	4	5	
1- Classification of disinfectants	24	✓						✓												✓	✓
2- Evaluation of disinfectants in laboratory (suspension, carrier and surface tests)	40			✓						✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3- Evaluation of disinfectants in use test (Field test)	32			✓						✓		✓	✓	✓	✓		✓	✓	✓	✓	✓
4- Air disinfection	32	✓	✓		✓		✓	✓	✓			✓	✓	✓	✓		✓	✓	✓	✓	✓
5- Water disinfection	40	✓	✓		✓		✓	✓	✓			✓	✓	✓	✓		✓	✓	✓	✓	✓
6- Interaction between disinfectants	24	✓					✓	✓		✓		✓	✓	✓	✓		✓	✓	✓	✓	✓



## **COURSE SPECIFICATION** **(2021 / 2022)**

### **1 - Basic Information:**

**Code number:** 284(1)

**Course title:** Epidemiology.

**Academic Year:** Master of Veterinary Medicine Program

**Total teaching hours:** 192 hrs

Lectures: 96(48 weeks- 2hrs/week)

Practical/small group sessions: 96(48 weeks- 2hrs/week)

### **2 - OVERALL AIMS OF THE COURSE:**

To provide students with knowledge and skills concerning principles of veterinary epidemiology, disease occurrence in population, and key features and applications of descriptive and analytic epidemiology.

### **3 - INTENDED LEARNING OUTCOMES (I. L. Os.):**

#### **3-A: KNOWLEDGE and UNDERSTANDING:**

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

- A1 Memorize the principles of veterinary epidemiology.
- A2- Describe the common measures of diseases frequency and association.
- A3- Recognize the major features, strengths and weakness of common study designs.
- A4- Locate the principles of screening and diagnostic testing
- A5- Define the principles of sampling and surveillance
- A6- Estimate the relationship between the host, the agent and the environment.
- A7- Recognize the role of epidemiology in disease prevention in animals and poultry farms.

#### **3-B: INTELLECTUAL SKILLS:**

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

- B1 Consider epidemiological skills in field setting
- B2- Assess principles and concepts of epidemiology for solving disease, production, and welfare problems in poultry and farm animals
- B3- Collect and analyze data about occurrence, distribution and possible risk factors of diseases
- B4- Recommend strategy for prevention, control and eradication of infectious diseases

#### **3- C: PRACTICAL AND PROFESSIONAL SKILLS:**

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

- C1- Apply epidemiological principles to disease control within animal and human populations.
- C2- Sketch design and implement epidemiological studies and surveillance system.
- C3- Build an epidemiologic data in an organized and informative manner.

C4- Analyze and interpret data from epidemiological studies.

C5- Prepare a technical report in the field of epidemiology.

**3- D: GENERAL SKILLS:**

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

D1 Show how to work effectively as a member of a team in the delivery of services to community.

D2 Support effective communication with the public, colleagues and appropriate authorities.

D3 Apply communicating skills, have access to the internet and retrieve information

D4 Write reports in a form that is satisfactory and understandable.

D5 point out primary research techniques and critical evaluation.

**4 - COURSE CONTENTS:**

TOPIC	No. of hours		
	Lectures	Practical	Total
1- Overview of epidemiology	4	0	4
2- Measures of disease frequency	12	12	24
3- Measures of association and effects	12	12	24
4- Epidemiologic study designs	20	20	40
5- Screening and Diagnostic tests	16	12	28
6- Sampling	8	8	16
7- Monitoring and surveillance	20	20	40
8- Outbreak investigation	8	8	16
<b>Total</b>	<b>96</b>	<b>96</b>	<b>192</b>



## 5- TEACHING & LEARNING METHODS:

### \*Lectures

(using data show, white board, overhead projector and brain storming)

### \*Practical and small group sessions:

1: Practical training.

(Practical demonstrations, practice of skills, and discussions)

### \* Self learning

- Computer researches and faculty library visits to prepare essays and presentations.
- Library researches.
- Internet researches.
- Discussion in the researches.
- Preparation of posters
- Preparation of scientific reports.

### \* Audiovisual

Video show.

**\*Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a7	b1 to b4	c 1 to c 5	d1, d5
Self-Learning activities		b1 to b4	c 1 to c 5	d2, d3, d4
Distance Teaching and Learning	a1 to a7	b1 to b4	c 1 to c 5	d1 to d5

## 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:-

<u>7.a Used methods</u>	Written examination	Oral examination	Practical examination
<u>7.b time</u>	At the end of the academic year	At the end of the academic year	At the end of the academic year
<u>7.c grads</u>	50	20	30

6.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a7	b1 to b4		D5
Practical exams	-----	-----	- c 1 to c 5	-----
Oral exams	a1 to a7	b1 to b4		D1

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Essential books:

- Veterinary epidemiologic research. Dohoo et al. (2009).
- Veterinary epidemiology - principles and methods. Martin et al. (1987).
- Herd Health. Food Animal Production Medicine. Radostits et al. (1994).
- Application of quantitative methods in veterinary epidemiology. Noordhuizen et al. (1997)
- Infectious Disease Management in Animal Shelters Wiley-Blackwell; 2nd edition (2021)
- Environmental Pollution and Health, The Energy and Resources Institute, TERI (2014)
- Environmental Hygiene B. Thriene, K.-H. Weege and S. Schulz (1990)

### 8-2: Recommended books:

- Veterinary epidemiology - principles and methods. Martin et al. (1987).
- Herd Health. Food Animal Production Medicine. Radostits et al. (1994).
- Environmental Contaminants: Assessment and Control (2004): Vallero, D.A. Amsterdam, Elsevier
- Poultry Housing and Management 2019 DOI: [10.5772/intechopen.83811](https://doi.org/10.5772/intechopen.83811)
- Processing of Poultry G. C. Mead (1995)
- Managing Livestock Wastes to Preserve Environment (2000): Miner, J.R. et al. Iowa, Iowa State University Press.
- Farm animals and the environment. Phillips and Piggins (1992)
- Livestock health and housing. Sainsbury. D (1988)

### 8-3: Egyptian Knowledge Bank:

- Pollutants, Human Health and the Environment: A Risk Based Approach 2012
  - How to measure biosecurity and the hygiene status of farms. (2019)
- Author: Dewulf, J. • Postma, M. • Immerseel, F. van • Vanbeselaere, B. • Luyckx, K.

### **Scientific Journals**

- Journal of Epidemiology and Community Health
- Antimicrobial Resistance & Infection Control
- American Journal of Infection Control
- Animal Diseases
- Veterinary Infectious Diseases
- Journal of Occupational and Environmental Hygiene

### **web sites**

- [WWW.PubMed.com](http://WWW.PubMed.com)

- <https://www.gov.uk/guidance/controlling-disease-in-farm-animals>[www.Vet.net.com](http://www.vet.net.com)
- <https://www.gov.uk/guidance/keeping-livestock-healthy-disease-controls-and-prevention>
- <http://www.journals.elsevier.com/international-journal-of-veterinary-science-and-medicine/>
- <http://www.springer.com/environment/journal/11356>

**Course Coordinator:**  
**Dr. Fatma Ali Abouelenien**  
**Dr. Nagham Elsaïdy**

**Head of Department:**  
**Professor Dr. Tarek Moussa Blabel**

## Course Matrix for achievement of Intended Learning Outcomes

Topic	Hours	Knowledge & Understanding							Intellectual Skills				Practical & Professional Skills					General & Transferable Skills				
		1	2	3	4	5	6	7	1	2	3	4	1	2	3	4	5	1	2	3	4	5
1- Overview of epidemiology	4	✓							✓				✓					✓				
2- Measures of disease frequency	24		✓						✓	✓	✓		✓	✓				✓	✓	✓	✓	✓
3- Measures of association and effects	24			✓					✓	✓	✓		✓	✓	✓			✓	✓	✓	✓	✓
4- Epidemiologic study designs	40			✓	✓				✓	✓	✓		✓	✓	✓	✓		✓	✓	✓	✓	✓
5- Screening and Diagnostic tests	28				✓	✓			✓	✓			✓	✓	✓	✓		✓	✓	✓	✓	✓
6- Sampling	16								✓	✓	✓		✓	✓	✓	✓		✓	✓	✓	✓	✓
7- Monitoring and surveillance	40				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
8- Outbreak investigation	16				✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓

## COURSE SPECIFICATION (2021 / 2022)

### 1 - Basic Information:

Code number: -

Course title: **Animal, Poultry and Environmental Hygiene (Basic)** صحة الحيوان والدواجن والبيئة اساسى

Academic Year: **Master of Veterinary Medicine Program**

Total teaching hours: . 336 hrs/year

Lectures: **144hrs (48 weeks - 3hrs/week)**

Practical: 192 hrs (**48 weeks - 4hrs/week**)

### 2 - OVERALL AIMS OF THE COURSE:

To provide students with basic knowledge and skills concerning; the effect of stress, air and water pollution, on animal health and production. And methods of environmental analysis. In addition to studying epidemiology, combating of infectious diseases, hygiene of animal housing and different veterinary establishment.

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- A1- Define normal environmental parameters and the effect of hostile environmental conditions on animal health and productivity.
- A2- Recognize air hygiene and pollution
- A3- Illustrate water hygiene and pollution
- A4- Describe disease occurrence in a population
- A5- Identify appropriate management of animal wastes and control of hostile environmental conditions.
- A6- Illustrate the designation of animal houses and different veterinary establishment.
- A7- Summarize appropriate measures for control of animal diseases.
- A8- Determine the role of hygiene in prevention of some farm animal diseases.

#### 3-B: INTELLECTUAL SKILLS:

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

- B1- Judge the most important symptoms and signs of environmental disease in animals.
- B2- Asses hygienic problems in the farms to provide suitable means for control.
- B3- Analyze the collected data about occurrence, distribution and possible risk factors of diseases in animal populations.
- B4- Design appropriate plans for animal houses and veterinary establishment design.
- B5- Compare between different strategies for management of animal wastes.
- B6- create different methods for prevention, control and eradication of infectious diseases



### **3- C: PRACTICAL AND PROFESSIONAL SKILLS:**

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

- C.1. Collect representative samples from air, water source and soil for laboratory examination.
- C.2. Apply simple chemical tests to judge air and water quality.
- C.3- Construct a proper control of environmental pollution.
- C.4- Diagnose animal diseases related to environmental conditions.
- C.5- Obtain history about disease occurrence in a population
- C.6- Scan problems in the design of animal houses
- C.7- Employ the practical methods for control of animal diseases.

### **3- D: GENERAL SKILLS:**

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

- D1 work effectively as a member of a team in the delivery of services to community.
- D2 Support effective communication with the public, colleagues and appropriate authorities.
- D3 Apply communicating skills, have access to the internet and retrieve information
- D4 Write reports in a form that is satisfactory and understandable.
- D5 point out primary research techniques and critical evaluation.

### **4 - COURSE CONTENTS:**

TOPIC	No. of hours		
	Lectures	Practical	Total
1- Stress	12	-	12
2- Air pollution	14	30	44
3- Water pollution	30	48	78
4- Veterinary Epidemiology	24	-	24
5- Animal Housing	24	-	24
6- Animal Waste Management	14	48	62
7- Combating of animal diseases	14	20	34
8- Disinfection	6	46	52
9-Biosecurity	6	-	6
<b>Total</b>	<b>144</b>	<b>192</b>	<b>336</b>



## 5- TEACHING & LEARNING METHODS

### \*Lectures

(using data show, white board, overhead projector and brain storming)

### \*Practical and small group sessions:

1: Practical training.

(Practical demonstrations, practice of skills, and discussions)

### \* Self learning

Computer researches and faculty library visits to prepare essays and presentations.

- Library researches.
- Internet researches.
- Discussion in the researches.
- Preparation of posters
- Preparation of scientific reports.

### \* Audiovisual

Video show.

**\*Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a8	b1 to b6	c 1 to c 7	d1, d5
Self-Learning activities		b1 to b6	c 1 to c 7	d2, d3, d4
Distance Teaching and Learning	a1 to a8	b1 to b6	c 1 to c 7	d1 to d5

## 6. METHODS FOR STUDENTS with limited capabilities: -

\*Activation of office hours.

\*Discussion with them during practical session.

## 7. STUDENT ASSESSMENT: -

<u>7.a Used methods</u>	Written examination	Oral examination	Practical examination
<u>7.b time</u>	At the end of the academic year	At the end of the academic year	At the end of the academic year
<u>7.c grads</u>	50	20	30

6.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a8	b1 to b6		D5
Practical exams	-----	-----	- c 1 to c 7	-----
Oral exams	a1 to a8	b1 to b6		D1

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Essential books:

- Veterinary epidemiologic research. Dohoo et al. (2009).
- Veterinary epidemiology - principles and methods. Martin et al. (1987).
- Herd Health. Food Animal Production Medicine. Radostits et al. (1994).
- Application of quantitative methods in veterinary epidemiology. Noordhuizen et al. (1997)
- Infectious Disease Management in Animal Shelters Wiley-Blackwell; 2nd edition (2021)
- Environmental Pollution and Health, The Energy and Resources Institute, TERI (2014)
- Environmental Hygiene B. Thriene, K.-H. Weege and S. Schulz (1990)

### 8-2: Recommended books:

- 
- Animal Welfare (1989): Mahmoud A. Metwally, Zagazig University.
- APHA. (2012). Standard methods for the examination of water and wastewater (22nd ed.). Washington, DC: APHA, AWWA, WEF.
- Climate Change Impact on Livestock: Adaptation and Mitigation (2015) ; Veerasamy Sejian, John Gaughan, Lance Baumgard, Cadaba Prasad. Springer New Delhi Hiedlberg Newyork Dordrecht London.
- Environmental Contaminants: Assessment and Control (2004): Vallero, D.A. Amsterdam, Elsevier
- Farm animal health (1991): Patrick T. Cullen, Pregamon Press. PLC. UK.
- Farm animals and the environment. Phillips and Piggins (1992)
- Herd Health. Food Animal Production Medicine. Radostits et al. (1994).
- Livestock health and Housing (1982): David Sainsbury and peter Sainsbury and peter Sainsbury. Butler and tanner LTD, Frome and London.
- Livestock health and housing. Sainsbury. D (1988)
- Managing Livestock Wastes to Preserve Environment (2000): Miner, J.R. et al. Iowa, Iowa State University Press.
- Pollution in Livestock production systems (1994): I.A.P. Dewi, R.F.E. Axford, I. Fayez M. Marai and H. Omed. CAB International. UK.
- Poultry Housing and Management 2019 DOI: [10.5772/intechopen.83811](https://doi.org/10.5772/intechopen.83811)
- Processing of Poultry G. C. Mead (1995)
- Veterinary epidemiology - principles and methods. Martin et al. (1987).

### **8-3: Egyptian Knowledge Bank:**

- Pollutants, Human Health and the Environment: A Risk Based Approach 2012
  - How to measure biosecurity and the hygiene status of farms. (2019)
- Author: Dewulf, J. • Postma, M. • Immerseel, F. van • Vanbeselaere, B. • Luyckx, K.

#### **Scientific Journals**

- Journal of Epidemiology and Community Health
- Antimicrobial Resistance & Infection Control
- American Journal of Infection Control
- Animal Diseases
- Veterinary Infectious Diseases
- Journal of Occupational and Environmental Hygiene

#### **web sites**

- [WWW.PubMed.com](http://WWW.PubMed.com)
- <https://www.gov.uk/guidance/controlling-disease-in-farm-animals>[www.Vet.net.com](http://www.Vet.net.com)
- <https://www.gov.uk/guidance/keeping-livestock-healthy-disease-controls-and-prevention>
- <http://www.journals.elsevier.com/international-journal-of-veterinary-science-and-medicine/>
- <http://www.springer.com/environment/journal/11356>

**Course Coordinator:**  
**Dr. Fatma Ali Abouelenien**  
**Dr. Nagham Elsaidy**

**Head of Department:**  
**Professor Dr. Tarek Moussa Blabel**

## Course Matrix for achievement of Intended Learning Outcomes

Topic	Hours	Knowledge & Understanding								Intellectual Skills						Practical & Professional Skills							General & Transferable Skills					
		1	2	3	4	5	6	7	8	1	2	3	4	5	6	1	2	3	4	5	6	7	1	2	3	4	5	
<b>1- Stress</b>	12	✓								✓														✓	✓	✓	✓	✓
<b>2- Air pollution</b>	44		✓								✓					✓	✓	✓						✓	✓	✓	✓	✓
<b>3- Water pollution</b>	78			✓							✓					✓	✓	✓						✓	✓	✓	✓	✓
<b>4- Veterinary Epidemiology</b>	24				✓							✓												✓	✓	✓	✓	✓
<b>5- Animal Housing</b>	24						✓						✓											✓	✓	✓	✓	✓
<b>6- Animal Waste Management</b>	62					✓								✓		✓	✓	✓						✓	✓	✓	✓	✓
<b>7- Combating of animal diseases</b>	34						✓								✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>8- Disinfection</b>	52								✓						✓			✓	✓	✓	✓			✓	✓	✓	✓	✓
<b>9-Biosecurity</b>	6	✓	✓	✓	✓	✓	✓	✓	✓						✓									✓	✓	✓	✓	✓



**Kafrelsheikh University**  
Faculty of Veterinary Medicine



---

**Kafrelsheikh University**  
**Faculty of Veterinary Medicine**  
**Animal Medicine Department**

# **Program Specification for Master Degree**

## **(2021 - 2022)**

**Program Title:**

**Master of The Veterinary Medicine**  
**(Infectious Diseases)**



## A- Administrative information:

- 1- **Awarding Body:** Kafrelsheikh University
- 2- **Teaching Body:** Faculty of Veterinary Medicine
- 3- **Department(s) responsible:** Animal Medicine Department
- 4- **Program Title:** Master Degree in Veterinary Medicine (Infectious Diseases)
- 5- **Final award:** Master Degree
- 6- **Registration period:** 2-4 years
- 7- **Program Coordinator:** Pro. Dr. Magdy H. Al-Gaabary
- 8- **External evaluator:**
- 9- **Date of revision:**
- 10- **Date of approval:**

## B- Professional Information

### 1- Program aims

- Provides graduates the opportunity to develop communication and teaching skills and the experience of scientific research.
- Develops the ability of graduate to deal with recent techniques and diagnostic tools in the field of Infectious diseases.
- Supplies the graduates with the most recent knowledge in science and technological applications in Infectious diseases.
- Demonstrates an awareness of the connections between disciplines and develop the ability to deal with scientific literature and to review and make presentation of research data.
- Allows graduates to develop practical research proposals.  
Enables graduates to achieve competency in modern laboratory techniques

### 2- Academic standards:

**Academic reference standards (ARS) adopted by the faculty committee No (1) 14-9-2014)**

### 3-Graduate attributes:

*Upon successful completion of the program, the graduate has the ability for:*

- 1) Efficient application of the basics and methodologies of scientific research and using its different tools to do his master thesis and subsequent research work and field studies.
- 2) Using the analytical protocols of animal Infectious diseases problems.
- 3) Integrating specialized knowledge with related information about animal Infectious diseases aspects and extrapolating their interrelationship.



- 4) Showing awareness about outbreaks of animal Infectious diseases and problems of diagnosis, treatment and prevention of it. As well as new theories in the field of animal Infectious diseases.
- 5) Identification of problems and difficulties in diagnosis, treatment and prevention of animal Infectious diseases and suggesting innovative solutions.
- 6) Using the diagnostic tools in the field and modern diagnostic techniques in the laboratory efficiently and able to perform wide range of treatment and control techniques.
- 7) Communicating effectively with the work team and leading it.
- 8) Taking suitable decision depending on the available data
- 9) Using the available resources to diagnosis, treatment, and control of animal Infectious diseases and save the available resources.
- 10) Awareness with his role in society development and community preservation in the light of global and regional variations through his effort of diagnosis, treatment and control of animal Infectious diseases and animal wealth save.
- 11) Dealing with public, farmers, owners and academic communities with integrity, credibility and the rules of veterinary Infectious and research.
- 12) Continuous self-learning and long life updating of knowledge and development of all aspect of animal Infectious diseases and related aspects.

#### **4-Programme outcomes [intended learning outcomes (ILOs)]**

##### **a) Knowledge and understanding**

*By the end of this program the graduate should be able to:*

- a.1. Recognize basic principles and theories of Infectious diseases in addition to diagnosis and control of infection.
- a.2. Identify mutual effect between Infectious diseases and its impact on environment.
- a.3. Recognize progress in the scientific field of Infectious diseases especially epidemiological mapping and molecular control.
- a.4. Identify legal and ethical basics in veterinary practice in the field during handling of diseased animals.
- a.5. Realize the principles and basics of quality assurance methods in diagnosis, treatment and prevention as well as epidemiological description of animal Infectious diseases.
- a.6. Realize the legal and ethical basics in of scientific research

##### **b) Intellectual skills**

*By the end of this program the graduate should be able to:*

- b.1. Analyze and judge the data collected from the field and by laboratory investigations.



- b.2. Use his experience for solving mystery of animal infectious problems even in scarcity of data.
- b.3. Relate the case history, clinical findings to the laboratory findings in order to reach perfect diagnosis and control of Infectious diseases.
- b.4. Participate in preparing research plan in Infectious diseases and write scientific article on a research problem.
- b.5. Assess risks of professional practices in Infectious diseases and their possible consequences.
- b.6. Plan for improvement of professional performance
- b.7. Make professional decisions in dealing with laboratory diagnostic problems.

c) **Professional and practical skills**

*By the end of this program the graduate should be able to:*

- c.1. Master basic and recent professional skills in detection, diagnosis, epidemiology and control of infections.
- c.2. Write, conclude and evaluate reports about different Infectious diseases
- c.3. Judge existing materials and methods in Infectious diseases.

d) **General and transferable skill**

*By the end of this program, the graduate should be able to:*

- d.1. Communicate effectively with his professors, collages and animal owner(s).
- d.2. Use information technology to serve the professional practice.
- d.3. Assess himself and identify his personal educational needs.
- d.4. Utilize different sources of knowledge and information.
- d.5. Demonstrate an ability to learn independently for a career of lifelong learning.
- d.6. Demonstrate interpersonal skills and team working ability
- d.7. Manage time efficiently.
- d.8. Set tools and indicators for assessment of the performance of others.

**5-Program structure:**

a) Program duration (years): Master degree from 2-4 years

b) Premaster courses – at least one academic year

	Lecture (hours/week)	Practical (hours/week)
Fundamental (core) course	3	4





Research methodology	1	3
2-5 Elective Courses (10-12 hours)	Offered by other departments and are selected from the list below according to thesis topic	

c) Master of Veterinary Medicine Thesis (at least one academic year)

- All master-degree students should prepare a master thesis.
- The department and the ethical committees must approve the protocol of the research.
- The thesis should include a review part and a research part.
- The thesis is supervised by one or more senior staff members of the department responsible for the program and may include other specialties according to the nature of the research.
- The thesis should be evaluated and approved by a committee of three professors including one of the supervisors and an external professor

*A number of subsidiary courses are selected from the following list according to the title of the research work:*

Subject	Code	Course title	No of hours/week	
			Lecture	Practical Lab
<b>Anatomy and embryology</b> <b>Y</b>	101/1	<b>1- Applied anatomy</b>	2	2
	102/1	<b>2- Anatomical techniques and surface anatomy</b>	2	2
	103/1	<b>3- Osteology and arthrology</b>	2	2
	104/1	<b>4- Comparative digestive system</b>	2	2
	105/1	<b>5- Comparative uro-genital system</b>	2	2
	106/1	<b>6-Comparative respiratory system</b>	2	2
	107/1	<b>7- Comparative cardiovascular system</b>	2	2
	108/1	<b>8- Comparative nervous system and endocrine glands</b>	2	2
	109/1	<b>9- General and special embryology</b>	2	2
	110/1	<b>10- Avian anatomy</b>	1	2



<b>Histology</b>	111/1	<b>11- cytology and cytochemistry</b>	1	2
	112/1	<b>12- general histology</b>	2	2
	113/1	<b>13- Histology and histochemistry of blood, lymph and cardiovascular system.</b>	1	1
	114/1	<b>14- Comparative histology and histochemistry of body muscles, heart and blood vessels</b>	1	1
	115/1	<b>15- Comparative histology and histochemistry of respiratory system</b>	1	1
	116/1	<b>16-Comparative histology and histochemistry of digestive system</b>	2	2
	117/1	<b>17- Comparative histology and histochemistry of uro-genital system</b>	2	2
	118/1	<b>18- Comparative histology and histochemistry of nervous and endocrine systems</b>	2	2
	119/1	<b>19- Histology and histochemistry of special sensors</b>	1	2
	120/1	<b>20-Histology and histochemistry of skin, hooves, claws and Nails</b>	2	2
	121/1	<b>21- Avian histology</b>	2	2
	122/1	<b>22- Fish histology</b>	1	2
	<b>Physiology</b>	123/1	<b>23- Physiology of mammalian endocrine and reproduction</b>	2
124/1		<b>24- poultry physiology (advanced)</b>	2	2
125/1		<b>25- physiology of muscle and nerve</b>	1	2
126/1		<b>26- physiology of ruminants</b>	2	2
127/1		<b>27- physiology of environment, adaptation and cell</b>	2	2
128/1		<b>28- physiology of blood</b>	2	2
129/1		<b>29- physiology of digestion, metabolism and energy</b>	2	2
130/1		<b>30- Physiology in pollution</b>	1	2
131/1		<b>31- Radioactive isotopes and biological uses</b>	2	2



	132/1	<b>32– Physiology of heights</b>	1	1
	133/1	<b>33-Fish physiology.</b>	1	2
<b>Biochemistry</b>	134/1	<b>34- Basics of biochemistry</b>	2	3
	135/1	<b>35- Metabolism</b>	2	2
	136/1	<b>36- Biochemistry of tissue and body fluids .</b>	2	2
	137/1	<b>37- Biochemistry of hormones and reproduction</b>	2	2
	138/1	<b>38- Feeding biochemistry</b>	2	2
	139/1	<b>39- Clinical biochemistry</b>	2	2
	140/1	<b>40- Avian biochemistry</b>	2	2
	141/1	<b>41- Microbial biochemistry</b>	2	2
	142/1	<b>42- Biochemistry of radiation</b>	1	2
	143/1	<b>43- Fish biochemistry</b>		
<b>Animal behavior and management</b>	144/1	<b>44- Behavior and management of ruminants ( specific courses in cattle, buffalo, sheep, camels and goats)</b>	2	3
	145/1	<b>45- Behavior and management of horses</b>	2	3
	146/1	<b>46- Behavior and management of pet animals</b>	1	2
	147/1	<b>47- Behavior and management of laboratory animals</b>	1	2
	148/1	<b>48- Behavior and management of wild animals</b>	2	2
	149/1	<b>49- Behavior and management of poultry</b>	2	2
	150/1	<b>50- Behavior and management of rabbit</b>	1	2
	151/1	<b>51- Behavior of experimental animals</b>	1	2
<b>Nutrition and clinical nutrition</b>	152/1	<b>52- Basics of animal nutrition</b>	2	2
	153/1	<b>53- feedstuff</b>	2	2
	154/1	<b>54- nutrition of farm animals and fish specific courses in ( cattle and buffalo nutrition – sheep and goat nutrition – camel nutrition- equine nutrition – fish nutrition)</b>	2	2
	155/1	<b>55- poultry and rabbit nutrition( advanced)</b>	2	2
	156/1	<b>56- wild animal nutrition</b>	1	2



	157/1	<b>57- laboratory animal nutrition</b>	1	2
	158/1	<b>58- feed additives</b>	1	2
	159/1	<b>59- feedstuff analysis</b>	2	2
	160/1	<b>60- Quality control of feed and feed factories</b>	2	2
	161/1	<b>61- Clinical nutrition and malnutrition</b>	2	2
	162/1	<b>62- Fish nutrition</b>	1	2
<b>Pathology</b>	163/1	<b>63- General pathology and neoplasm( progressive)</b>	2	2
	164/1	<b>64-pathology of microbial and parasitic diseases in animal</b>	2	2
	165/1	<b>65- pathology of bad nutrition</b>	1	2
	166/1	<b>66- pathology of environmental pollution</b>	1	2
	167/1	<b>67- pathology of reproductive diseases</b>	1	2
	168/1	<b>68- Avian pathology</b>	2	2
	169/1	<b>69-Experimental pathology</b>	2	2
	170/1	<b>70- toxins pathology</b>	2	2
	171/1	<b>71- surgical pathology</b>	2	2
	172/1	<b>72- Pathology of experimental animals.</b>		
	173/1	<b>73- Pathology of genetics</b>		
	174/1	<b>74-- Fish pathology</b>	2	2
<b>Clinical pathology</b>	175/1	<b>75- Advanced clinical pathology</b>	2	2
	176/1	<b>76-Organ function tests and body and urine balance</b>	2	2
	177/1	<b>77- Clinical hematology and bone marrow examination</b>	1	2
<b>Bacteriology, immunology and mycology</b>	178/1	<b>78- General bacteriology(advanced)</b>	1	2
	179/1	<b>79-systemic bacteriology</b>	2	3
	182/1	<b>80- Advanced immunology</b>	2	2
	183/2	<b>81- Advanced mycology</b>	1	2
<b>Virology</b>	180/3	<b>82- General virology</b>	1	2
	181/4	<b>83-Systemic virology( specific courses)</b>	2	3
	182/5	<b>84- Advanced immunology</b>	2	2
<b>Mixed courses between Bacteriology</b>	184/1	<b>85- Microbiology of poultry</b>	2	2
	185/1	<b>86- Microbiology of ??????</b>	1	2
	186/1	<b>87- Microbiology of animal product</b>	2	2



<b>and Virology</b>	187/1	<b>88- Fish Microbiology</b>	1	2
		<b>81- Advanced immunology</b>	2	2
<b>Parasitology</b>	188/1	<b>89- Veterinary medical entomology and acarology</b>	2	2
	189/1	<b>90-helminthology</b>	2	2
	190/1	<b>91- protozoology</b>	2	2
	191/1	<b>92- Avian and rabbits parasitology</b>	2	2
	192/1	<b>93Malacology and its vet. Importance</b>	1	2
	193/1	<b>94- parasitic Immunology</b>	1	2
	194/1	<b>95- Clinical parasitology</b>	2	2
	195/1	<b>96-Wild life parasitology</b>	1	2
	196/1	<b>97-Special vet. Parasitology</b>	2	2
	197/1	<b>98- Physiology and biochemistry of parasites</b>	2	2
	198/1	<b>99- Fish parasitology</b>	1	2
<b>Pharmacology</b>	199/1	<b>100- Aeneral pharmacology ( advanced)</b>	2	2
	200/1	<b>101- pharmacology of autonomic nervous system and autocoid</b>	2	2
	201/1	<b>102- pharmacology of central nervous system</b>	2	2
	202/1	<b>103 pharmacology of anesthesia</b>	2	2
	203/1	<b>104- Systemic pharmacology</b>	2	2
	204/1	<b>105- pharmacology of metabolism</b>	2	2
	205/1	<b>106- pharmacology of hormones</b>	2	2
	206/1	<b>107-Chemotherapy</b>	2	2
	207/1	<b>108-Biological evolution of drug</b>	1	1
<b>Hygiene and control of milk and dairy products</b>	208/1	<b>108- Hygiene and control of milk and dairy products</b>	2	2
	209	<b>109- Microbiology of milk and dairy products</b>	2	2
	210/1	<b>110- Milk technology and preservation</b>	2	2
	211/1	<b>111- Food analysis</b>	2	2
	212/1	<b>112- Food poisoning</b>	1	2
	213/1	<b>113- Specific courses on sources of contamination, disturbances of milk production, milk born diseases, hygiene of table egg, edible fats and oils</b>	1	1



	214/1	<b>114- The sanitation of dairy plant</b>	2	2
<b>Control of meat hygiene and their products</b>	215/1	<b>115- Slaughter animal Hygiene</b>	1	2
	216/1	<b>116- Abattoir management and hygiene</b>	2	2
	217/1	<b>117- Hygienic control of meat and their product</b>	2	2
	218/1	<b>118 inspection of poultry meat.</b>	1	2
	219/1	<b>119- Food technology</b>	1	2
	220/1	<b>120- Microbiology of meat and fish meats and their product</b>	2	1
	221/1	<b>121- Chilled meal microbiology</b>	1	2
	222/1	<b>122- Analysis of meat and fish and their product</b>	1	2
	223/1	<b>123- Preservation of meat, poultry, fish and their products</b>	1	2
224/1	<b>124- Sanitation affairs of meat and fish plants.</b>	2	2	
<b>Internal medicine</b>	225/1	<b>125- advanced general medicine</b>	2	2
	226/1	<b>126- disease of ruminants( cattle, buffalo, camels, sheep and goats)</b>	3	3
	227/1	<b>127- diseases of equines</b>	2	2
	228/1	<b>128 diseases of pet animals</b>	2	2
	229/1	<b>129- diseases of wild animals</b>	2	2
	230/1	<b>130- diseases of metabolic disorders</b>	2	2
	231/1	<b>131- nutritional deficiency diseases</b>	2	2
	232/1	<b>132- Skin diseases</b>	1	2
	233/1	<b>133 - diseases of newly born animals</b>	2	2
234/ 1	<b>134- Stress diseases during animals transport.</b>			
<b>Forensic medicine and toxicology</b>	244/1	<b>144- Forensic medicine and veterinary procedures</b>	2	2
	245/1	<b>145- general toxicology</b>	2	2
	246/1	<b>146- environmental toxicology</b>	2	2
	247/1	<b>147- forensic toxicology</b>	2	2
	248/1	<b>148- laboratory diagnostic toxicology</b>	2	2
	249/1	<b>149- Drug toxicology</b>		



<b>Theriogenology</b>	250/1	<b>150- Female infertility (special specific courses in ruminants- equine- pet animals)</b>	2	2
	251/1	<b>151- Male infertility (special specific courses in ruminants- equine- pet animals)</b>	2	2
	252/1	<b>152- Genital diseases.</b>		
	253/1	<b>153 - obstetrics (special specific courses in farm and pet Animals)</b>	2	2
	254/1	<b>153- reproduction and immunity</b>	1	2
	255/1	<b>155- artificial insemination in ruminants</b>	2	2
	256/1	<b>156- artificial insemination in equine</b>	2	2
	257/1	<b>157- artificial insemination in pet animals</b>	1	2
	258/1	<b>158- embryo transfer</b>	1	2
<b>Veterinary Surgery</b>	259/1	<b>159- General surgery (advanced)</b>	2	2
	260/1	<b>160- Special surgery( organs)</b>	2	3
	261/1	<b>161- surgery of eye, ear, nose and larynx</b>	2	2
	262/1	<b>162 digestive system surgery</b>	2	2
	263/1	<b>163- surgery of the limbs, hoof and claws</b>	2	2
	264/1	<b>164- experimental surgery</b>	2	2
	265/1	<b>165- anesthesiology</b>	1	1
	266/1	<b>166- radiology and ultrasonography</b>	2	2
<b>Poultry and rabbit diseases</b>	267/1	<b>167- bacterial diseases of poultry</b>	2	2
	268/1	<b>168- viral diseases of poultry</b>	2	2
	269/1	<b>169- fungal diseases of poultry</b>	2	2
	270/1	<b>170 parasitic diseases of poultry</b>	1	2
	271/1	<b>171 - nutritional diseases of poultry</b>	1	2
	272/1	<b>172-diseases of rabbit (advanced)</b>	2	2
	273/1	<b>173-Diseases of wild and migrating birds</b>	2	2
	274/1	<b>174- Preventive vaccines and their evaluation in poultry</b>	2	2
	275/1	<b>175- Laboratory diagnosis of poultry diseases.</b>		
<b>Animal and environmental hygiene</b>	276/1	<b>176- farm animal hygiene ( advanced)</b>	2	2
	277/1	<b>177- poultry hygiene ( advanced)</b>	2	2
	278/1	<b>178- environmental hygiene and pollution</b>	2	2



	279/1	<b>179- control of contagious diseases</b>	2	2
	280/1	<b>180- eradication of rodents and disease vector</b>	2	2
	281/1	<b>181- insecticides and public health</b>	2	2
	282/1	<b>182-hygiene of animal enclosures- specific courses in :- cattle houses – poultry houses – rabbit houses- pet animals house3s – experimental animals houses</b>	2	2
	283/1	<b>183-disinfections and disinfectants</b>	2	2
	284/1	<b>184- veterinary epidemiology – specific courses in animal environment</b>	2	-
<b>Zoonoses</b>	285/1	<b>185- advanced zoonoses ( specific courses in bacterial and Mycotic diseases – viral diseases – parasitic diseases)</b>	2	2
	286/1	<b>186- role of rodents in transmission of zoonoses</b>	2	2
	287/1	<b>187- role of wild animals in transmission of zoonoses</b>	2	2
	288/1	<b>188- role of birds (special courses in: poultry, wild migrating or pets) in transmission of zoonoses</b>		
<b>Genetics and genetic engineering</b>	289/1	<b>189- Genetics of microorganisms .</b>	1	2
	290/1	<b>190- Genetic engineering( advanced)</b>	1	2
	291/1	<b>191- Cytological genetics</b>	1	-
	292/1	<b>192- Genetics of genuses.</b>	2	-
	293/1	<b>193- physiological genetics</b>	2	-
	294/1	<b>194- Chemical and radiological genetics.</b>	1	2
<b>Animal production</b>	295/1	<b>195- Animal breeding and improvement (advanced).</b>	2	-
	296/1	<b>196- Poultry breeding and improvement(advanced).</b>	2	-
	297/1	<b>197- Cattle and buffalo production (advanced).</b>	2	2
	298/1	<b>198- Sheep and goat production (advanced).</b>	2	2
	299/1	<b>199- Poultry production (advanced).</b>	2	2
	300	<b>200-Rabbit production (advanced).</b>	2	2





	301	<b>201-Improving by artificial insemination in poultry and rabbits.</b>	2	2
<b>Fish diseases and management</b>	302/1	<b>202- Biology of fish.</b>	2	2
	303/1	<b>203-Fish diseases (advanced)</b>	2	2
	304/1	<b>204-Fish farms.</b>	1	2
	305/1	<b>205-Fish breeding .</b>	2	2
<b>Economic and farms management</b>	306/1	<b>206- economics of animals and dairy production</b>	2	-
	307/1	<b>207- economics of poultry farms</b>	2	-
	308/1	<b>208-economics of fish farms</b>	2	-
	309/1	<b>209- feasibility studies</b>	2	-
	310/1	<b>210- farm management</b>	2	-
	311/1	<b>211- economics of beef production</b>	2	-
<b>Biostatistics</b>	312/1	<b>212- Biostatistics (advanced)</b>	2	-
	313/1	<b>213- Experimental design</b>	2	2
	314/1	<b>214- Computer and data processing</b>	2	1

### 6-Teaching and Learning Methods:

*The program features a variety of teaching approaches for different intended learning objectives including:*

- Lectures to gain knowledge and understanding skills
- Writing a review paper to gain the skills of self-learning and presentation
- Practical and lab sessions to gain practical skills
- Seminars

### 7- Students assessments:

The program depends on different assessment ways:

#### a. Course assessment:

1- Written examination	For assessment of knowledge, back calling and Intellectual skills
2- Practical examination	For assessment of practical and professional skill
3- Oral examination	For assessment of knowledge and Intellectual skills
4- Student activities	For assessment of knowledge and general and transferable skills

#### b. Master Thesis



- Annual reports adopted by the Faculty
- Finally, the assessment of thesis measure the individual student ability to work independently in the field specialization
- Final evaluation and approval by a judging committee of at least three professors including one or more of the supervisors and an external professor. This assesses the ability to write a review article, perform the needed practical steps and to present the results in tables and graphs. In addition, the skills of analysis of results and discussion with previous findings obtained by other authors are also assessed.

*Assessment of program intended learning outcomes*

Tool or method	ILOs
1- Written	a1,2,3; b1,2,3
2- Oral	a1,2,5; b2,3,4,6
3- Practical	b1,7; c1-3
4- Assignments	a1,2; b4; d1-8
5- Thesis	a4-7; b4-7, c1-5, d1-8

**8. Marking scale as follow:-**

<b>Excellent</b>	> 90	
<b>Very good</b>	>80	
<b>Good</b>	>70	
<b>Pass</b>	>60	
<b>Fail</b>	<b>Weak</b>	45 to less than 60
	<b>very weak</b>	Less than 45

**9. Program evaluation methods**

Evaluator	Tool	Sample
Postgraduate Student	Questioners	<b>20%</b>
	meeting	<b>1</b>
Postgraduate alumni	Questioners	<b>5</b>
Stakeholders (employers)	Questioners	<b>10</b>
	Meeting	<b>1</b>
External evaluator/External examiner	Reports	<b>1</b>

**10. Program Admission Requirements:**



The Applicant must normally satisfy the faculty of veterinary medicine- kafrelsheikh University general entrance and requirement. The normal minimum entrance qualification for registration at the faculty on a master's program

- 1- Bachelor degree in Veterinary Medical Sciences of one of the Egyptian Universities or hold a degree in Veterinary Medical Sciences equivalent through the Supreme Council of Universities with general grade at least "Good" and at least grade "Very Good" in specialization.
- 2- Diploma of general grade at least "Good" and at least grade "Very Good" in specialization. The total number of study hours must be not less than 3 weekly in that specialization.
- 3- After he has passed the courses studied during premaster he must perform a research work in a subject approved by the faculty council at least for one year. He must submit the results of this work in thesis that should be approved by the discussion committee.

#### **11. Regulations for progression of program**

- a) Registration period for the Master in veterinary medicine is at least 2 years after the approval date by the faculty council and it should not exceed a period of 4 years, an extension could be approved by the faculty council depending on the supervisor report that approved by the department council and postgraduate and research committee refers to the universities regulation law.
- b) The student should conduct the courses proposed by both department council and approved by postgraduate and research committee and faculty council and include, 2-5 courses of the postgraduates stated in article (28) in regulation law list and the student will entitled to apply for the exam only after meeting attendance rate for each courses.
- c) The student should pass written, practical and oral exams successfully in all courses, and the examination is held two times annually.
- d) The Faculty council should deprive the student from entering the exam if his attendance rate in the course is less than 75%.
- e) Failure or depriving from entering one or more course did not require reexamination of successful passed courses.
- f) The applicant should conduct an innovate research on the subject that has been registered for at least 2 years from the date of registration approved by the faculty council. And the faculty council depending on a request from the



supervisor has the right to authorize the student to do scientific experiments at recognized scientific institute.

- g) The applicant should submit the thesis that accepted by the judging committee in an open discussion and the following policies should be met:
- h) Pass all courses.
- i) The applicant should submit 4 copies of his thesis concerned department council to form committee examining the thesis to be presented to the postgraduate studies committee and the faculty council, and in case of thesis approval by the department council, the applicant will submit 6 copies for the faculty library, 1 copy for public university library before introducing the report of examination committee to the post graduate studies committee and the faculty council.
- j) Registration will be during March and September of each year.
- k) The applicant should submit a request enrolment for the dean who forwards bit to the concerned department council to determine the research subject and the study program and then take calendar after complete documentation on the faculty council for approval.
- l) The thesis title should be identified before being submitted at least 2 months and the judging committee has the right to amend the title without prejudice the subject of research.
- m) The Faculty council has the right to suspend the student enrolment for a certain period if he has acceptable excuse preventing him from continuing his study or research, and his period will not counted within the period stated in article 25.
- n) The applicant should submit 5 hard copies and 10 electronic copies (CDs) of the thesis after its validity approved by the judging committee and head of department to be distributed to the committee members and faculty library and the judging committee can decide the exchange of the thesis with other universities or printing at the expense of the university.

## **12. Registration will be cancelled in one of the following cases:**

1. If the supervisors report during the registration period is unsatisfactory (2 reports).
2. If he did not submit his thesis before the end of registration period.
3. If the judging committee rejected the thesis twice.



### **13. Examination Regulations**

- a-** Time of written exam, 3 hours for each course that has 3 hours or more for lecture / practical /week. **If has less than 3 hours/week, the time of exam, is 2 hours only.**
- b-**The final degree of each course which has 3 hours (lecture and practical) per week is **100 and less than 3 hours is 50 degrees and divided into 50% for written exam, and 50% for practical and oral exam.**

### **14. Program completion:**

- Successfully completion of the required courses and submission of a thesis.

**Program Coordinator**

**Prof.Dr. Magdy H. Algaabary**

**Head of Department**

**Prof. Dr. Ismail Ismail Ibrahim**



**Kafrelsheikh University**  
Faculty of Veterinary Medicine



**Kafrelsheikh University**  
**Faculty of Veterinary Medicine**  
**Department of Animal Medicine**



---

## **ARS for Master in Veterinary Medical Sciences (Infectious Diseases)**

### **1) Graduate attributes**

*The graduate should have the ability for:*

- 1) Efficient application of the basics and methodologies of scientific research and using its different tools to do his master thesis and subsequent research work and field studies.
- 2) Using the analytical protocols of animal Infectious diseases problems.
- 3) Integrating specialized knowledge with related information about animal Infectious diseases aspects and extrapolating their interrelationship.
- 4) Showing awareness about outbreaks of animal Infectious diseases and problems of diagnosis, treatment and prevention of it. As well as new theories in the field of animal Infectious diseases.
- 5) Identification of problems and difficulties in diagnosis, treatment and prevention of animal Infectious diseases and suggesting innovative solutions.
- 6) Using the diagnostic tools in the field and modern diagnostic techniques in the laboratory efficiently and able to perform wide range of treatment and control techniques.
- 7) Communicating effectively with the work team and leading it.
- 8) Taking suitable decision depending on the available data
- 9) Using the available resources to diagnosis, treatment, and control of animal Infectious diseases and save the available resources.
- 10) Awareness with his role in society development and community preservation in the light of global and regional variations through his effort of diagnosis, treatment and control of animal Infectious diseases and animal wealth save.
- 11) Dealing with public, farmers, owners and academic communities with integrity, credibility and the rules of veterinary Infectious and research.
- 12) Continuous self-learning and long life updating of knowledge and development of all aspect of animal Infectious diseases and related aspects.



### A) Knowledge and understanding

<b>Adopted ARS</b>		<b>NARS (Master)</b>	
	<i>By the end of this program the graduate should understand and accommodate the following:</i>		<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Theories and principles of animals infectious diseases and veterinary epidemiology and basic science.		Theories and principles in the field of specialization and related fields.
2)	Mutual effect between the infectious diseases occurrence and prognosis and its impact on environment.		Mutual effect between professional practice and its impact on environment
3)	Scientific progress in the animal infectious diseases causes, diagnosis, treatment and prevention and epidemiological studies.		Scientific progress in the field of specialization
4)	Legal and ethical basics in veterinary practice in the field during disease handling or research work.		Legal and ethical basics in professional practice in the field of specialization
5)	Principles and basics of quality assurance in methods of diagnosis, treatment and prevention as well as epidemiological description of animal infectious diseases.		Principles and basics of quality assurance in the area of specialization
6)	Basics and ethics of scientific research during master thesis preparation and subsequent research work.		Basics and ethics of scientific research

### B) Intellectual skills

<b>Adopted ARS</b>		<b>NARS (Master)</b>	
	<i>By the end of this program the graduate should understand and accommodate the following:</i>		<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Analysis and judgment of information about infectious diseases problems in hi locality and outside it to be able for solve analog problems facing him.		Analysis and judgment of information in the field of specialization and analog to solve problems.
2)	Using his experience and store of information for solving mystery of animal infectious problems even in scarcity of data.		Solving professional problems even in scarcity of data.
3)	Relating between the pattern of diseases		Relating between different knowledge to



	occurrence, signs of the disease and the ecological condition to control the infectious diseases or prevent its occurrence or entrance to the country.	solve professional problems.
4)	Preparing research plan in animal infectious diseases aspects and veterinary epidemiology and/ or writing scientific article on a research problem or field observation.	Preparing research plan in specialization and/ or writing scientific article on a research problem.
5)	Taking care about the zoonotic diseases, which can be transmitted to him from the field study and toxic chemical and injury during laboratory work.	Risk-assessment of professional practices in specialization.
6)	Planning for to learn and practice on new techniques and apparatus used for diagnosis or treatment of animal infectious diseases and new approaches of its prevention.	Planning for improvement of professional performance.
7)	Taking professional decisions in a variety of animal infectious diseases problems on individual and stock scale.	Taking professional decisions in a variety of professional contexts.

### C) Professional and practical skills

Adopted ARS		NARS (Master)	
	<i>By the end of this program the graduate should understand and accommodate the following:</i>		<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Mastering basic and recent professional skills of veterinary epidemiology, diagnosis, treatment and prevention and information dissemination of animal infectious diseases.		Mastering basic and recent professional skills in the field of specialization
2)	Writing and evaluating epidemiological report about different disease and case reports as well as treatment and preventive protocols.		Writing and evaluating professional reports.
3)	Evaluating existing materials and methods used for veterinary infectious diseases researches or field practice.		Evaluating existing materials and methods in the area of specialization.

### D) General and transferable skill

Adopted ARS		NARS (Master)	
	<i>By the end of this program the graduate should understand and accommodate the following:</i>		<i>By the end of this program the graduate should understand and accommodate the following:</i>





1)	Communicate effectively with his professors, collages, and animal owner(s) as well as has the ability for effective public communication.	Effective communication.
2)	Utilizing information technology to improve his skills of diagnosis, treatment and control of animal infectious diseases.	Utilizing information technology to serve development of professional practice.
3)	Set tools and indicators for assessment of his performance and determine his continues educational needs.	Self-assessment and determination of personal educational needs.
4)	Enrichment his knowledge and information about animal infectious diseases and keep updating through using of different sources of knowledge and information.	Using different resources to obtain knowledge and information.
5)	Establishing rules and indicators for assessment of the performance of others.	Establishing rules and indicators for assessment of the performance of others.
6)	Team working and leading a team in familiar professional contexts.	Team working and leading a team in familiar professional contexts.
7)	Efficient time management.	Efficient time management.
8)	Self and continuous learning.	Self and continuous learning.

## ثانيا :برامج الماجستير

### ١ - مواصفات الخريج

خريج برنامج الماجستير في أي تخصص يجب أن يكون قادرا على:

١ .إجادة تطبيق أساسيات و منهجيات البحث العلمي واستخدام أدواته المختلفة

٢ .تطبيق المنهج التحليلي واستخدامه في مجال التخصص

٣ .تطبيق المعارف المتخصصة و دمجها مع المعارف ذات العلاقة في ممارسته المهنية

٤ .إظهار وعيا بالمشاكل الجارية و الرؤى الحديثة في مجال التخصص

٥ .تحديد المشكلات المهنية و إيجاد حلول لها

٦ .إتقان نطاق مناسب من المهارات المهنية المتخصصة، واستخدام الوسائل التكنولوجية

المناسبة بما يخدم ممارسته المهنية

٧ .التواصل بفاعلية و القدرة على قيادة فرق العمل

٨ .اتخاذ القرار في سياقات مهنية مختلفة

٩ .توظيف الموارد المتاحة بما يحقق أعلي استفادة و الحفاظ عليها

١٠ . إظهار الوعي بدوره في تنمية المجتمع و الحفاظ على البيئة في ضوء المتغيرات



## العالمية و الإقليمية

- ١١ . التصرف بما يعكس الالتزام بالنزاهة و المصادقية و الالتزام بقواعد المهنة
- ١٢ . تنمية ذاته أكاديميا و مهنيا و قادرا علي التعلم المستمر

## ١٢ - المعايير القياسية العامة

### ١ المعرفة و الفهم

- بانتهاء دراسة برنامج الماجستير يجب ان يكون الخريج على فهم و دراية بكل من:
- أ - النظريات و الأساسيات المتعلقة بمجال التعلم وكذا في المجالات ذات العلاقة
  - ب - التأثير المتبادل بين الممارسة المهنية وانعكاسها علي البيئة
  - ت - التطورات العلمية في مجال التخصص
  - ث - المبادئ الأخلاقية و القانونية للممارسة المهنية في مجال التخصص
  - ج - مبادئ و أساسيات الجودة في الممارسة المهنية في مجال التخصص
  - ح - أساسيات و أخلاقيات البحث العلمي

### ٢ المهارات الذهنية

- بانتهاء دراسة برنامج الماجستير يجب ان يكون الخريج قادرا على:
- أ - تحليل و تقييم المعلومات في مجال التخصص و القياس عليها لحل المشاكل
  - ب - حل المشاكل المتخصصة مع عدم توافر بعض المعطيات
  - ت - الربط بين المعارف المختلفة لحل المشاكل المهنية
  - ث - إجراء دراسة بحثية و /أو كتابة دراسة علمية منهجية حول مشكلة بحثية
  - ج - تقييم المخاطر في الممارسات المهنية في مجال التخصص
  - ح - التخطيط لتطوير الأداء في مجال التخصص
  - خ - اتخاذ القرارات المهنية في سياقات مهنية متنوعة

### ٣ المهارات المهنية

- بانتهاء دراسة برنامج الماجستير يجب ان يكون الخريج قادرا على:
- أ - إتقان المهارات المهنية الأساسية و الحديثة في مجال التخصص
  - ب - كتابة و تقييم التقارير المهنية
  - ت - تقييم الطرق و الأدوات القائمة في مجال التخصص

### ٤ المهارات العامة و المنتقلة

- بانتهاء دراسة برنامج الماجستير يجب أن يكون الخريج قادرا على:
- أ - التواصل الفعال بأنواعه المختلفة
  - ب - استخدام تكنولوجيا المعلومات بما يخدم الممارسة المهنية



- ت -التقييم الذاتي وتحديد احتياجاته التعلمية الشخصية  
ث -استخدام المصادر المختلفة للحصول على المعلومات و المعارف  
ج -وضع قواعد ومؤشرات تقييم أداء الآخرين  
ح -العمل في فريق ، وقيادة فرق في سياقات مهنية مختلفة  
خ -إدارة الوقت بكفاءة  
د -التعلم الذاتي و المستمر



## Matching program ILOs with ARS - Matrix

Program ILOs	ARS																							
	K&U (a)						I.S. (b)							P.P. (c)			G.T. (d)							
	1	2	3	4	5	6	1	2	3	4	5	6	7	1	2	3	1	2	3	4	5	6	7	8
<b>K&amp;U</b>	1	2	3	4	5	6																		
<b>I.S.</b>							1	2	3	4	5	6	7											
<b>P.P.</b>														1	2	3								
<b>G.T.</b>																	1	2	3	4	5	6	7	8



## Program Specification Matrix

### Master in Veterinary Medicine (Animal Production)

Courses		Total Contact hours/ course	No. of hours / week			KU (a)						IS (b)							PPS (c)			GTS (d)								
						Lect.	Lab.	Total	1	2	3	4	5	6	1	2	3	4	5	6	7	1	2	3	1	2	3	4	5	6
-	Fundamental (Basic) course	308	3	4	7	x	x	x				x	x	x						x			x	x	x	x				
-	Research methodology	176	1	3	4			x	x	x			x	x	x						x			x	x	x				
	Elective courses	10-12 hours/ week				x						x								x			x	x	x					
<b>Thesis</b>								x	x	x				x	x	x	x			x		x	x	x	x	x	x	x	x	

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.





## COURSE SPECIFICATION

(2021 / 2022)

### 1 - Basic Information:

Code number: .....

Course title: **Basic Infectious Diseases**

Academic Year: **Master of Veterinary Medicine Program**

Total teaching hours: 336 h

Lectures: 144 hrs. (48 weeks- 3hrs/week)

Practical: 192 hrs. (48 weeks- 4hrs/week)

### 2. AIM OF THE COURSE:

To provide students with knowledge and skills concerning bacterial, viral, parasitic, mycotic and prion caused diseases that affect different animal species (cattle, buffalo, sheep, goat, camels, dog, cat and newly born calves).

### 3. INTENDED LEARNING OUTCOMES (I. L. Os.):

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

#### **3-A: KNOWLEDGE and UNDERSTANDING:**

- a1-Determine the most common infectious diseases affecting different animal species including camels, cattle, buffaloes, sheep, goats, horses and neonates and identification of the appropriate diagnostic tools and prognosis.
- a2-Describe the causes, pathogenesis, clinical symptoms, postmortem and the epidemiological features of bacterial and viral infectious disease affecting different animal species including camels, cattle, buffaloes, sheep, goats, horses and neonates.
- a3- Outline the causes, life cycle and pathogenesis, clinical symptoms, postmortem and the epidemiological features of parasitic infectious disease affecting different animal species including camels, cattle, buffaloes, sheep, goats, horses and neonates.
- a4- Illustrate the causes, clinical symptoms, and the epidemiological features of mycotic infectious disease affecting different animal species including camels, cattle, buffaloes, sheep, goats, horses and neonates.
- a5- Memorize the treatment for each infectious disease.
- a6- Define and mention the methods of prevention and control of such infection on individual animal and farm levels and Illustrate the impact of the infectious diseases on the animal, public health and community.



a7-Identify the indications, contraindications, administration and precautions of the immunizations necessary for animals according to the national schedule and the epidemiology of the disease.

### **3-B: INTELLECTUAL SKILLS:**

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

b1-Interpret the most important symptoms and signs of infectious diseases in all animal species.

b2-Formulate appropriate management plans for sick animals presenting with the most common infectious diseases. The management plan should indicate investigations (and how they would be interpreted) as well as treatment in addition to prophylaxis and control measures.

b3- Make decisions regarding common clinical situations using appropriate problem solving skills and relevant ethical principles.

b4-Interpret different laboratory tests, covering the most important infectious diseases.

### **3-C: Practical and professional skills:**

c1- Perform appropriate clinical assessments for animals and take a proper history for patient owners.

c2- Carry out bacteriological examination for suspected bacterial infectious diseases

c3- Construct a diagnostic protocol for parasitic infectious diseases according to the type of suspected parasitic causative agent.

c4- Identify the appropriate cultural diagnostic tools for infectious viral diseases and electron microscopy.

c5- carry out the mycological examination for suspected mycotic infectious diseases in different animal species.

c6-Perform the different molecular and serological diagnostic methods to reach the correct diagnosis and differential diagnosis.

c7-Assess, classify and describe appropriate treatment for affected animals according to the principles of the Integrated Management.

c8- Apply control and prophylactic measures to avoid disease occurrence in healthy ones in different animal species. Recognize and institute appropriate initial management for different animal emergencies.

### **3-D: GENERAL SKILLS & ATTITUDE:**

d1- Coach and work in group.

d2-Classify different duties.





d3-Utilize computer and internet skills..

d4-Develop the ethical behavior between students and staff members as well as among the students themselves.

#### 4. COURSE CONTENTS:

Topic	No. of hours		
	Lectures	Practical	Total
Epidemiology, diagnosis and control of Bacterial, Infectious diseases of cattle, buffaloes, neonates camels, Horses, Sheep and goats	63	82	145
Epidemiology, diagnosis and control of mycotic, Infectious diseases of cattle, buffaloes, neonates camels, Horses, Sheep and goats	9	15	24
Epidemiology, diagnosis and control of Viral, Infectious diseases of cattle, buffaloes, neonates camels, Horses, Sheep and goats	39	60	99
Epidemiology, diagnosis and control of parasitic Infectious diseases of cattle, buffaloes, neonates camels, Horses, Sheep and goats	33	35	68
Total	144	192	336

#### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library Making individual reports about infectious diseases

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1-a7	b1-b4	-	d1-d4
Practical sessions	-	b1-b4	c1-c8	d1-d4
Self-Learning activities		b1-b4		d1- d2
Distance Teaching and Learning	a1 to a7	b1 to b4	c1 to c8	d1 to d4



\*Lectures and some practical topics may be offered face to face or via distance teaching and learning.

## 6- METHODS FOR DISABLED STUDENTS:

- Discussions with them during practical sessions and lectures
- Giving them advice whenever needed

## 7-student assessment:

<b>7.a: Used method</b>	<b>Written examination</b>	<b>Oral examination</b>	<b>Practical examination</b>
<b>7.b: Time</b>	<b>At the end of the year</b>	<b>At the end of the year</b>	<b>At the end of the year</b>
<b>7.c: Grads</b>	<b>50</b>	<b>25</b>	<b>25</b>

7.2. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a7	b1 to b4		
Practical exams			c1 to c8	
Oral exams	a1 to a5	b1 to b4		D4
Student activities				d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS

### 8-1: Essential books:

- Radostits, O.M.; Gay, C.C.; Hinchcliff, K.W.; Constable, P.D. Veterinary Medicine: A Textbook of the Diseases of Cattle, Horses, Sheep, Pigs and Goats, 10th ed.; Saunders: Madrid, Spain, 2007; pp. 552–557.
- Radostits, Otto M. 2000. The Merck Veterinary Manual, 8th Edition. The Canadian Veterinary Journal 41(4), p. 334. Disponible en: [https:// goo.gl/3dv2Ys](https://goo.gl/3dv2Ys)
  - Hungerford TG: Diseases of Livestock. 1990, Sydney: MacGraw-Hill Medical.
- Kusiluka L, Kambarage D .Diseases of small ruminants, a handbook. Common diseases of sheep and goats in Sub-Saharan Africa. VETAID, Centre for Tropical Veterinary Medicine, Easter Bush, Roslin, Midlothian EH25 9RG, Scotland; 2006.



- Reed SM, Bayly WM, Sellon DC: Equine Internal Medicine. 2004, Louis: Saunders, 1
- Fowler ME. Medicine and Surgery of Camelids. Third Ed, Wiley-Blackwell, 2010.

### **8-2: Recommended books:**

- Thrusfield, M., 2007. Veterinary epidemiology. Wiley-Blackwell.
- Rose, R.J., Hodgson, D.R., 1993. Manual of equine practice. W.B. Saunders, Edinburgh, UK
- Zajac AM, Conboy GA (2006) Veterinary clinical parasitology, 7th edn. Wiley-Blackwell, Iowa, USA.
- Kumar, Y , 2018 Antimicrobial Resistance—A Global Threat; Kumar, Y., Ed.; IntechOpen: London, UK.
- Sykes JE. *Canine and Feline Infectious Diseases*. 1st ed. St Louis, MO: Elsevier; 2014. pp. 141–151
- Greene CE, editor. *Infectious Diseases of the Dog and Cat*. 4th ed. St Louis, MO: Elsevier Saunders; 2012. pp. 80–91.
- Hernandez SM, Barron HW, Miller EA, Aguilar RF, Yabsley MJ. Medical management of wildlife species: a guide for practitioners. Hoboken, NJ: Wiley; 2019.
- Hrapkiewicz K, Medina L. Clinical laboratory animal medicine: an introduction. 3rd ed. Ames, IA, Oxford: Blackwell; 2007

### **8-3 Egyptian Knowledge Bank:**

- Guerrant RL, Walker DH, Weller PF. , Tropical infectious diseases: principles, pathogens, and practice, 2006 Philadelphia, PA Saunders Elsevier
- Constable, P.D.; Hinchcliff, K.W.; Done, S.H.; Grünberg, W. Veterinary Medicine: A Textbook of the Diseases of Cattle, Horses, Sheep, Pigs, and Goats, 11th ed.; Elsevier Ltd.: Amsterdam, The Netherlands, 2017; p. 2356, ISBN 2978-2350-7020-7057-2350.
- Zajac and Conboy, 2007 A.M. Zajac, G.A. Conboy Veterinary Clinical Parasitology (7th ed.), Blackwell Publishing, Ames, IA(2007) p.. 305

### **8-4. Scientific Journals**

- Tropical Animal Health and Production.
- Journal of Animals.
- Journal of infection in developing countries.



- Camel Practice.
- Small ruminant research
- Transboundary and emerging diseases
- Journal of dairy sciences
- Veterinary research communication
- Acta tropica.
- Veterinary Research

#### **8-5. Scientific websites**

- The Egyptian Knowledge Bank: <https://www.ekb.eg/web/guest/home>
- <https://www.oie.int/en/home/>
- <https://www.fao.org/home/en>
- <https://www.cdc.gov/globalhealth/resources/factsheets/index.html>

**Course Coordinator**

**Head of Department**

**Prof.Dr. Magdy H. Algaabary**

**Prof. Dr. Ismail Ibrahim**





## COURSE SPECIFICATION

(2021 / 2022)

### 1 - Basic Information:

Code number: 235/1

Course title: **Infectious Diseases of cattle**

Academic Year: **Master of Veterinary Medicine Program**

Total teaching hours: 240 h

Lectures: 96 hrs. (48 weeks- 2hrs/week)

Practical: 144 hrs. (48 weeks- 3hrs/week)

### 2. AIM OF THE COURSE:

To provide students with professional knowledge and skills concerning bacterial, viral, parasitic, mycotic and prion caused diseases that affect cattle

### 3. INTENDED LEARNING OUTCOMES (I. L. Os.):

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

#### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

##### 3-A: KNOWLEDGE and UNDERSTANDING:

**By the end of this course, the graduate should be able to:**

- a1- Determine the most common infectious diseases affecting cattle and identification of the appropriate diagnostic tools and prognosis.
- a2- Describe the causes, pathogenesis, clinical symptoms, postmortem and the epidemiological features of bacterial and viral infectious disease affecting cattle.
- a3- Study the causes, life cycle and pathogenesis, clinical symptoms, postmortem and the epidemiological features of parasitic infectious disease affecting cattle.
- a4- Illustrate the causes, clinical symptoms, and the epidemiological features of mycotic infectious disease affecting cattle.
- a5- Study the treatment for bacterial, parasitic and mycotic infectious diseases of cattle .
- a6- Define and mention the methods of prevention and control of such infection on individual animal and farm levels and Illustrate the impact of the infectious diseases on the animal, public health and community.
- a7- Identify the indications, contraindications, administration and precautions of the immunizations necessary for cattle according to the national schedule and the epidemiology of the disease.



### **3-B: INTELLECTUAL SKILLS:**

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

- b1-Interpret the most important symptoms and signs of infectious diseases of cattle.
- b2-Formulate appropriate management plans for sick animals presenting with the most common infectious diseases. The management plan should indicate investigations (and how they would be interpreted) as well as treatment in addition to prophylaxis and control measures.
- b3-Make decisions regarding common clinical situations using appropriate problem solving skills and relevant ethical principles.
- b4- Analyze and interpret different laboratory tests, covering the most important infectious diseases of cattle.

### **3- C: PRACTICAL AND PROFESSIONAL SKILLS:**

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

- c1-Perform clinical examination and proper sampling from diseased cattle.
- c2-Perform basic laboratory skills for diagnosis, prevention, treatment and control of cattle bacterial and parasitic infectious diseases.
- c3-Apply essential laboratory skills for diagnosis, prevention and control of cattle viral infectious diseases.
- c4- Carry out the mycological examination for suspected mycotic infectious diseases in cattle and apply the appropriate treatment and control.

### **3- D: GENERAL SKILLS:**

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

- d1-Coach and work in group.
- d2- Classify different duties.
- d3-Utilize computer and internet skills..
- d4-Develop the ethical behaviors between students and staff members as well as among the students themselves.

## **4. COURSE CONTENTS:**

Topic	No. of hours		
	Lectures	Practical	Total
Epidemiology, diagnosis and control of Bacterial, Infectious diseases of cattle.	38	60	98



Topic	No. of hours		
	Lectures	Practical	Total
Epidemiology, diagnosis and control of mycotic, Infectious diseases of cattle.	3	9	12
Epidemiology, diagnosis and control of Viral, Infectious diseases of cattle.	34	45	79
Epidemiology, diagnosis and control of parasitic Infectious diseases of cattle.	21	30	51
Total	96	144	240

### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library

Making individual reports about infectious diseases

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1-a7	b1-b4	-	d1-d4
Practical sessions	-	b1-b4	c1-c4	d1-d4
Self-Learning activities		b1-b4		d1- d2
Distance Teaching and Learning	a1 to a7	b1 to b4	c1 to c4	d1 to d4

\*Lectures and some practical topics may be offered face to face or via distance teaching and learning.

### 6- METHODS FOR DISABLED STUDENTS:

- Discussions with them during practical sessions and lectures
- Giving them advice whenever needed

### 7-student assessment:

7.a: Used method	Written examination	Oral examination	Practical examination
7.b: Time	At the end of the year	At the end of the year	At the end of the year
7.c: Grads	50	25	25





7.2. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a7	b1 to b4		
Practical exams			c1 to c4	
Oral exams	a1 to a5	b1 to b4		D4
Student activities				d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS

### 8-1: Essential books:

- Radostits, O.M.; Gay, C.C.; Hinchcliff, K.W.; Constable, P.D. Veterinary Medicine: A Textbook of the Diseases of Cattle, Horses, Sheep, Pigs and Goats, 10th ed.; Saunders: Madrid, Spain, 2007; pp. 552–557.
- Radostits, Otto M. 2000. The Merck Veterinary Manual, 8th Edition. The Canadian Veterinary Journal 41(4), p. 334. Disponible en: [https:// goo.gl/3dv2Ys](https://goo.gl/3dv2Ys)
  - Hungerford TG: Diseases of Livestock. 1990, Sydney: MacGraw-Hill Medical.
- Kusiluka L, Kambarage D .Diseases of small ruminants, a handbook. Common diseases of sheep and goats in Sub-Saharan Africa. VETAID, Centre for Tropical Veterinary Medicine, Easter Bush, Roslin, Midlothian EH25 9RG, Scotland; 2006.
  - Reed SM, Bayly WM, Sellon DC: Equine Internal Medicine. 2004, Louis: Saunders, 1
  - Fowler ME. Medicine and Surgery of Camelids. Third Ed, Wiley-Blackwell, 2010.

### 8-2: Recommended books:

- Thrusfield, M., 2007. Veterinary epidemiology. Wiley-Blackwell.
- Rose, R.J., Hodgson, D.R., 1993. Manual of equine practice. W.B. Saunders, Edinburgh, UK
- Zajac AM, Conboy GA (2006) Veterinary clinical parasitology, 7th edn. Wiley-Blackwell, Iowa, USA.
- Kumar, Y , 2018 Antimicrobial Resistance—A Global Threat; Kumar, Y., Ed.; IntechOpen: London, UK.
- Sykes JE. *Canine and Feline Infectious Diseases*. 1st ed. St Louis, MO: Elsevier; 2014. pp. 141–151



- Greene CE, editor. *Infectious Diseases of the Dog and Cat*. 4th ed. St Louis, MO: Elsevier Saunders; 2012. pp. 80–91.
- Hernandez SM, Barron HW, Miller EA, Aguilar RF, Yabsley MJ. *Medical management of wildlife species: a guide for practitioners*. Hoboken, NJ: Wiley; 2019.
- Hrapkiewicz K, Medina L. *Clinical laboratory animal medicine: an introduction*. 3rd ed. Ames, IA, Oxford: Blackwell; 2007

### **8-3 Egyptian Knowledge Bank:**

- Guerrant RL, Walker DH, Weller PF. , *Tropical infectious diseases: principles, pathogens, and practice*, 2006 Philadelphia, PA Saunders Elsevie
- Constable, P.D.; Hinchcliff, K.W.; Done, S.H.; Grünberg, W. *Veterinary Medicine: A Textbook of the Diseases of Cattle, Horses, Sheep, Pigs, and Goats*, 11th ed.; Elsevier Ltd.: Amsterdam, The Netherlands, 2017; p. 2356, ISBN 2978-2350-7020-7057-2350.
- Zajac and Conboy, 2007 A.M. Zajac, G.A. Conboy *Veterinary Clinical Parasitology* (7th ed.), Blackwell Publishing, Ames, IA(2007) p.. 305

### **8-4. Scientific Journals**

- Tropical Animal Health and Production.
- Journal of Animals.
- Journal of infection in developing countries.
- Camel Practice.
- Small ruminant research
- Transboundary and emerging diseases
- Journal of dairy sciences
- Veterinary rechearch communication
- Acta tropica.
- Veterinary Reseach

### **8-5. Scientific websites**

- The Egyptian Knowledge Bank: <https://www.ekb.eg/web/guest/home>
- <https://www.oie.int/en/home/>
- <https://www.fao.org/home/en>
- <https://www.cdc.gov/globalhealth/resources/factsheets/index.html>

**Course Coordinator**

**Head of Department**

**Prof.Dr. Magdy H. Algaabary**

**Prof. Dr. Ismail Ibrahim**



**Course Matrix for achievement of Intended Learning Outcomes**

	Topics	Hours	Knowledge & Understanding							Intellectual Skills				Practical & Professional Skills				General & Transferable Skills			
			1	2	3	4	5	6	7	1	2	3	4	1	2	3	4	1	2	3	4
1	Epidemiology, diagnosis and control of Bacterial, Infectious diseases of cattle.	98	X	X			X	X	X	X	X	X	X	X	X			X	X	X	X
2	Epidemiology, diagnosis and control of mycotic, Infectious diseases of cattle.	12	X			X	X	X		X	X	X	X	X			X	X	X	X	X
3	Epidemiology, diagnosis and control of Viral, Infectious diseases of cattle.	79	X	X				X	X	X	X	X	X		X		X	X	X	X	X
4	Epidemiology, diagnosis and control of parasitic Infectious diseases of cattle.	51	X		X		X	X		X	X	X	X	X	X			X	X	X	X



## COURSE SPECIFICATION

(2021 / 2022)

### 1 - Basic Information:

Code number: 236/1

Course title: **Infectious Diseases of cattle**

Academic Year: **Master of Veterinary Medicine Program**

Total teaching hours: 192 h

Lectures: 96 hrs. (48 weeks- 2hrs/week)

Practical: 96 hrs. (48 weeks- 2hrs/week)

### 2. AIM OF THE COURSE:

To provide students with professional knowledge and skills concerning bacterial, viral, parasitic, mycotic and prion caused diseases that affect sheep and goats

### 3. INTENDED LEARNING OUTCOMES (I. L. Os.):

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

#### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

##### 3-A: KNOWLEDGE and UNDERSTANDING:

**By the end of this course, the graduate should be able to:**

- a1-Determine the most common infectious diseases affecting sheep and goats and identification of the appropriate diagnostic tools and prognosis.
- a2-Describe the causes, pathogenesis, clinical symptoms, postmortem and the epidemiological features of bacterial and viral infectious disease affecting sheep and goats.
- a3-Study the causes, life cycle and pathogenesis, clinical symptoms, postmortem and the epidemiological features of parasitic infectious disease affecting sheep and goats.
- a4- illustrate the causes, clinical symptoms, and the epidemiological features of mycotic infectious disease affecting sheep and goats.
- a5-Study the treatment for bacterial, parasitic and mycotic infectious diseases of sheep and goats.
- a6- Define and mention the methods of prevention and control of such infection on individual animal and farm levels and Illustrate the impact of the infectious diseases on the animal, public health and community.
- a7-Identify the indications, contraindications, administration and precautions of the immunizations necessary for sheep and goats according to the national schedule and the epidemiology of the disease.



### **3-B: INTELLECTUAL SKILLS:**

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

- b1-Interpret the most important symptoms and signs of infectious diseases of sheep and goats.
- b2-Formulate appropriate management plans for sick animals presenting with the most common infectious diseases. The management plan should indicate investigations (and how they would be interpreted) as well as treatment in addition to prophylaxis and control measures.
- b3- Make decisions regarding common clinical situations using appropriate problem solving skills and relevant ethical principles.
- b4- Analyze and interpret different laboratory tests, covering the most important infectious diseases of sheep and goats.

### **3- C: PRACTICAL AND PROFESSIONAL SKILLS:**

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

- c1-Perform clinical examination and proper sampling from diseased sheep and goats.
- c2-Performe basic laboratory skills for diagnosis, prevention, treatment and control of sheep and goats bacterial and mycotic infectious diseases.
- c3-Apply essential laboratory skills for diagnosis, prevention and control of sheep and goats viral infectious diseases.
- c4- Carry out the parasitological examination for suspected parasitic infectious diseases in sheep and goats and apply the appropriate treatment and control.

### **3- D: GENERAL SKILLS:**

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

- d1-Coach and work in group.
- d2-Classify different duties.
- d3-Utilize computer and internet skills..
- d4-Develop the ethical behaviors between students and staff members as well as among the students themselves.

## **4. COURSE CONTENTS:**

Topic	No. of hours		
	Lectures	Practical	Total
Epidemiology, diagnosis and control of Bacterial, Infectious diseases of sheep and goats.	38	38	76
Epidemiology, diagnosis and control of mycotic,	3	3	6



Topic	No. of hours		
	Lectures	Practical	Total
Infectious diseases of sheep and goats.			
Epidemiology, diagnosis and control of Viral, Infectious diseases of sheep and goats.	34	34	68
Epidemiology, diagnosis and control of parasitic Infectious diseases of sheep and goats.	21	21	42
Total	96	96	192

### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library

Making individual reports about infectious diseases

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1-a7	b1-b4	-	d1-d4
Practical sessions	-	b1-b4	c1-c4	d1-d4
Self-Learning activities		b1-b4		d1- d2
Distance Teaching and Learning	a1 to a7	b1 to b4	c1 to c4	d1 to d4

\*Lectures and some practical topics may be offered face to face or via distance teaching and learning.

### 6- METHODS FOR DISABLED STUDENTS:

- Discussions with them during practical sessions and lectures
- Giving them advice whenever needed

### 7-student assessment:

7.a: Used method	Written examination	Oral examination	Practical examination
7.b: Time	At the end of	At the end of	At the end of



	the year	the year	the year
7.c: Grads	50	25	25

7.2. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a7	b1 to b4		
Practical exams			c1 to c4	
Oral exams	a1 to a5	b1 to b4		d4
Student activities				d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS

### 8-1: BASIC MATERIALS:

- **Text books:** available for students in the faculty library. Such as and veterinary medicine 2008.
- Overhead and slide projectors and data show presentations used during teaching.

### 8-2: SUGGESTED MATERIALS:

- Different websites containing topics and presentations in veterinary infectious diseases
- Veterinary Medicine: A textbook of the diseases of cattle, horses, sheep, pigs and goats, 10e (Radostits, Veterinary Medicine)
- Hungerford's Diseases of Livestock
  - The Merck Veterinary Manual
  - Diseases of small ruminants: a hand book

#### Scientific Journals

- Tropical Animal Health and Production.
- Journal of Animals.
- Journal of infection in developing countries.
- Small ruminant research
- Transboundary and emerging diseases
- Journal of dairy sciences
- Veterinary rechearch communication
- Acta tropica.
- Veterinary Reseach

#### Scientific websites



**Kafrelsheikh University**  
Faculty of Veterinary Medicine



- 
- The Egyptian Knowledge Bank: <https://www.ekb.eg/web/guest/home>
  - <https://www.oie.int/en/home/>
  - <https://www.fao.org/home/en>
  - <https://www.cdc.gov/globalhealth/resources/factsheets/index.html>

**Course Coordinator**

**Head of Department**

**Prof.Dr. Magdy H. Algaabary**

**Prof. Dr. Ismail Ibrahim**





Course Matrix for achievement of Intended Learning Outcomes

	Topics	Hours	Knowledge & Understanding							Intellectual Skills				Practical & Professional Skills				General & Transferable Skills			
			1	2	3	4	5	6	7	1	2	3	4	1	2	3	4	1	2	3	4
1	Epidemiology, diagnosis and control of Bacterial, Infectious diseases of sheep and goats.	98	X	X			X	X	X	X	X	X	X	X	X			X	X	X	X
2	Epidemiology, diagnosis and control of mycotic, Infectious diseases of sheep and goats.	12	X			X	X	X		X	X	X	X	X	X			X	X	X	X
3	Epidemiology, diagnosis and control of Viral, Infectious diseases of sheep and goats.	79	X	X				X	X	X	X	X	X		X			X	X	X	X
4	Epidemiology, diagnosis and control of parasitic Infectious diseases of sheep and goats.	51	X		X		X	X		X	X	X	X	X			X	X	X	X	X



## COURSE SPECIFICATION

(2021 / 2022)

### 1 - Basic Information:

Code number: 237/1

Course title: **Infectious Diseases of Camels**

Academic Year: **Master of Veterinary Medicine Program**

Total teaching hours: 192 h

Lectures: 96 hrs. (48 weeks- 2hrs/week)

Practical: 96 hrs. (48 weeks- 2hrs/week)

### 2. AIM OF THE COURSE:

To provide students with professional knowledge and skills concerning bacterial, viral, parasitic, mycotic and prion caused diseases that affect camels

### 3. INTENDED LEARNING OUTCOMES (I. L. Os.):

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

#### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

##### 3-A: KNOWLEDGE and UNDERSTANDING:

**By the end of this course, the graduate should be able to:**

a1-Determine the most common infectious diseases affecting camel and identification of the appropriate diagnostic tools and prognosis.

a2-Describe the causes, pathogenesis, clinical symptoms, postmortem and the epidemiological features of bacterial and viral infectious disease affecting camel.

a3-Study the causes, life cycle and pathogenesis, clinical symptoms, postmortem and the epidemiological features of parasitic infectious disease affecting camel.

a4- illustrate the causes, clinical symptoms, and the epidemiological features of mycotic infectious disease affecting camel.

a5-Study the treatment for bacterial, parasitic and mycotic infectious diseases of camel.

a6- Define and mention the methods of prevention and control of such infection on individual animal and farm levels and Illustrate the impact of the infectious diseases on the animal, public health and community.

a7-Identify the indications, contraindications, administration and precautions of the immunizations necessary for camel according to the national schedule and the epidemiology of the disease.

##### 3-B: INTELLECTUAL SKILLS:



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

- b1-Interpret the most important symptoms and signs of infectious diseases of camel.
- b2-Formulate appropriate management plans for sick animals presenting with the most common infectious diseases. The management plan should indicate investigations (and how they would be interpreted) as well as treatment in addition to prophylaxis and control measures.
- b3-Make decisions regarding common clinical situations using appropriate problem solving skills and relevant ethical principles.
- b4- Analyze and interpret different laboratory tests, covering the most important infectious diseases of camel.

**3- C: PRACTICAL AND PROFESSIONAL SKILLS:**

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

- c1-Perform clinical examination and proper sampling from diseased camel.
- c2-Performe basic laboratory skills for diagnosis, prevention, treatment and control of camel bacterial and mycotic infectious diseases.
- c3-Apply essential laboratory skills for diagnosis, prevention and control of camel viral infectious diseases.
- c4- Carry out the parasitological examination for suspected parasitic infectious diseases in camel and apply the appropriate treatment and control.

**3- D: GENERAL SKILLS:**

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

- b1-Coach and work in group.
- b2-Classify different duties.
- b3-Utilize computer and internet skills..
- b4-Develop the ethical behaviors between students and staff members as well as among the students themselves.

**4. COURSE CONTENTS:**

Topic	No. of hours		
	Lectures	Practical	Total
Epidemiology, diagnosis and control of Bacterial, Infectious diseases of camel.	38	38	76
Epidemiology, diagnosis and control of mycotic, Infectious diseases of camel.	3	3	6



Topic	No. of hours		
	Lectures	Practical	Total
Epidemiology, diagnosis and control of Viral, Infectious diseases of camel.	34	34	68
Epidemiology, diagnosis and control of parasitic Infectious diseases of camel.	21	21	42
Total	96	96	192

### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library

Making individual reports about infectious diseases

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1-a7	b1-b4	-	d1-d4
Practical sessions	-	b1-b4	c1-c4	d1-d4
Self-Learning activities		b1-b4		d1- d2
Distance Teaching and Learning	a1 to a7	b1 to b4	c1 to c4	d1 to d4

\*Lectures and some practical topics may be offered face to face or via distance teaching and learning.

### 6- METHODS FOR DISABLED STUDENTS:

- Discussions with them during practical sessions and lectures
- Giving them advice whenever needed

### 7-student assessment:

7.a: Used method	Written examination	Oral examination	Practical examination
7.b: Time	At the end of	At the end of	At the end of



	the year	the year	the year
<b>7.c: Grads</b>	<b>50</b>	<b>25</b>	<b>25</b>

7.2. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a7	b1 to b4		
Practical exams			c1 to c4	
Oral exams	a1 to a5	b1 to b4		d4
Student activities				d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS

### 8-1: Essential books:

- Radostits, O.M.; Gay, C.C.; Hinchcliff, K.W.; Constable, P.D. *Veterinary Medicine: A Textbook of the Diseases of Cattle, Horses, Sheep, Pigs and Goats*, 10th ed.; Saunders: Madrid, Spain, 2007; pp. 552–557.
- Radostits, Otto M. 2000. *The Merck Veterinary Manual*, 8th Edition. *The Canadian Veterinary Journal* 41(4), p. 334. Disponible en: [https:// goo.gl/3dv2Ys](https://goo.gl/3dv2Ys)
  - Hungerford TG: *Diseases of Livestock*. 1990, Sydney: MacGraw-Hill Medical.
  - Kusiluka L, Kambarage D .*Diseases of small ruminants, a handbook. Common diseases of sheep and goats in Sub-Saharan Africa*. VETAID, Centre for Tropical Veterinary Medicine, Easter Bush, Roslin, Midlothian EH25 9RG, Scotland; 2006.
    - Reed SM, Bayly WM, Sellon DC: *Equine Internal Medicine*. 2004, Louis: Saunders, 1
    - Fowler ME. *Medicine and Surgery of Camelids*. Third Ed, Wiley-Blackwell, 2010.

### 8-2: Recommended books:

- Thrusfield, M., 2007. *Veterinary epidemiology*. Wiley-Blackwell.
- Rose, R.J., Hodgson, D.R., 1993. *Manual of equine practice*. W.B. Saunders, Edinburgh, UK
- Zajac AM, Conboy GA (2006) *Veterinary clinical parasitology*, 7th edn. Wiley-Blackwell, Iowa, USA.
- Kumar, Y , 2018 *Antimicrobial Resistance—A Global Threat*; Kumar, Y., Ed.; IntechOpen: London, UK.
- Sykes JE. *Canine and Feline Infectious Diseases*. 1st ed. St Louis, MO: Elsevier; 2014. pp. 141–151
- Greene CE, editor. *Infectious Diseases of the Dog and Cat*. 4th ed. St Louis, MO: Elsevier Saunders; 2012. pp. 80–91.



- Hernandez SM, Barron HW, Miller EA, Aguilar RF, Yabsley MJ. Medical management of wildlife species: a guide for practitioners. Hoboken, NJ: Wiley; 2019.
- Hrapkiewicz K, Medina L. Clinical laboratory animal medicine: an introduction. 3rd ed. Ames, IA, Oxford: Blackwell; 2007

### **8-3 Egyptian Knowledge Bank:**

- Guerrant RL, Walker DH, Weller PF. , Tropical infectious diseases: principles, pathogens, and practice, 2006 Philadelphia, PA Saunders Elsevier
- Constable, P.D.; Hinchcliff, K.W.; Done, S.H.; Grünberg, W. Veterinary Medicine: A Textbook of the Diseases of Cattle, Horses, Sheep, Pigs, and Goats, 11th ed.; Elsevier Ltd.: Amsterdam, The Netherlands, 2017; p. 2356, ISBN 2978-2350-7020-7057-2350.
- Zajac and Conboy, 2007 A.M. Zajac, G.A. Conboy Veterinary Clinical Parasitology (7th ed.), Blackwell Publishing, Ames, IA(2007) p.. 305

### **8-4. Scientific Journals**

- Tropical Animal Health and Production.
- Journal of Animals.
- Journal of infection in developing countries.
- Camel Practice.
- Small ruminant research
- Transboundary and emerging diseases
- Journal of dairy sciences
- Veterinary research communication
- Acta tropica.
- Veterinary Research

### **8-5. Scientific websites**

- The Egyptian Knowledge Bank: <https://www.ekb.eg/web/guest/home>
- <https://www.oie.int/en/home/>
- <https://www.fao.org/home/en>
- <https://www.cdc.gov/globalhealth/resources/factsheets/index.html>

**Course Coordinator**

**Head of Department**

**Prof.Dr. Magdy H. Algaabary**

**Prof. Dr. Ismail Ibrahim**



Course Matrix for achievement of Intended Learning Outcomes

	Topics	Hours	Knowledge & Understanding							Intellectual Skills				Practical & Professional Skills				General & Transferable Skills			
			1	2	3	4	5	6	7	1	2	3	4	1	2	3	4	1	2	3	4
1	Epidemiology, diagnosis and control of Bacterial, Infectious diseases of camels.	98	X	X			X	X	X	X	X	X	X	X	X			X	X	X	X
2	Epidemiology, diagnosis and control of mycotic, Infectious diseases of camels.	12	X			X	X	X		X	X	X	X	X	X			X	X	X	X
3	Epidemiology, diagnosis and control of Viral, Infectious diseases of camels.	79	X	X				X	X	X	X	X	X		X		X	X	X	X	X
4	Epidemiology, diagnosis and control of parasitic Infectious diseases of camels.	51	X		X		X	X		X	X	X	X	X			X	X	X	X	X



## COURSE SPECIFICATION

(2021 / 2022)

### 1 - Basic Information:

Code number: 238/1

Course title: **Infectious Diseases of Equine**

Academic Year: **Master of Veterinary Medicine Program**

Total teaching hours: 192 h

Lectures: 96 hrs. (48 weeks- 2hrs/week)

Practical: 96 hrs. (48 weeks- 2hrs/week)

### 2. AIM OF THE COURSE:

To provide students with professional knowledge and skills concerning bacterial, viral, parasitic, mycotic and prion caused diseases that affect equine

### 3. INTENDED LEARNING OUTCOMES (I. L. Os.):

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

#### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

##### 3-A: KNOWLEDGE and UNDERSTANDING:

**By the end of this course, the graduate should be able to:**

a1-Determine the most common infectious diseases affecting equine and identification of the appropriate diagnostic tools and prognosis.

a2-Describe the causes, pathogenesis, clinical symptoms, postmortem and the epidemiological features of bacterial and viral infectious disease affecting equine.

a3-Study the causes, life cycle and pathogenesis, clinical symptoms, postmortem and the epidemiological features of parasitic infectious disease affecting equine.

a4- illustrate the causes, clinical symptoms, and the epidemiological features of mycotic infectious disease affecting equine.

a5-Study the treatment for bacterial, parasitic and mycotic infectious diseases of equine.

a6- Define and mention the methods of prevention and control of such infection on individual animal and farm levels and Illustrate the impact of the infectious diseases on the animal, public health and community.

a7-Identify the indications, contraindications, administration and precautions of the immunizations necessary for equine according to the national schedule and the epidemiology of the disease.

##### 3-B: INTELLECTUAL SKILLS:





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

- b1-Interpret the most important symptoms and signs of infectious diseases of equine.
- b2-Formulate appropriate management plans for sick animals presenting with the most common infectious diseases. The management plan should indicate investigations (and how they would be interpreted) as well as treatment in addition to prophylaxis and control measures.
- b3-Make decisions regarding common clinical situations using appropriate problem solving skills and relevant ethical principles.
- b4- Analyze and interpret different laboratory tests, covering the most important infectious diseases of equine.

**3- C: PRACTICAL AND PROFESSIONAL SKILLS:**

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

- c1-Perform clinical examination and proper sampling from diseased equine.
- c2-Performe basic laboratory skills for diagnosis, prevention, treatment and control of equine bacterial and mycotic infectious diseases.
- c3-Apply essential laboratory skills for diagnosis, prevention and control of equine viral infectious diseases.
- c4- Carry out the parasitological examination for suspected parasitic infectious diseases in equine and apply the appropriate treatment and control.

**3- D: GENERAL SKILLS:**

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

- d1-Coach and work in group.
- d2-Classify different duties.
- d3-Utilize computer and internet skills..
- d4-Develop the ethical behaviors between students and staff members as well as among the students themselves.

**4. COURSE CONTENTS:**

Topic	No. of hours		
	Lectures	Practical	Total
Epidemiology, diagnosis and control of Bacterial, Infectious diseases of equine.	38	38	76
Epidemiology, diagnosis and control of mycotic, Infectious diseases of equine.	3	3	6



Topic	No. of hours		
	Lectures	Practical	Total
Epidemiology, diagnosis and control of Viral, Infectious diseases of equine.	34	34	68
Epidemiology, diagnosis and control of parasitic Infectious diseases of equine.	21	21	42
Total	96	96	192

### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library

Making individual reports about infectious diseases

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1-a7	b1-b4	-	d1-d4
Practical sessions	-	b1-b4	c1-c4	d1-d4
Self-Learning activities		b1-b4		d1- d2
Distance Teaching and Learning	a1 to a7	b1 to b4	c1 to c4	d1 to d4

\*Lectures and some practical topics may be offered face to face or via distance teaching and learning.

### 6- METHODS FOR DISABLED STUDENTS:

- Discussions with them during practical sessions and lectures
- Giving them advice whenever needed

### 7-student assessment:

7.a: Used method	Written examination	Oral examination	Practical examination
7.b: Time	At the end of the year	At the end of the year	At the end of the year



7.c: Grads

50

25

25

7.2. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a7	b1 to b4		
Practical exams			c1 to c4	
Oral exams	a1 to a5	b1 to b4		D4
Student activities				d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS

### 8-1: Essential books:

- Radostits, O.M.; Gay, C.C.; Hinchcliff, K.W.; Constable, P.D. *Veterinary Medicine: A Textbook of the Diseases of Cattle, Horses, Sheep, Pigs and Goats*, 10th ed.; Saunders: Madrid, Spain, 2007; pp. 552–557.
- Radostits, Otto M. 2000. *The Merck Veterinary Manual*, 8th Edition. *The Canadian Veterinary Journal* 41(4), p. 334. Disponible en: [https:// goo.gl/3dv2Ys](https://goo.gl/3dv2Ys)
  - Hungerford TG: *Diseases of Livestock*. 1990, Sydney: MacGraw-Hill Medical.
- Kusiluka L, Kambarage D .*Diseases of small ruminants, a handbook. Common diseases of sheep and goats in Sub-Saharan Africa*. VETAID, Centre for Tropical Veterinary Medicine, Easter Bush, Roslin, Midlothian EH25 9RG, Scotland; 2006.
  - Reed SM, Bayly WM, Sellon DC: *Equine Internal Medicine*. 2004, Louis: Saunders, 1
  - Fowler ME. *Medicine and Surgery of Camelids*. Third Ed, Wiley-Blackwell, 2010.

### 8-2: Recommended books:

- Thrusfield, M., 2007. *Veterinary epidemiology*. Wiley-Blackwell.
- Rose, R.J., Hodgson, D.R., 1993. *Manual of equine practice*. W.B. Saunders, Edinburgh, UK
- Zajac AM, Conboy GA (2006) *Veterinary clinical parasitology*, 7th edn. Wiley-Blackwell, Iowa, USA.
- Kumar, Y , 2018 *Antimicrobial Resistance—A Global Threat*; Kumar, Y., Ed.; IntechOpen: London, UK.
- Sykes JE. *Canine and Feline Infectious Diseases*. 1st ed. St Louis, MO: Elsevier; 2014. pp. 141–151
- Greene CE, editor. *Infectious Diseases of the Dog and Cat*. 4th ed. St Louis, MO: Elsevier Saunders; 2012. pp. 80–91.



- Hernandez SM, Barron HW, Miller EA, Aguilar RF, Yabsley MJ. Medical management of wildlife species: a guide for practitioners. Hoboken, NJ: Wiley; 2019.
- Hrapkiewicz K, Medina L. Clinical laboratory animal medicine: an introduction. 3rd ed. Ames, IA, Oxford: Blackwell; 2007

### **8-3 Egyptian Knowledge Bank:**

- Guerrant RL, Walker DH, Weller PF. , Tropical infectious diseases: principles, pathogens, and practice, 2006 Philadelphia, PA Saunders Elsevier
- Constable, P.D.; Hinchcliff, K.W.; Done, S.H.; Grünberg, W. Veterinary Medicine: A Textbook of the Diseases of Cattle, Horses, Sheep, Pigs, and Goats, 11th ed.; Elsevier Ltd.: Amsterdam, The Netherlands, 2017; p. 2356, ISBN 2978-2350-7020-7057-2350.
- Zajac and Conboy, 2007 A.M. Zajac, G.A. Conboy Veterinary Clinical Parasitology (7th ed.), Blackwell Publishing, Ames, IA(2007) p.. 305

### **8-4. Scientific Journals**

- Tropical Animal Health and Production.
- Journal of Animals.
- Journal of infection in developing countries.
- Camel Practice.
- Small ruminant research
- Transboundary and emerging diseases
- Journal of dairy sciences
- Veterinary research communication
- Acta tropica.
- Veterinary Research

### **8-5. Scientific websites**

- The Egyptian Knowledge Bank: <https://www.ekb.eg/web/guest/home>
- <https://www.oie.int/en/home/>
- <https://www.fao.org/home/en>
- <https://www.cdc.gov/globalhealth/resources/factsheets/index.html>

**Course Coordinator**

**Head of Department**

**Prof.Dr. Magdy H. Algaabary**

**Prof. Dr. Ismail Ibrahim**



**Course Matrix for achievement of Intended Learning Outcomes**

	Topics	Hours	Knowledge & Understanding							Intellectual Skills				Practical & Professional Skills				General & Transferable Skills			
			1	2	3	4	5	6	7	1	2	3	4	1	2	3	4	1	2	3	4
1	Epidemiology, diagnosis and control of Bacterial, Infectious diseases of equine.	98	X	X			X	X	X	X	X	X	X	X	X			X	X	X	X
2	Epidemiology, diagnosis and control of mycotic, Infectious diseases of equine.	12	X			X	X	X		X	X	X	X	X	X			X	X	X	X
3	Epidemiology, diagnosis and control of Viral, Infectious diseases of equine.	79	X	X				X	X	X	X	X	X		X			X	X	X	X
4	Epidemiology, diagnosis and control of parasitic Infectious diseases of equine.	51	X		X		X	X		X	X	X	X	X			X	X	X	X	X



## COURSE SPECIFICATION

(2021 / 2022)

### 1 - Basic Information:

Code number: 239/1

Course title: **Infectious diseases of pet animals**

Academic Year: **Master of Veterinary Medicine Program**

Total teaching hours: 192 h

Lectures: 96 hrs. (48 weeks- 2hrs/week)

Practical: 96 hrs. (48 weeks- 2hrs/week)

### 2- OVERALL AIMS OF THE COURSE:

To provide students with knowledge and skills concerning bacterial, viral, parasitic, mycotic and prion caused diseases that affect, pet animals.

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- a1- **Determine Enumrate** infectious diseases affecting pet animals, and the methods of transmission of such diseases.
- a2- **Determine** the causes, pathogenesis, clinical symptoms, the epidemiological features and methods of diagnosis, treatment and control of bacterial infectious diseases of pet animals.
- a3- **Recognize** the causes, pathogenesis, clinical symptoms, the epidemiological features and methods of diagnosis and control of viral infectious diseases of pet animals..
- a4-**Define** the causes, life cycle and consequences, the epidemiological features and methods of diagnosis, treatment and control of parasitic infectious diseases of pet animals..
- a5-**Describe** the causes, pathogenesis, clinical symptoms, the epidemiological features and methods of diagnosis and control of mycotic infectious diseases of pet animals.

#### 3-B: INTELLECTUAL SKILLS:

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

- b1- Differentiate between different infectious diseases of pet animals.
- b2- Select the most suitable and economic line of treatment.
- b3- Write and evaluate clinical reports about pet animals infectious diseases.
- b4- Plan a schedule for vaccination against infectious disease.

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:



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

- c1- Perform clinical examination and proper sampling from diseased pet animals.
- c2- Master basic laboratory skills for diagnosis of pet animals viral infectious diseases and construct prevention and control strategy for such infectious diseases
- c3-Apply basic laboratory skills for diagnosis of pet animals bacterial and mycotic infectious diseases and construct treatment ,prevention and control strategy for such infectious diseases
- c4-Apply diagnosis of helminthes and protozoan infection of pet animals bacterial and construct treatment, prevention and control strategy for such infectious diseases

**3- D: GENERAL SKILLS:**

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

- d1-Coach and work in group.
- d2-Classify different duties.
- d3-Utilize computer and internet skills..
- d4-Develop the ethical behaviors between students and staff members as well as among the students themselves.

**4 - COURSE CONTENTS:**

TOPIC	Total hours	Hours for lectures	Hours for practical
Epidemiology, diagnosis and control of viral infectious diseases of dogs and cats	72	36	36
Epidemiology, diagnosis and control of Bacterial infectious diseases of dogs and cats	50	25	25
Epidemiology, diagnosis and control of parasitic infectious diseases of dogs and cats	50	25	25
Epidemiology, diagnosis and control of mycotic infectious diseases of dogs and cats	20	10	10
<b>total</b>	<b>192</b>	<b>96</b>	<b>96</b>

**5- TEACHING & LEARNING METHODS:**

- \* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming
- \* **Practical sessions:**
- \* **Self-Learning activities:** Mini reviews from the web and the library  
Making individual reports about infectious diseases



\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1-a5	b1-b4	-	d1-d4
Practical sessions	-	b1-b4	c1-c4	d1-d4
Self-Learning activities		b1-b4		d1- d2
Distance Teaching and Learning	a1 to a5	b1 to b4	c1 to c4	d1 to d4

\*Lectures and some practical topics may be offered face to face or via distance teaching and learning.

## 6- METHODS FOR DISABLED STUDENTS:

- Discussions with them during practical sessions and lectures
- Giving them advice whenever needed

## 7-student assessment:

<b>7.a: Used method</b>	<b>Written examination</b>	<b>Oral examination</b>	<b>Practical examination</b>
<b>7.b: Time</b>	<b>At the end of the year</b>	<b>At the end of the year</b>	<b>At the end of the year</b>
<b>7.c: Grads</b>	<b>50</b>	<b>25</b>	<b>25</b>

7.2. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a5	b1 to b4		
Practical exams			c1 to c4	
Oral exams	a1 to a5	b1 to b4		D4
Student activities				d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.





## 8. LEARNING AND REFERENCE MATERIALS

### 8-1: Essential books:

- Radostits, O.M.; Gay, C.C.; Hinchcliff, K.W.; Constable, P.D. *Veterinary Medicine: A Textbook of the Diseases of Cattle, Horses, Sheep, Pigs and Goats*, 10th ed.; Saunders: Madrid, Spain, 2007; pp. 552–557.
- Radostits, Otto M. 2000. *The Merck Veterinary Manual*, 8th Edition. *The Canadian Veterinary Journal* 41(4), p. 334. Disponible en: [https:// goo.gl/3dv2Ys](https://goo.gl/3dv2Ys)
  - Hungerford TG: *Diseases of Livestock*. 1990, Sydney: MacGraw-Hill Medical.
- Kusiluka L, Kambarage D .*Diseases of small ruminants, a handbook. Common diseases of sheep and goats in Sub-Saharan Africa*. VETAID, Centre for Tropical Veterinary Medicine, Easter Bush, Roslin, Midlothian EH25 9RG, Scotland; 2006.
  - Reed SM, Bayly WM, Sellon DC: *Equine Internal Medicine*. 2004, Louis: Saunders, 1
  - Fowler ME. *Medicine and Surgery of Camelids*. Third Ed, Wiley-Blackwell, 2010.

### 8-2: Recommended books:

- Thrusfield, M., 2007. *Veterinary epidemiology*. Wiley-Blackwell.
- Rose, R.J., Hodgson, D.R., 1993. *Manual of equine practice*. W.B. Saunders, Edinburgh, UK
- Zajac AM, Conboy GA (2006) *Veterinary clinical parasitology*, 7th edn. Wiley-Blackwell, Iowa, USA.
- Kumar, Y , 2018 *Antimicrobial Resistance—A Global Threat*; Kumar, Y., Ed.; IntechOpen: London, UK.
- Sykes JE. *Canine and Feline Infectious Diseases*. 1st ed. St Louis, MO: Elsevier; 2014. pp. 141–151
- Greene CE, editor. *Infectious Diseases of the Dog and Cat*. 4th ed. St Louis, MO: Elsevier Saunders; 2012. pp. 80–91.
- Hernandez SM, Barron HW, Miller EA, Aguilar RF, Yabsley MJ. *Medical management of wildlife species: a guide for practitioners*. Hoboken, NJ: Wiley; 2019.
  - Hrapkiewicz K, Medina L. *Clinical laboratory animal medicine: an introduction*. 3rd ed. Ames, IA, Oxford: Blackwell; 2007



### **8-3 Egyptian Knowledge Bank:**

- Guerrant RL, Walker DH, Weller PF. , Tropical infectious diseases: principles, pathogens, and practice, 2006 Philadelphia, PA Saunders Elsevier
- Constable, P.D.; Hinchcliff, K.W.; Done, S.H.; Grünberg, W. Veterinary Medicine: A Textbook of the Diseases of Cattle, Horses, Sheep, Pigs, and Goats, 11th ed.; Elsevier Ltd.: Amsterdam, The Netherlands, 2017; p. 2356, ISBN 2978-2350-7020-7057-2350.
- Zajac and Conboy, 2007 A.M. Zajac, G.A. Conboy Veterinary Clinical Parasitology (7th ed.), Blackwell Publishing, Ames, IA(2007) p.. 305

### **8-4. Scientific Journals**

- Tropical Animal Health and Production.
- Journal of Animals.
- Journal of infection in developing countries.
- Camel Practice.
- Small ruminant research
- Transboundary and emerging diseases
- Journal of dairy sciences
- Veterinary research communication
- Acta tropica.
- Veterinary Research

### **8-5. Scientific websites**

- The Egyptian Knowledge Bank: <https://www.ekb.eg/web/guest/home>
- <https://www.oie.int/en/home/>
- <https://www.fao.org/home/en>
- <https://www.cdc.gov/globalhealth/resources/factsheets/index.html>

**Course Coordinator**

**Head of Department**

**Prof.Dr. Magdy H. Algaabary**

**Prof. Dr. Ismail Ibrahim**



Course Matrix for achievement of Intended Learning Outcomes

	Topics	Hours	Knowledge & Understanding					Intellectual Skills				Practical & Professional Skills				General & Transferable Skills			
			1	2	3	4	5	1	2	3	4	1	2	3	4	1	2	3	4
1	Epidemiology, diagnosis and control of viral infectious diseases of dogs and cats	72	X		X			X	X	X	X	x	x			X	X	X	X
2	Epidemiology, diagnosis and control of Bacterial infectious diseases of dogs and cats	50	X									x		x		X	X	X	X
3	Epidemiology, diagnosis and control of parasitic infectious diseases of dogs and cats	50	X				X	X	X	X	X	x			x	X	X	X	X
4	Epidemiology, diagnosis and control of mycotic infectious diseases of dogs and cats	20	X					X	X	X	X	x		x		X	X	X	X



## COURSE SPECIFICATION

(2021 / 2022)

### 1 - Basic Information:

Code number: 240/1

Course title: **Infectious Diseases of Experimental Animals**

Academic Year: **Master of Veterinary Medicine Program**

Total teaching hours: 144 h

Lectures: 48 hrs. (48 weeks- 1hrs/week)

Practical: 96 hrs. (48 weeks- 2hrs/week)

### 2. AIM OF THE COURSE:

To provide students with knowledge and skills concerning bacterial, viral, parasitic, mycotic and prion caused diseases that affect experimental animals.

### 3. INTENDED LEARNING OUTCOMES (I. L. Os.):

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

#### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

##### 3-A: KNOWLEDGE and UNDERSTANDING:

**By the end of this course, the graduate should be able to:**

- a1-Determine the most common infectious diseases affecting experimental animals and identification of the appropriate diagnostic tools and prognosis.
- a2-Describe the causes, pathogenesis, clinical symptoms, postmortem and the epidemiological features of bacterial and viral infectious disease affecting experimental animals.
- a3- Explain the causes, life cycle and pathogenesis, clinical symptoms, postmortem and the epidemiological features of parasitic infectious disease affecting experimental animals.
- a4-Illustrate the causes, clinical symptoms, and the epidemiological features of mycotic infectious disease affecting experimental animals.
- a5- Discuss the treatment for bacterial, parasitic and mycotic infectious diseases of experimental animals .
- a6- Define and mention the methods of prevention and control of such infection on individual animal and farm levels and Illustrate the impact of the infectious diseases on the animal, public health and community.



a7-Identify the indications, contraindications, administration and precautions of the immunizations necessary for experimental animals according to the national schedule and the epidemiology of the disease.

### **3-B: INTELLECTUAL SKILLS:**

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

- b1-** Differentiate between different infectious diseases of experimental animals.
- b2-** Select the most suitable and economic line of treatment.
- b3-** Write and evaluate clinical reports about experimental animals infectious diseases.
- b4-** Plan a schedule for vaccination against infectious disease.

### **3- C: PRACTICAL AND PROFESSIONAL SKILLS:**

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

- c1-** Perform clinical examination and proper sampling from diseased experimental animals.
- c2-** Perform basic laboratory skills for diagnosis, prevention, treatment and control of experimental animals bacterial and parasitic infectious diseases.
- c3-** Apply essential laboratory skills for diagnosis, prevention and control of experimental animals viral infectious diseases.
- c4-** Carry out the mycological examination for suspected mycotic infectious diseases in experimental animals and apply the appropriate treatment and control.

### **3- D: GENERAL SKILLS:**

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

- d1-** Coach and work in group.
- d2-** Classify different duties.
- d3-** Utilize computer and internet skills.
- d4-** Develop the ethical behaviors between students and staff members as well as among the students themselves.

## **4. COURSE CONTENTS:**

Topic	No. of hours		
	Lectures	Practical	Total
Epidemiology, diagnosis and control of Bacterial, Infectious diseases of mice, rats, guinea pigs and rabbits.	17	40	57
Epidemiology, diagnosis and control of mycotic,	2	3	5



Topic	No. of hours		
	Lectures	Practical	Total
Infectious diseases of mice, rats, guinea pigs and rabbits.			
Epidemiology, diagnosis and control of Viral, Infectious diseases of mice, rats, guinea pigs and rabbits.	17	30	47
Epidemiology, diagnosis and control of parasitic Infectious diseases of of mice, rats, guinea pigs and rabbits.	12	23	35
Total	48	96	144

### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library

Making individual reports about infectious diseases

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1-a7	b1-b4	-	d1-d4
Practical sessions	-	b1-b4	c1-c4	d1-d4
Self-Learning activities		b1-b4		d1- d2
Distance Teaching and Learning	a1 to a7	b1 to b4	c1 to c4	d1 to d4

\*Lectures and some practical topics may be offered face to face or via distance teaching and learning.

### 6- METHODS FOR DISABLED STUDENTS:

- Discussions with them during practical sessions and lectures
- Giving them advice whenever needed

### 7-student assessment:

7.a: Used method	Written	Oral	Practical



	examination	examination	examination
<b>7.b: Time</b>	At the end of the year	At the end of the year	At the end of the year
<b>7.c: Grads</b>	50	25	25

7.2. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a7	b1 to b4		
Practical exams			c1 to c4	
Oral exams	a1 to a5	b1 to b4		D4
Student activities				d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS

### 8-1: Essential books:

- Radostits, O.M.; Gay, C.C.; Hinchcliff, K.W.; Constable, P.D. Veterinary Medicine: A Textbook of the Diseases of Cattle, Horses, Sheep, Pigs and Goats, 10th ed.; Saunders: Madrid, Spain, 2007; pp. 552–557.
- Radostits, Otto M. 2000. The Merck Veterinary Manual, 8th Edition. The Canadian Veterinary Journal 41(4), p. 334. Disponible en: [https:// goo.gl/3dv2Ys](https://goo.gl/3dv2Ys)
  - Hungerford TG: Diseases of Livestock. 1990, Sydney: MacGraw-Hill Medical.
- Kusiluka L, Kambarage D .Diseases of small ruminants, a handbook. Common diseases of sheep and goats in Sub-Saharan Africa. VETAID, Centre for Tropical Veterinary Medicine, Easter Bush, Roslin, Midlothian EH25 9RG, Scotland; 2006.
  - Reed SM, Bayly WM, Sellon DC: Equine Internal Medicine. 2004, Louis: Saunders, 1
  - Fowler ME. Medicine and Surgery of Camelids. Third Ed, Wiley-Blackwell, 2010.

### 8-2: Recommended books:

- Thrusfield, M., 2007. Veterinary epidemiology. Wiley-Blackwell.
- Rose, R.J., Hodgson, D.R., 1993. Manual of equine practice. W.B. Saunders, Edinburgh, UK
- Zajac AM, Conboy GA (2006) Veterinary clinical parasitology, 7th edn. Wiley-Blackwell, Iowa, USA.
- Kumar, Y , 2018 Antimicrobial Resistance—A Global Threat; Kumar, Y., Ed.; IntechOpen: London, UK.



- Sykes JE. *Canine and Feline Infectious Diseases*. 1st ed. St Louis, MO: Elsevier; 2014. pp. 141–151
- Greene CE, editor. *Infectious Diseases of the Dog and Cat*. 4th ed. St Louis, MO: Elsevier Saunders; 2012. pp. 80–91.
- Hernandez SM, Barron HW, Miller EA, Aguilar RF, Yabsley MJ. Medical management of wildlife species: a guide for practitioners. Hoboken, NJ: Wiley; 2019.
  - Hrapkiewicz K, Medina L. Clinical laboratory animal medicine: an introduction. 3rd ed. Ames, IA, Oxford: Blackwell; 2007

### **8-3 Egyptian Knowledge Bank:**

- Guerrant RL, Walker DH, Weller PF. , Tropical infectious diseases: principles, pathogens, and practice, 2006 Philadelphia, PA Saunders Elsevier
- Constable, P.D.; Hinchcliff, K.W.; Done, S.H.; Grünberg, W. *Veterinary Medicine: A Textbook of the Diseases of Cattle, Horses, Sheep, Pigs, and Goats*, 11th ed.; Elsevier Ltd.: Amsterdam, The Netherlands, 2017; p. 2356, ISBN 2978-2350-7020-7057-2350.
- Zajac and Conboy, 2007 A.M. Zajac, G.A. Conboy *Veterinary Clinical Parasitology* (7th ed.), Blackwell Publishing, Ames, IA(2007) p.. 305

### **8-4. Scientific Journals**

- Tropical Animal Health and Production.
- Journal of Animals.
- Journal of infection in developing countries.
- Camel Practice.
- Small ruminant research
- Transboundary and emerging diseases
- Journal of dairy sciences
- Veterinary research communication
- Acta tropica.
- Veterinary Research

### **8-5. Scientific websites**

- The Egyptian Knowledge Bank: <https://www.ekb.eg/web/guest/home>
- <https://www.oie.int/en/home/>
- <https://www.fao.org/home/en>
- <https://www.cdc.gov/globalhealth/resources/factsheets/index.html>

**Course Coordinator**

**Head of Department**

**Prof.Dr. Magdy H. Algaabary**

**Prof. Dr. Ismail Ibrahim**





**Course Matrix for achievement of Intended Learning Outcomes**

	Topics	Hours	Knowledge & Understanding							Intellectual Skills				Practical & Professional Skills				General & Transferable Skills			
			1	2	3	4	5	6	7	1	2	3	4	1	2	3	4	1	2	3	4
1	Epidemiology, diagnosis and control of Bacterial, Infectious diseases of mice, rats, guinea pigs and rabbits.	57	X	X			X	X	X	X	X	X	X	X	X			X	X	X	X
2	Epidemiology, diagnosis and control of mycotic, Infectious diseases of mice, rats, guinea pigs and rabbits.	5	X			X	X	X		X	X	X	X	X			X	X	X	X	X
3	Epidemiology, diagnosis and control of Viral, Infectious diseases of mice, rats, guinea pigs and rabbits.	47	X	X				X	X	X	X	X	X		X		X	X	X	X	X
4	Epidemiology, diagnosis and control of parasitic Infectious diseases of of mice, rats, guinea pigs and rabbits.	35	X		X		X	X		X	X	X	X	X	X			X	X	X	X



## COURSE SPECIFICATION

(2021 / 2022)

### 1 - Basic Information:

**Code number:** 241/1

**Course title:** Infectious Diseases of Udder and Calves

**Academic Year:** Master of Veterinary Medicine Program

**Total teaching hours:** 192 h

Lectures: 96 hrs. (48 weeks- 2hrs/week)

Practical: 96 hrs. (48 weeks- 2hrs/week)

### 2. AIM OF THE COURSE:

To provide students with professional knowledge and skills concerning bacterial, viral, parasitic, mycotic and prion caused diseases that affect udder and calves

### 3. INTENDED LEARNING OUTCOMES (I. L. Os.):

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

#### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

##### 3-A: KNOWLEDGE and UNDERSTANDING:

**By the end of this course, the graduate should be able to:**

- a1-Determine the most common infectious diseases affecting udder and calves and identification of the appropriate diagnostic tools and prognosis.
- a2-Describe the causes, pathogenesis, clinical symptoms, postmortem and the epidemiological features of bacterial and viral infectious disease affecting udder and calves.
- a3- Study the causes, life cycle and pathogenesis, clinical symptoms, postmortem and the epidemiological features of parasitic infectious disease affecting calves.
- a4- illustrate the causes, clinical symptoms, and the epidemiological features of mycotic infectious disease affecting udder and calves.
- a5-Study the treatment for bacterial, parasitic and mycotic infectious diseases of udder and calves.
- a6- Define and mention the methods of prevention and control of such infection on individual animal and farm levels and Illustrate the impact of the infectious diseases on the animal, public health and community.
- a7-Identify the indications, contraindications, administration and precautions of the immunizations necessary for udder and calves according to the national schedule and the epidemiology of the disease.



### **3-B: INTELLECTUAL SKILLS:**

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

- b1-Interpret the most important symptoms and signs of infectious diseases of udder and calves.
- b2-Formulate appropriate management plans for sick animals presenting with the most common infectious diseases. The management plan should indicate investigations (and how they would be interpreted) as well as treatment in addition to prophylaxis and control measures.
- b3-Make decisions regarding common clinical situations using appropriate problem solving skills and relevant ethical principles.
- b4- Analyze and interpret different laboratory tests, covering the most important infectious diseases of udder and calves.

### **3- C: PRACTICAL AND PROFESSIONAL SKILLS:**

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

- c1-Perform clinical examination and proper sampling from diseased udder and calves.
- c2-Performe basic laboratory skills for diagnosis, prevention, treatment and control of udder and calves bacterial and mycotic infectious diseases.
- c3-Apply essential laboratory skills for diagnosis, prevention and control of udder and calves viral infectious diseases.
- c4- Carry out the parasitological examinaltion for suspected parasitic infectious diseases in calves and apply the appropriate treatment and control.

### **3- D: GENERAL SKILLS:**

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

- d1-Coach and work in group.
- d2-Classify different duties.
- d3-Utilize computer and internet skills..
- d4-Develop the ethical behaviors between students and staff members as well as among the students themselves.

## **4. COURSE CONTENTS:**

Topic	No. of hours		
	Lectures	Practical	Total
Epidemiology, diagnosis and control of Bacterial, Infectious diseases of udder and calves.	38	38	76



Topic	No. of hours		
	Lectures	Practical	Total
Epidemiology, diagnosis and control of mycotic, Infectious diseases of udder and calves.	3	3	6
Epidemiology, diagnosis and control of Viral, Infectious diseases of udder and calves.	34	34	68
Epidemiology, diagnosis and control of parasitic Infectious diseases of calves.	21	21	42
Total	96	96	192

### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library

Making individual reports about infectious diseases

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1-a7	b1-b4	-	d1-d4
Practical sessions	-	b1-b4	c1-c4	d1-d4
Self-Learning activities		b1-b4		d1- d2
Distance Teaching and Learning	a1 to a7	b1 to b4	c1 to c4	d1 to d4

\*Lectures and some practical topics may be offered face to face or via distance teaching and learning.

### 6- METHODS FOR DISABLED STUDENTS:

- Discussions with them during practical sessions and lectures
- Giving them advice whenever needed

### 7-student assessment:

7.a: Used method	Written examination	Oral examination	Practical examination



<b>7.b: Time</b>	<b>At the end of the year</b>	<b>At the end of the year</b>	<b>At the end of the year</b>
<b>7.c: Grads</b>	<b>50</b>	<b>25</b>	<b>25</b>

7.2. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a7	b1 to b4		
Practical exams			c1 to c4	
Oral exams	a1 to a5	b1 to b4		d4
Student activities				d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS

### 8-1: Essential books:

- Radostits, O.M.; Gay, C.C.; Hinchcliff, K.W.; Constable, P.D. Veterinary Medicine: A Textbook of the Diseases of Cattle, Horses, Sheep, Pigs and Goats, 10th ed.; Saunders: Madrid, Spain, 2007; pp. 552–557.
- Radostits, Otto M. 2000. The Merck Veterinary Manual, 8th Edition. The Canadian Veterinary Journal 41(4), p. 334. Disponible en: [https:// goo.gl/3dv2Ys](https://goo.gl/3dv2Ys)
  - Hungerford TG: Diseases of Livestock. 1990, Sydney: MacGraw-Hill Medical.
  - Kusiluka L, Kambarage D .Diseases of small ruminants, a handbook. Common diseases of sheep and goats in Sub-Saharan Africa. VETAID, Centre for Tropical Veterinary Medicine, Easter Bush, Roslin, Midlothian EH25 9RG, Scotland; 2006.
    - Reed SM, Bayly WM, Sellon DC: Equine Internal Medicine. 2004, Louis: Saunders, 1
    - Fowler ME. Medicine and Surgery of Camelids. Third Ed, Wiley-Blackwell, 2010.

### 8-2: Recommended books:

- Thrusfield, M., 2007. Veterinary epidemiology. Wiley-Blackwell.
- Rose, R.J., Hodgson, D.R., 1993. Manual of equine practice. W.B. Saunders, Edinburgh, UK
- Zajac AM, Conboy GA (2006) Veterinary clinical parasitology, 7th edn. Wiley-Blackwell, Iowa, USA.
- Kumar, Y , 2018 Antimicrobial Resistance—A Global Threat; Kumar, Y., Ed.; IntechOpen: London, UK.



- Sykes JE. *Canine and Feline Infectious Diseases*. 1st ed. St Louis, MO: Elsevier; 2014. pp. 141–151
- Greene CE, editor. *Infectious Diseases of the Dog and Cat*. 4th ed. St Louis, MO: Elsevier Saunders; 2012. pp. 80–91.
- Hernandez SM, Barron HW, Miller EA, Aguilar RF, Yabsley MJ. Medical management of wildlife species: a guide for practitioners. Hoboken, NJ: Wiley; 2019.
  - Hrapkiewicz K, Medina L. Clinical laboratory animal medicine: an introduction. 3rd ed. Ames, IA, Oxford: Blackwell; 2007

### **8-3 Egyptian Knowledge Bank:**

- Guerrant RL, Walker DH, Weller PF. , Tropical infectious diseases: principles, pathogens, and practice, 2006 Philadelphia, PA Saunders Elsevier
- Constable, P.D.; Hinchcliff, K.W.; Done, S.H.; Grünberg, W. *Veterinary Medicine: A Textbook of the Diseases of Cattle, Horses, Sheep, Pigs, and Goats*, 11th ed.; Elsevier Ltd.: Amsterdam, The Netherlands, 2017; p. 2356, ISBN 2978-2350-7020-7057-2350.
- Zajac and Conboy, 2007 A.M. Zajac, G.A. Conboy *Veterinary Clinical Parasitology* (7th ed.), Blackwell Publishing, Ames, IA(2007) p.. 305

### **8-4. Scientific Journals**

- Tropical Animal Health and Production.
- Journal of Animals.
- Journal of infection in developing countries.
- Camel Practice.
- Small ruminant research
- Transboundary and emerging diseases
- Journal of dairy sciences
- Veterinary research communication
- Acta tropica.
- Veterinary Research

### **8-5. Scientific websites**

- The Egyptian Knowledge Bank: <https://www.ekb.eg/web/guest/home>
- <https://www.oie.int/en/home/>
- <https://www.fao.org/home/en>
- <https://www.cdc.gov/globalhealth/resources/factsheets/index.html>

**Course Coordinator**

**Head of Department**

**Prof.Dr. Magdy H. Algaabary**

**Prof. Dr. Ismail Ibrahim**



Course Matrix for achievement of Intended Learning Outcomes

	Topics	Hours	Knowledge & Understanding							Intellectual Skills				Practical & Professional Skills				General & Transferable Skills			
			1	2	3	4	5	6	7	1	2	3	4	1	2	3	4	1	2	3	4
1	Epidemiology, diagnosis and control of Bacterial, Infectious diseases of udder and calves.	98	X	X			X	X	X	X	X	X	X	X	X			X	X	X	X
2	Epidemiology, diagnosis and control of mycotic, Infectious diseases of udder and calves.	12	X			X	X	X		X	X	X	X	X	X			X	X	X	X
3	Epidemiology, diagnosis and control of Viral, Infectious diseases of udder and calves.	79	X	X				X	X	X	X	X	X		X			X	X	X	X
4	Epidemiology, diagnosis and control of parasitic Infectious diseases of calves.	51	X		X		X	X		X	X	X	X	X			X	X	X	X	X



## COURSE SPECIFICATION

(2021 / 2022)

### 1 - Basic Information:

Code number: 242/1

Course title: **Infectious Diseases of Buffalo**

Academic Year: **Master of Veterinary Medicine Program**

Total teaching hours: 192 h

Lectures: 96 hrs. (48 weeks- 2hrs/week)

Practical: 144 hrs. (48 weeks- 3hrs/week)

### 2. AIM OF THE COURSE:

To provide students with professional knowledge and skills concerning bacterial, viral, parasitic, mycotic and prion caused diseases that affect buffalo

### 3. INTENDED LEARNING OUTCOMES (I. L. Os.):

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

#### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

##### 3-A: KNOWLEDGE and UNDERSTANDING:

**By the end of this course, the graduate should be able to:**

A1-Determine the most common infectious diseases affecting buffalo and identification of the appropriate diagnostic tools and prognosis.

A2-Describe the causes, pathogenesis, clinical symptoms, postmortem and the epidemiological features of bacterial and viral infectious disease affecting buffalo.

A3-Study the causes, life cycle and pathogenesis, clinical symptoms, postmortem and the epidemiological features of parasitic infectious disease affecting buffalo.

A4- illustrate the causes, clinical symptoms, and the epidemiological features of mycotic infectious disease affecting buffalo.

A5-Study the treatment for bacterial, parasitic and mycotic infectious diseases of buffalo .

A6- Define and mention the methods of prevention and control of such infection on individual animal and farm levels and Illustrate the impact of the infectious diseases on the animal, public health and community.

A7-Identify the indications, contraindications, administration and precautions of the immunizations necessary for buffalo according to the national schedule and the epidemiology of the disease.

##### 3-B: INTELLECTUAL SKILLS:





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

**B1-** Differentiate between different infectious diseases of buffalo.

**B2-** Select the most suitable and economic line of treatment.

**B3-** Write and evaluate clinical reports about buffalo infectious diseases.

**B4-** Plan a schedule for vaccination against infectious disease.

**3- C: PRACTICAL AND PROFESSIONAL SKILLS:**

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

**C1-** Perform clinical examination and proper sampling from diseased buffalo.

**C2-** Perform basic laboratory skills for diagnosis, prevention, treatment and control of buffalo bacterial and parasitic infectious diseases.

**C3-** Apply essential laboratory skills for diagnosis, prevention and control of buffalo viral infectious diseases.

**C4-** Carry out the mycological examination for suspected mycotic infectious diseases in buffalo and apply the appropriate treatment and control.

**3- D: GENERAL SKILLS:**

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

**D1-** Coach and work in group.

**D2-** Classify different duties.

**D3-** Utilize computer and internet skills..

**D4-** Develop the ethical behaviors between students and staff members as well as among the students themselves.

**4. COURSE CONTENTS:**

Topic	No. of hours		
	Lectures	Practical	Total
Epidemiology, diagnosis and control of Bacterial, Infectious diseases of buffalo.	38	60	98
Epidemiology, diagnosis and control of mycotic, Infectious diseases of buffalo.	3	9	12
Epidemiology, diagnosis and control of Viral, Infectious diseases of buffalo.	34	45	79
Epidemiology, diagnosis and control of parasitic Infectious diseases of buffalo.	21	30	51



Topic	No. of hours		
	Lectures	Practical	Total
Total	96	144	240

## 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library  
Making individual reports about infectious diseases

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1-a7	b1-b4	-	d1-d4
Practical sessions	-	b1-b4	c1-c4	d1-d4
Self-Learning activities		b1-b4		d1- d2
Distance Teaching and Learning	a1 to a7	b1 to b4	c1 to c4	d1 to d4

\*Lectures and some practical topics may be offered face to face or via distance teaching and learning.

## 6- METHODS FOR DISABLED STUDENTS:

- Discussions with them during practical sessions and lectures
- Giving them advice whenever needed

## 7-student assessment:

7.a: Used method	Written examination	Oral examination	Practical examination
7.b: Time	At the end of the year	At the end of the year	At the end of the year
7.c: Grads	50	25	25



7.2. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a7	b1 to b4		
Practical exams			c1 to c4	
Oral exams	a1 to a5	b1 to b4		D4
Student activities				d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS

## 8. LEARNING AND REFERENCE MATERIALS

### 8-1: Essential books:

- Radostits, O.M.; Gay, C.C.; Hinchcliff, K.W.; Constable, P.D. *Veterinary Medicine: A Textbook of the Diseases of Cattle, Horses, Sheep, Pigs and Goats*, 10th ed.; Saunders: Madrid, Spain, 2007; pp. 552–557.
- Radostits, Otto M. 2000. *The Merck Veterinary Manual*, 8th Edition. *The Canadian Veterinary Journal* 41(4), p. 334. Disponible en: [https:// goo.gl/3dv2Ys](https://goo.gl/3dv2Ys)
  - Hungerford TG: *Diseases of Livestock*. 1990, Sydney: MacGraw-Hill Medical.
- Kusiluka L, Kambarage D .*Diseases of small ruminants, a handbook. Common diseases of sheep and goats in Sub-Saharan Africa*. VETAID, Centre for Tropical Veterinary Medicine, Easter Bush, Roslin, Midlothian EH25 9RG, Scotland; 2006.
  - Reed SM, Bayly WM, Sellon DC: *Equine Internal Medicine*. 2004, Louis: Saunders, 1
  - Fowler ME. *Medicine and Surgery of Camelids*. Third Ed, Wiley-Blackwell, 2010.

### 8-2: Recommended books:

- Thrusfield, M., 2007. *Veterinary epidemiology*. Wiley-Blackwell.
- Rose, R.J., Hodgson, D.R., 1993. *Manual of equine practice*. W.B. Saunders, Edinburgh, UK
- Zajac AM, Conboy GA (2006) *Veterinary clinical parasitology*, 7th edn. Wiley-Blackwell, Iowa, USA.
- Kumar, Y , 2018 *Antimicrobial Resistance—A Global Threat*; Kumar, Y., Ed.; IntechOpen: London, UK.
- Sykes JE. *Canine and Feline Infectious Diseases*. 1st ed. St Louis, MO: Elsevier; 2014. pp. 141–151
- Greene CE, editor. *Infectious Diseases of the Dog and Cat*. 4th ed. St Louis, MO: Elsevier Saunders; 2012. pp. 80–91.
- Hernandez SM, Barron HW, Miller EA, Aguilar RF, Yabsley MJ. *Medical management of wildlife species: a guide for practitioners*. Hoboken, NJ: Wiley; 2019.



- Hrapkiewicz K, Medina L. Clinical laboratory animal medicine: an introduction. 3rd ed. Ames, IA, Oxford: Blackwell; 2007

### **8-3 Egyptian Knowledge Bank:**

- Guerrant RL, Walker DH, Weller PF. , Tropical infectious diseases: principles, pathogens, and practice, 2006 Philadelphia, PA Saunders Elsevier
- Constable, P.D.; Hinchcliff, K.W.; Done, S.H.; Grünberg, W. Veterinary Medicine: A Textbook of the Diseases of Cattle, Horses, Sheep, Pigs, and Goats, 11th ed.; Elsevier Ltd.: Amsterdam, The Netherlands, 2017; p. 2356, ISBN 2978-2350-7020-7057-2350.
- Zajac and Conboy, 2007 A.M. Zajac, G.A. Conboy Veterinary Clinical Parasitology (7th ed.), Blackwell Publishing, Ames, IA(2007) p.. 305

### **8-4. Scientific Journals**

- Tropical Animal Health and Production.
- Journal of Animals.
- Journal of infection in developing countries.
- Camel Practice.
- Small ruminant research
- Transboundary and emerging diseases
- Journal of dairy sciences
- Veterinary research communication
- Acta tropica.
- Veterinary Research

### **8-5. Scientific websites**

- The Egyptian Knowledge Bank: <https://www.ekb.eg/web/guest/home>
- <https://www.oie.int/en/home/>
- <https://www.fao.org/home/en>
- <https://www.cdc.gov/globalhealth/resources/factsheets/index.html>

**Course Coordinator**

**Head of Department**

**Prof.Dr. Magdy H. Algaabary**

**Prof. Dr. Ismail Ibrahim**



**Course Matrix for achievement of Intended Learning Outcomes**

	Topics	Hours	Knowledge & Understanding							Intellectual Skills				Practical & Professional Skills				General & Transferable Skills			
			1	2	3	4	5	6	7	1	2	3	4	1	2	3	4	1	2	3	4
1	Epidemiology, diagnosis and control of Bacterial, Infectious diseases of buffalo.	98	X	X			X	X	X	X	X	X	X	X	X			X	X	X	X
2	Epidemiology, diagnosis and control of mycotic, Infectious diseases of buffalo.	12	X			X	X	X		X	X	X	X	X			X	X	X	X	X
3	Epidemiology, diagnosis and control of Viral, Infectious diseases of buffalo.	79	X	X				X	X	X	X	X	X		X		X	X	X	X	X
4	Epidemiology, diagnosis and control of parasitic Infectious diseases of buffalo.	51	X		X		X	X		X	X	X	X	X	X			X	X	X	X



## COURSE SPECIFICATION

(2021 / 2022)

### 1 - Basic Information:

Code number: 243/1

Course title: **Infectious Diseases of Wild Animals**

Academic Year: **Master of Veterinary Medicine Program**

Total teaching hours: 192 h

Lectures: 96 hrs. (48 weeks- 2hrs/week)

Practical: 96 hrs. (48 weeks- 2hrs/week)

### 2. AIM OF THE COURSE:

To provide students with knowledge and skills concerning bacterial, viral, parasitic, mycotic and prion caused diseases that affect, wild animals.

### 3. INTENDED LEARNING OUTCOMES (I. L. Os.):

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

#### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

##### 3-A: KNOWLEDGE and UNDERSTANDING:

**By the end of this course, the graduate should be able to:**

- a1-Determine the most common infectious diseases affecting wild animals and identification of the appropriate diagnostic tools and prognosis.
- a2-Describe the causes, pathogenesis, clinical symptoms, postmortem and the epidemiological features of bacterial and viral infectious disease affecting wild animals.
- a3-Study the causes, life cycle and pathogenesis, clinical symptoms, postmortem and the epidemiological features of parasitic infectious disease affecting wild animals.
- a4- illustrate the causes, clinical symptoms, and the epidemiological features of mycotic infectious disease affecting wild animals.
- a5-Study the treatment for bacterial, parasitic and mycotic infectious diseases of wild animals .
- a6- Define and mention the methods of prevention and control of such infection on individual animal and farm levels and Illustrate the impact of the infectious diseases on the animal, public health and community.
- a7-Identify the indications, contraindications, administration and precautions of the immunizations necessary for wild animals according to the national schedule and the epidemiology of the disease.

##### 3-B: INTELLECTUAL SKILLS:



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

- b1- Differentiate between different infectious diseases of wild animals.
- b2- Select the most suitable and economic line of treatment.
- b3- Write and evaluate clinical reports about wild animals infectious diseases.
- b4- Plan a schedule for vaccination against infectious disease.

**3- C: PRACTICAL AND PROFESSIONAL SKILLS:**

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

- c1- Perform clinical examination and proper sampling from diseased wild animals.
- c2- Perform basic laboratory skills for diagnosis, prevention, treatment and control of wild animals bacterial and parasitic infectious diseases.
- c3- Apply essential laboratory skills for diagnosis, prevention and control of wild animals viral infectious diseases.
- c4- Carry out the mycological examination for suspected mycotic infectious diseases in wild animals and apply the appropriate treatment and control.

**3- D: GENERAL SKILLS:**

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

- d1- Coach and work in group.
- d2- Classify different duties.
- d3- Utilize computer and internet skills.
- d4- Develop the ethical behaviors between students and staff members as well as among the students themselves.

**4. COURSE CONTENTS:**

Topic	No. of hours		
	Lectures	Practical	Total
Epidemiology, diagnosis and control of Bacterial, Infectious diseases of wild animals.	38	40	78
Epidemiology, diagnosis and control of mycotic, Infectious diseases of wild animals.	3	3	6
Epidemiology, diagnosis and control of Viral, Infectious diseases of wild animals.	34	30	64
Epidemiology, diagnosis and control of parasitic Infectious diseases of wild animals.	21	23	44



Topic	No. of hours		
	Lectures	Practical	Total
Total	96	96	192

## 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library  
Making individual reports about infectious diseases

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1-a7	b1-b4	-	d1-d4
Practical sessions	-	b1-b4	c1-c4	d1-d4
Self-Learning activities		b1-b4		d1- d2
Distance Teaching and Learning	a1 to a7	b1 to b4	c1 to c4	d1 to d4

\*Lectures and some practical topics may be offered face to face or via distance teaching and learning.

## 6- METHODS FOR DISABLED STUDENTS:

- Discussions with them during practical sessions and lectures
- Giving them advice whenever needed

## 7-student assessment:

7.a: Used method	Written examination	Oral examination	Practical examination
7.b: Time	At the end of the year	At the end of the year	At the end of the year
7.c: Grads	50	25	25





7.2. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a7	b1 to b4		
Practical exams			c1 to c4	
Oral exams	a1 to a5	b1 to b4		D4
Student activities				d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS

### 8-1: Essential books:

- Radostits, O.M.; Gay, C.C.; Hinchcliff, K.W.; Constable, P.D. Veterinary Medicine: A Textbook of the Diseases of Cattle, Horses, Sheep, Pigs and Goats, 10th ed.; Saunders: Madrid, Spain, 2007; pp. 552–557.
- Radostits, Otto M. 2000. The Merck Veterinary Manual, 8th Edition. The Canadian Veterinary Journal 41(4), p. 334. Disponible en: [https:// goo.gl/3dv2Ys](https://goo.gl/3dv2Ys)
  - Hungerford TG: Diseases of Livestock. 1990, Sydney: MacGraw-Hill Medical.
- Kusiluka L, Kambarage D .Diseases of small ruminants, a handbook. Common diseases of sheep and goats in Sub-Saharan Africa. VETAID, Centre for Tropical Veterinary Medicine, Easter Bush, Roslin, Midlothian EH25 9RG, Scotland; 2006.
  - Reed SM, Bayly WM, Sellon DC: Equine Internal Medicine. 2004, Louis: Saunders, 1
  - Fowler ME. Medicine and Surgery of Camelids. Third Ed, Wiley-Blackwell, 2010.

### 8-2: Recommended books:

- Thrusfield, M., 2007. Veterinary epidemiology. Wiley-Blackwell.
- Rose, R.J., Hodgson, D.R., 1993. Manual of equine practice. W.B. Saunders, Edinburgh, UK
- Zajac AM, Conboy GA (2006) Veterinary clinical parasitology, 7th edn. Wiley-Blackwell, Iowa, USA.
- Kumar, Y , 2018 Antimicrobial Resistance—A Global Threat; Kumar, Y., Ed.; IntechOpen: London, UK.
- Sykes JE. *Canine and Feline Infectious Diseases*. 1st ed. St Louis, MO: Elsevier; 2014. pp. 141–151
- Greene CE, editor. *Infectious Diseases of the Dog and Cat*. 4th ed. St Louis, MO: Elsevier Saunders; 2012. pp. 80–91.
- Hernandez SM, Barron HW, Miller EA, Aguilar RF, Yabsley MJ. Medical management of wildlife species: a guide for practitioners. Hoboken, NJ: Wiley; 2019.
  - Hrapkiewicz K, Medina L. Clinical laboratory animal medicine: an introduction. 3rd ed. Ames, IA, Oxford: Blackwell; 2007



### **8-3 Egyptian Knowledge Bank:**

- Guerrant RL, Walker DH, Weller PF. , Tropical infectious diseases: principles, pathogens, and practice, 2006 Philadelphia, PA Saunders Elsevier
- Constable, P.D.; Hinchcliff, K.W.; Done, S.H.; Grünberg, W. Veterinary Medicine: A Textbook of the Diseases of Cattle, Horses, Sheep, Pigs, and Goats, 11th ed.; Elsevier Ltd.: Amsterdam, The Netherlands, 2017; p. 2356, ISBN 2978-2350-7020-7057-2350.
- Zajac and Conboy, 2007 A.M. Zajac, G.A. Conboy Veterinary Clinical Parasitology (7th ed.), Blackwell Publishing, Ames, IA(2007) p.. 305

### **8-4. Scientific Journals**

- Tropical Animal Health and Production.
- Journal of Animals.
- Journal of infection in developing countries.
- Camel Practice.
- Small ruminant research
- Transboundary and emerging diseases
- Journal of dairy sciences
- Veterinary research communication
- Acta tropica.
- Veterinary Research

### **8-5. Scientific websites**

- The Egyptian Knowledge Bank: <https://www.ekb.eg/web/guest/home>
- <https://www.oie.int/en/home/>
- <https://www.fao.org/home/en>
- <https://www.cdc.gov/globalhealth/resources/factsheets/index.html>

**Course Coordinator**

**Head of Department**

**Prof. Dr. Magdy H. Algaabary**

**Prof. Dr. Ismail Ibrahim**



Course Matrix for achievement of Intended Learning Outcomes

	Topics	Hours	Knowledge & Understanding							Intellectual Skills				Practical & Professional Skills				General & Transferable Skills			
			1	2	3	4	5	6	7	1	2	3	4	1	2	3	4	1	2	3	4
1	Epidemiology, diagnosis and control of Bacterial, Infectious diseases of wild animals.	78	X	X			X	X	X	X	X	X	X	X	X			X	X	X	X
2	Epidemiology, diagnosis and control of mycotic, Infectious diseases of wild animals.	6	X			X	X	X		X	X	X	X	X			X	X	X	X	X
3	Epidemiology, diagnosis and control of Viral, Infectious diseases of wild animals.	64	X	X				X	X	X	X	X	X		X		X	X	X	X	X
4	Epidemiology, diagnosis and control of parasitic Infectious diseases of wild animals.	44	X		X		X	X		X	X	X	X	X	X			X	X	X	X



**Kafrelsheikh University**  
Faculty of Veterinary Medicine



---

**Kafrelsheikh University**  
**Faculty of Veterinary Medicine**  
**Veterinary Medicine Department**

# **Program Specification for Master Degree**

## **(2021 - 2022)**

**Program Title:**

**Master of The Veterinary Science**  
**(Internal Medicine)**



## **A- Administrative information:**

- 1. Awarding Body:** Kafrelsheikh University
- 2. Teaching Body:** Faculty of Veterinary Medicine
- 3. Department responsible:** Animal medicine
- 4. Program Title:** Master Degree in Veterinary Science (internal medicine)
- 5. Final award:** Master Degree
- 6. Registration period:** 2-4 years
- 7. Program Coordinator:** Prof. Dr. Medhat N. Nassif
- 8. External evaluator:** prof.dr. kamal kamal Metwally

## **B- Professional information:**

### **1-Educational aims of the program**

- Provides graduates the opportunity to develop communication and teaching skills and the experience of scientific research.
- Develops the ability of graduate to engage critically with recent techniques and diagnostic tools in the field of animal medicine.
- Supplies the graduates with the most recent knowledge in science and technological applications in animal medicine.
- Demonstrates an awareness of the connections between disciplines and develop the ability to engage critically with scientific literature and to critically review and present their own research data for the protection and promotion of the animal health.
- Allows graduates to develop practical research project.
- Enables graduates to achieve competency in modern laboratory technology

### **2- Academic standards:**

**Academic reference standards (ARS) adopted by the faculty committee No (1) 14-9-2014)**

### **3-Graduate attributes:**

*Upon successful completion of the program, the graduate has the ability to:*

- Apply the gained specific knowledge in professional practice.



- Identify the professional problems and suggest solutions of the focus area.
- Apply and use analytical methods in the area of specialization.
- Apply efficiently the basics and methodologies of scientific research with the use of its different tools.
- Communicate effectively and lead work team through professional scale.
- Make decision under different professional situations
- Use of the available resources efficiently
- Be aware with the ongoing problems and modern concepts in the area of specialization.
- Be aware with his role in society development and community preservation.
- Reflect the commitment to act with integrity, credibility, and the rules of profession
- Realize the importance of self and life-long learning and progress.
- Master an appropriate domain in specialized professional skills and use modern technology to serve professional practice.

#### **4-Intended Learning Outcomes (ILOs)**

##### **A- KNOWLEDGE AND UNDERSTANDING:**

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

- a1- Recognize different theories, principles and knowledge in field of Internal Medicine.
- a2- Realize the Interaction of professional practice and its reflection on the community
- a3- Recognize the scientific developments in field of Internal Medicine.
- a4- Recognize the ethical and legal principles for professional practice in field of Internal Medicine.
- a5- Recognize the basics and principles of the quality of professional practice in field of Internal Medicine.
- a6-Recognize the principles and ethics of scientific research.

##### **B- INTELLECTUAL SKILLS**

- B1- Assess and criticize different data and information in Internal Medicine.



B2- Determine an accurate approach of disease diagnosis and solving in field of Internal Medicine.

B3- Perform research study or write scientific study to solve research problem

B4- Develop a research proposal based on disease problem of internal medicine.

B5- Asses the professional risk assessment in the field of Internal Medicine

B6- Plan to enhance the performance in field of Internal Medicine

B7- Make decisions and suggestion for dealing with field problem

### **C- PROFESSIONAL AND PRACTICAL SKILLS**

C1- Master of the fundamental and recent professional skills in field of Internal Medicine

C2- Write and asses the professional reports in field of Internal Medicine

C3- Assess the existing methods and tools in field of Internal Medicine.

C4- Apply the modern technology in diagnosis of different diseases

C5- Interpret various reports and research papers.

### **D- GENERAL AND TRANSFERABLE SKILLS**

**The student should be able to:**

D1- Communicate effectively in all kinds with all colleagues in the field

D2- Utilize information technology to serve professional practice.

D3- Self-evaluate and identify personal learning requirements.

D4- Utilize different sources to gain knowledge and information.

D5- Development of rules and key performance indicators for the others.

D6- Work in multidisciplinary team and lead team work in various professional contexts

D7- Manage time effectively

D8- Self and life-long learning.

### **5-Program structure:**

a. Program duration (years):

Master degree from 2-4 years



b) Premaster courses – at least one academic year

Course	Lecture (hours/week)	Practical (hours/week)
Fundamental (core) course	3	4
Research methodology	1	3
2-5 Elective Courses Offered by other departments and are selected from the list below according to thesis topic (10-12 hours)	5-6	5-6

c) MVSc Thesis (at least one academic year)

- All master-degree students should prepare a master thesis.
- The department and the ethical committees must approve the protocol of the research.
- The thesis should include a review part and a research part.
- The thesis is supervised by one or more senior staff members of the department responsible for the program and may include other specialties according to the nature of the research.
- The thesis should be evaluated and approved by a committee of three professors including one of the supervisors and an external professor.

*A number of subsidiary courses are selected from the following list according to the title of the research work:*

Subject	Code	Course title	No of hours/week
---------	------	--------------	------------------





			Lecture	Practical Lab
<b>Anatomy and embryology</b>	101/1	<b>1- Applied anatomy</b>	2	2
	102/1	<b>2- Anatomical techniques and surface anatomy</b>	2	2
	103/1	<b>3- Osteology and arthrology</b>	2	2
	104/1	<b>4- Comparative digestive system</b>	2	2
	105/1	<b>5- Comparative uro-genital system</b>	2	2
	106/1	<b>6-Comparative respiratory system</b>	2	2
	107/1	<b>7- Comparative cardiovascular system</b>	2	2
	108/1	<b>8- Comparative nervous system and endocrine glands</b>	2	2
	109/1	<b>9- General and special embryology</b>	2	2
	110/1	<b>10- Avian anatomy</b>	1	2
<b>Histology</b>	111/1	<b>11- cytology and cytochemistry</b>	1	2
	112/1	<b>12- general histology</b>	2	2
	113/1	<b>13- Histology and histochemistry of blood, lymph and cardiovascular system.</b>	1	1
	114/1	<b>14- Comparative histology and histochemistry of body muscles, heart and blood vessels</b>	1	1
	115/1	<b>15- Comparative histology and histochemistry of respiratory system</b>	1	1
	116/1	<b>16-Comparative histology and histochemistry of digestive system</b>	2	2
	117/1	<b>17- Comparative histology and histochemistry of uro-genital system</b>	2	2
	118/1	<b>18- Comparative histology and histochemistry of nervous and endocrine systems</b>	2	2
	119/1	<b>19- Histology and histochemistry of special sensors</b>	1	2
	120/1	<b>20-Histology and histochemistry of skin, hooves, claws and nails</b>	2	2



Physiology	121/1	<b>21- Avian histology</b>	2	2
	122/1	<b>22- Fish histology</b>	1	2
	123/1	<b>23- Physiology of mammalian endocrine and reproduction</b>	2	2
	124/1	<b>24- poultry physiology (advanced)</b>	2	2
	125/1	<b>25- physiology of muscle and nerve</b>	1	2
	126/1	<b>26- physiology of ruminants</b>	2	2
	127/1	<b>27- physiology of environment, adaptation and cell</b>	2	2
	128/1	<b>28- physiology of blood</b>	2	2
	129/1	<b>29- physiology of digestion, metabolism and energy</b>	2	2
	130/1	<b>30- Physiology in pollution</b>	1	2
	131/1	<b>31- Radioactive isotopes and biological uses</b>	2	2
	132/1	<b>32- Physiology of heights</b>	1	1
	133/1	<b>33-Fish physiology.</b>	1	2
Biochemistry	134/1	<b>34- Basics of biochemistry</b>	2	3
	135/1	<b>35- Metabolism</b>	2	2
	136/1	<b>36- Biochemistry of tissue and body fluids .</b>	2	2
	137/1	<b>37- Biochemistry of hormones and reproduction</b>	2	2
	138/1	<b>38- Feeding biochemistry</b>	2	2
	139/1	<b>39- Clinical biochemistry</b>	2	2
	140/1	<b>40- Avian biochemistry</b>	2	2
	141/1	<b>41- Microbial biochemistry</b>	2	2
	142/1	<b>42- Biochemistry of radiation</b>	1	2
	143/1	<b>43- Fish biochemistry</b>		
Animal behavior and management	144/1	<b>44- Behavior and management of ruminants ( specific courses in cattle, buffalo, sheep, camels and goats)</b>	2	3
	145/1	<b>45- Behavior and management of horses</b>	2	3
	146/1	<b>46- Behavior and management of pet animals</b>	1	2
	147/1	<b>47- Behavior and management of laboratory animals</b>	1	2
	148/1	<b>48- Behavior and management of wild</b>	2	2



		<b>animals</b>		
	149/1	<b>49- Behavior and management of poultry</b>	2	2
	150/1	<b>50- Behavior and management of rabbit</b>	1	2
	151/1	<b>51- Behavior of experimental animals</b>	1	2
<b>Nutrition and clinical nutrition</b>				
	152/1	<b>52- Basics of animal nutrition</b>	2	2
	153/1	<b>53- feedstuff</b>	2	2
	154/1	<b>54- nutrition of farm animals and fish specific courses in ( cattle and buffalo nutrition – sheep and goat nutrition – camel nutrition- equine nutrition – fish nutrition)</b>	2	2
	155/1	<b>55- poultry and rabbit nutrition( advanced)</b>	2	2
	156/1	<b>56- wild animal nutrition</b>	1	2
	157/1	<b>57- laboratory animal nutrition</b>	1	2
	158/1	<b>58- feed additives</b>	1	2
	159/1	<b>59- feedstuff analysis</b>	2	2
	160/1	<b>60- Quality control of feed and feed factories</b>	2	2
	161/1	<b>61- Clinical nutrition and malnutrition</b>	2	2
	162/1	<b>62- Fish nutrition</b>	1	2
<b>Pathology</b>				
	163/1	<b>63- General pathology and neoplasm( progressive)</b>	2	2
	164/1	<b>64-pathology of microbial and parasitic diseases in animal</b>	2	2
	165/1	<b>65- pathology of bad nutrition</b>	1	2
	166/1	<b>66- pathology of environmental pollution</b>	1	2
	167/1	<b>67- pathology of reproductive diseases</b>	1	2
	168/1	<b>68- Avian pathology</b>	2	2
	169/1	<b>69-Experimental pathology</b>	2	2
	170/1	<b>70- toxins pathology</b>	2	2
	171/1	<b>71- surgical pathology</b>	2	2
	172/1	<b>72- Pathology of experimental animals.</b>		
	173/1	<b>73- Pathology of genetics</b>		
	174/1	<b>74-- Fish pathology</b>	2	2
<b>Clinical pathology</b>				
	175/1	<b>75- Advanced clinical pathology</b>	2	2
	176/1	<b>76-Organ function tests and body and</b>	2	2



		<b>urine balance</b>		
	177/1	<b>77- Clinical hematology and bone marrow examination</b>	1	2
<b>Bacteriology, immunology and mycology</b>				
	178/1	<b>78- General bacteriology(advanced)</b>	1	2
	179/1	<b>79-systemic bacteriology</b>	2	3
	182/1	<b>80- Advanced immunology</b>	2	2
	183/2	<b>81- Advanced mycology</b>	1	2
<b>Virology</b>				
	180/3	<b>82- General virology</b>	1	2
	181/4	<b>83-Systemic virology( specific courses)</b>	2	3
	182/5	<b>84- Advanced immunology</b>	2	2
<b>Mixed courses between Bacteriology and Virology</b>				
	184/1	<b>85- Microbiology of poultry</b>	2	2
	185/1	<b>86- Microbiology of ??????</b>	1	2
	186/1	<b>87- Microbiology of animal product</b>	2	2
	187/1	<b>88- Fish Microbiology</b>	1	2
<b>81- Advanced immunology</b>			<b>2</b>	<b>2</b>
<b>Parasitology</b>				
	188/1	<b>89- Veterinary medical entomology and acarology</b>	2	2
	189/1	<b>90-helminthology</b>	2	2
	190/1	<b>91- protozoology</b>	2	2
	191/1	<b>92- Avian and rabbits parasitology</b>	2	2
	192/1	<b>93Malacology and its vet. Importance</b>	1	2
	193/1	<b>94- parasitic Immunology</b>	1	2
	194/1	<b>95- Clinical parasitology</b>	2	2
	195/1	<b>96-Wild life parasitology</b>	1	2
	196/1	<b>97-Special vet. Parasitology</b>	2	2
	197/1	<b>98- Physiology and biochemistry of parasites</b>	2	2
	198/1	<b>99- Fish parasitology</b>	1	2
<b>Pharmacology</b>				
	199/1	<b>100- Aeneral pharmacology ( advanced)</b>	2	2
	200/1	<b>101- pharmacology of autonomic nervous system and autocoid</b>	2	2
	201/1	<b>102- pharmacology of central nervous system</b>	2	2
	202/1	<b>103 pharmacology of anesthesia</b>	2	2
	203/1	<b>104- Systemic pharmacology</b>	2	2
	204/1	<b>105- pharmacology of metabolism</b>	2	2



	205/1	<b>106- pharmacology of hormones</b>	2	2
	206/1	<b>107-Chemotherapy</b>	2	2
	207/1	<b>108-Biological evolution of drug</b>	1	1
<b>Hygiene and control of milk and dairy products</b>	208/1	<b>108- Hygiene and control of milk and dairy products</b>	2	2
	209	<b>109- Microbiology of milk and dairy products</b>	2	2
	210/1	<b>110- Milk technology and preservation</b>	2	2
	211/1	<b>111- Food analysis</b>	2	2
	212/1	<b>112- Food poisoning</b>	1	2
	213/1	<b>113- Specific courses on sources of contamination, disturbances of milk production, milk born diseases, hygiene of table egg, edible fats and oils</b>	1	1
	214/1	<b>114- The sanitation of dairy plant</b>	2	2
<b>Control of meat hygiene and their products</b>	215/1	<b>115- Slaughter animal Hygiene</b>	1	2
	216/1	<b>116- Abattoir management and hygiene</b>	2	2
	217/1	<b>117- Hygienic control of meat and their product</b>	2	2
	218/1	<b>118 inspection of poultry meat.</b>	1	2
	219/1	<b>119- Food technology</b>	1	2
	220/1	<b>120- Microbiology of meat and fish meats and their product</b>	2	1
	221/1	<b>121- Chilled meal microbiology</b>	1	2
	222/1	<b>122- Analysis of meat and fish and their product</b>	1	2
	223/1	<b>123- Preservation of meat, poultry, fish and their products</b>	1	2
	224/1	<b>124- Sanitation affairs of meat and fish plants.</b>	2	2
<b>Infectious diseases</b>	235/ 1	<b>135- Infectious diseases of cattle</b>	2	2
	236/ 1	<b>136- Infectious diseases of sheep and goat</b>	2	2
	237/ 1	<b>137- Infectious diseases camel</b>	2	2
	238/ 1	<b>138 Infectious diseases of equine</b>	2	2
	239/ 1	<b>139- Infectious diseases of pet animals</b>	2	2
	240/ 1	<b>140- Infectious diseases lab animals</b>	1	2



	241/ 1	<b>141- Infectious diseases of udder and newly born animals</b>	2	2
	242/ 1	<b>142- Infectious diseases buffaloes</b>	2	1
	243/1	<b>143- Infectious diseases of wild animals.</b>		
<b>Forensic medicine and toxicology</b>	244/1	<b>144- Forensic medicine and veterinary procedures</b>	2	2
	245/1	<b>145- general toxicology</b>	2	2
	246/1	<b>146- environmental toxicology</b>	2	2
	247/1	<b>147- forensic toxicology</b>	2	2
	248/1	<b>148- laboratory diagnostic toxicology</b>	2	2
	249/1	<b>149- Drug toxicology</b>		
<b>Veterinary Surgery</b>	259/1	<b>159- General surgery (advanced)</b>	2	2
	260/1	<b>160- Special surgery( organs)</b>	2	3
	261/1	<b>161- surgery of eye, ear, nose and larynx</b>	2	2
	262/1	<b>162 digestive system surgery</b>	2	2
	263/1	<b>163- surgery of the limbs, hoof and claws</b>	2	2
	264/1	<b>164- experimental surgery</b>	2	2
	265/1	<b>165- anesthesiology</b>	1	1
	266/1	<b>166- radiology and ultrasonography</b>	2	2
<b>Poultry and rabbit diseases</b>	267/1	<b>167- bacterial diseases of poultry</b>	2	2
	268/1	<b>168- viral diseases of poultry</b>	2	2
	269/1	<b>169- fungal diseases of poultry</b>	2	2
	270/1	<b>170 parasitic diseases of poultry</b>	1	2
	271/1	<b>171 - nutritional diseases of poultry</b>	1	2
	272/1	<b>172-diseases of rabbit (advanced)</b>	2	2
	273/1	<b>173-Diseases of wild and migrating birds</b>	2	2
	274/1	<b>174- Preventive vaccines and their evaluation in polutry</b>	2	2
	275/1	<b>175- Laboratory diagnosis of poultry diseases.</b>		
<b>Animal and environmental hygiene</b>	276/1	<b>176- farm animal hygiene ( advanced)</b>	2	2
	277/1	<b>177- poultry hygiene ( advanced)</b>	2	2
	278/1	<b>178- environmental hygiene and pollution</b>	2	2
	279/1	<b>179- control of contagious diseases</b>	2	2
	280/1	<b>180- eradication of rodents and disease</b>	2	2



		<b>vector</b>		
	281/1	<b>181- insecticides and public health</b>	2	2
	282/1	<b>182-hygiene of animal enclosures- specific courses in :- cattle houses – poultry houses – rabbit houses- pet animals house3s – experimental animals houses</b>	2	2
	283/1	<b>183-disinfections and disinfectants</b>	2	2
	284/1	<b>184- veterinary epidemiology – specific courses in animal environment</b>	2	-
<b>Zoonoses</b>	285/1	<b>185- advanced zoonoses ( specific courses in bacterial and Mycotic diseases – viral diseases – parasitic diseases)</b>	2	2
	286/1	<b>186- role of rodents in transmission of zoonoses</b>	2	2
	287/1	<b>187- role of wild animals in transmission of zoonoses</b>	2	2
	288/1	<b>188- role of birds (special courses in: poultry, wild migrating or pets) in transmission of zoonoses</b>		
<b>Genetics and genetic engineering</b>	289/1	<b>189- Genetics of microorganisms .</b>	1	2
	290/1	<b>190- Genetic engineering( advanced)</b>	1	2
	291/1	<b>191- Cytological genetics</b>	1	-
	292/1	<b>192- Genetics of genuses.</b>	2	-
	293/1	<b>193- physiological genetics</b>	2	-
	294/1	<b>194- Chemical and radiological genetics.</b>	1	2
<b>Animal production</b>	295/1	<b>195- Animal breeding and improvement (advanced).</b>	2	-
	296/1	<b>196- Poultry breeding and improvement(advanced).</b>	2	-
	297/1	<b>197- Cattle and buffalo production (advanced).</b>	2	2
	298/1	<b>198- Sheep and goat production (advanced).</b>	2	2
	299/1	<b>199- Poultry production (advanced).</b>	2	2
	300	<b>200-Rabbit production (advanced).</b>	2	2
	301	<b>201-Improving by artificial insemination in poultry and rabbits.</b>	2	2



<b>Fish diseases and management</b>	302/1	<b>202- Biology of fish.</b>	2	2
	303/1	<b>203-Fish diseases (advanced)</b>	2	2
	304/1	<b>204-Fish farms.</b>	1	2
	305/1	<b>205-Fish breeding .</b>	2	2
<b>Economic and farms management</b>	306/1	<b>206- economics of animals and dairy production</b>	2	-
	307/1	<b>207- economics of poultry farms</b>	2	-
	308/1	<b>208-economics of fish farms</b>	2	-
	309/1	<b>209- feasibility studies</b>	2	-
	310/1	<b>210- farm management</b>	2	-
	311/1	<b>211- economics of beef production</b>	2	-
<b>Biostatistics</b>	312/1	<b>212- Biostatistics (advanced)</b>	2	-
	313/1	<b>213- Experimental design</b>	2	2
	314/1	<b>214- Computer and data processing</b>	2	1

## 6-Teaching and Learning Methods:

•The program features a variety of teaching approaches for different intended learning objectives, including lectures, practical and lab sessions, field visits and seminars.

## 7- Students assessments:

The program depends on different assessment ways:

### a. Course assessment:

1- Written examination	For assessment of knowledge, back calling and Intellectual skills
2- Practical examination	For assessment of practical and professional skill
3- Oral examination	For assessment of knowledge and Intellectual skills

### b.Master Thesis

- Annual reports adopted by the Faculty
- Finally, the assessment of thesis measure the individual student ability to work independently in the field specialization





•Final evaluation and approval by a judging committee of at least three professors including one or more of the supervisors and an external professor. This assesses the ability to write a review article, perform the needed practical steps and to present the results in tables and graphs. In addition, the skills of analysis of results and discussion with previous findings obtained by other authors are also assessed.

**Assessment of program intended learning outcomes**

Tool or method	ILOs
1- Written	a.1, a.2,a4, b1, b2,b5
2- Oral	a.1, a.2,a4, b1, b2,b5
3- Practical	C1-C2, b1,5
4- Thesis	a3,5,6; b4,b6,b7; c3-5, d1-8

**8. Marking scale as follow:-**

<b>Excellent</b>	> 90	
<b>Very good</b>	>80	
<b>Good</b>	>70	
<b>Pass</b>	>60	
<b>Fail</b>	<b>Weak</b>	45 to less than 60
	<b>very weak</b>	Less than 45

**9. Program evaluation methods**

Evaluator	Tool	Sample
Postgraduate Student	Questioners	<b>20%</b>
	meeting	<b>1</b>
Postgraduate alumni	Questioners	<b>5</b>
Stakeholders (employers)	Questioners	<b>10</b>
	Meeting	<b>1</b>
External evaluator/External examiner	Reports	<b>1</b>

**10. Program Admission Requirements:**

The Applicant must normally satisfy the faculty of veterinary medicine-Kafrelsheikh University general entrance and requirement. The normal minimum entrance qualification for registration at the faculty on a master’s program



- 1- Bachelor degree in Medical veterinary science of one of the Egyptian universities or hold a degree in Medical veterinary science equivalent through the Supreme Council of Universities with general grade at least “Good” and at least grade very Good” in specialization or the average courses covered the specialization
- 2- Diploma with good grade and very good grade to the specialized program “Good” so that the teaching hours are not less than 3 hours for theoretical and practical courses.
- 3- After he has passed the courses studied during premaster he must perform a research work in a subject approved by the faculty council at least for one year . He must submit the results of this work in thesis that should be approved by the discussion committee.

## 11. Regulations for progression of program

- a) Registration period for the M.V.Sc in veterinary medical science is at least 2 years after the approval date by the faculty council and it should not exceed a period of 4 years, an extension could be approved by the faculty council depending on the supervisor report that approved by the department council and postgraduate and research committee refers to the universities regulation law.
- b) The student should conduct the courses proposed by both department council and approved by postgraduate and research committee and faculty council and include, 2-5 courses of the postgraduates stated in article (28) in regulation law list and the student will entitled to apply for the exam only after meeting attendance rate for each courses.
- c) The student should pass written, practical and oral exams successfully in all courses, and the examination is held two times annually.
- d) The Faculty council should deprive the student from entering the exam if his attendance rate in the course is less than 75%.
- e) Failure or depriving from entering one or more course did not require reexamination of successful passed courses.
- f) The applicant should conduct an innovate research on the subject that has been registered for at least 2 years from the date of registration approved by the faculty council. And the faculty council depending on a request from the supervisor has the right to authorize the student to do scientific experiments at recognized scientific institute.



- g) The applicant should submit the thesis that accepted by the judging committee in an open discussion and the following policies should be met:
- h) Pass all courses.
- i) The applicant should submit 4 copies of his thesis concerned department council to form committee examining the thesis to be presented to the postgraduate studies committee and the faculty council, and in case of thesis approval by the department council, the applicant will submit 6 copies for the faculty library, 1 copy for public university library before introducing the report of examination committee to the post graduate studies committee and the faculty council.
- j) Registration will be during March and September of each year.
- k) The applicant should submit a request enrolment for the dean who forwards bit to the concerned department council to determine the research subject and the study program and then take calendar after complete documentation on the faculty council for approval.
- l) The thesis title should be identified before being submitted at least 2 months and the judging committee has the right to amend the title without prejudice the subject of research.
- m) The Faculty council has the right to suspend the student enrolment for a certain period if he has acceptable excuse preventing him from continuing his study or research, and his period will not counted within the period stated in article 25.
- n) The applicant should submit 5 hard copies and 10 electronic copies (CDs) of the thesis after its validity approved by the judging committee and head of department to be distributed to the committee members and faculty library and the judging committee can decide the exchange of the thesis with other universities or printing at the expense of the university.

## **12. Registration will be cancelled in one of the following cases:**

1. If the supervisors report during the registration period is un satisfactory ( 2 reports).
2. If he did not submit his thesis before the end of registration period.
3. If the judging committee rejected the thesis twice.

## **13. Examination Regulations**



**a-** Time of written exam, 3 hours for each course that has 3 hours or more for lecture / practical /week. **If has less than 3 hours/week, the time of exam, is 2 hours only.**

**b-**The final degree of each course which has 3 hours (lecture and practical) per week is **100 and less than 3 hours is 50 degrees and divided into 50% for written exam, and 50% for practical and oral exam.**

#### **14. Program completion:**

- Successfully completion of the required courses and submission of a thesis

**Program coordinator**

**Head of department**

**PROF. Dr. Medhat N. Nassif**

**PROF. Dr. Ismail Ismail Ibrahim**



## Matching program ILOs with ARS - Matrix

Program ILOs	ARS																							
	K&U (a)						I.S. (b)							P.P. (c)			G.T. (d)							
	1	2	3	4	5	6	1	2	3	4	5	6	7	1	2	3	1	2	3	4	5	6	7	8
<b>K&amp;U</b>	1	2	3	4	5	6																		
<b>I.S.</b>							1	2	3	4	5	6	7											
<b>P.P.</b>														1	2	3, 4								
<b>G.T.</b>																	1	2	3	4	5	6	7	8





## ARS for Master in Veterinary Medical Sciences (Internal Medicine)

### 1) Graduate attributes

*The graduate should have the ability for:*

- 1) Apply the gained specific knowledge in professional practice.
- 2) Identify the professional problems and suggest solutions of the focus area.
- 3) Apply and use analytical methods in the area of specialization.
- 4) Apply efficiently the basics and methodologies of scientific research with the use of its different tools.
- 5) Communicate effectively and lead work team through professional scale.
- 6) Make decision under different professional situations
- 7) Use of the available resources efficiently
- 8) Be aware with the ongoing problems and modern concepts in the area of specialization.
- 9) Be aware with his role in society development and community preservation.
- 10) Reflect the commitment to act with integrity, credibility, and the rules of profession
- 11) Realize the importance of self and life-long learning and progress.
- 12) Master an appropriate domain in specialized professional skills and use modern technology to serve professional practice.

### A) Knowledge and understanding

Adopted ARS		NARS (Master)	
	<i>By the end of this program the graduate should understand and accommodate the following:</i>		<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Theories and principles in the field of animal medicine and related fields.		Theories and principles in the field of specialization and related fields.
2)	The impact of different animal internal diseases on animal products and its reflection on the environment		Mutual effect between professional practice and its impact on environment
3)	Application of his knowledge of animal medicine research methods by evaluating the utility of those techniques to specific research question improvement of animal health		Scientific progress in the field of specialization
4)	Applying legal and ethical basics in animal medicine improvement practice.		Legal and ethical basics in professional practice in the field of specialization
5)	Recognizing basics and principles of quality		Principles and basics of quality



	assurance in the field of animal medicine.	assurance in the area of specialization
6)	Basics and ethics of scientific research especially that associated with animal welfare.	Basics and ethics of scientific research

### B) Intellectual skills

Adopted ARS		NARS (Master)
	<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Integration of the available record information, analysis of data and judgment of animals on the basis of animal medicine indices.	Analysis and judgment of information in the field of specialization and analog to solve problems.
2)	Solving animal medicine problems based on the available data	Solving professional problems even in scarcity of data.
3)	Connectivity between the various sources of knowledge to solve animal medicine problems in animals.	Relating between different knowledge to solve professional problems.
4)	Demonstration insight into research and scientific methods, experimental design, formulating research questions that are relevant to animal medicine and writing scientific article on a research problem.	Preparing research plan in specialization and/ or writing scientific article on a research problem.
5)	Assessing professional risk in the field of animal medicine.	Risk-assessment of professional practices in specialization.
6)	Development of plans to maximize health status of animals.	Planning for improvement of professional performance.
7)	Making decisions and suggestions for improvement of animal health in different contexts	Taking professional decisions in a variety of professional contexts.

### C) Professional and practical skills

Adopted ARS		NARS (Master)
	<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Mastering basic and recent professional skills of, diagnosis, treatment and prevention and information dissemination of animal internal diseases.	Mastering basic and recent professional skills in the field of specialization
2)	Writing and evaluating medical report about different disease and case reports as well as treatment and preventive protocols.	Writing and evaluating professional reports.





3)	Evaluating existing materials and methods used for animal internal diseases researches or field practice.	Evaluating existing materials and methods in the area of specialization.
----	---	--

**D) General and transferable skill**

<b>Adopted ARS</b>		<b>NARS (Master)</b>
	<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Communicate effectively with his professors, collages, and animal owner(s) as well as has the ability for effective public communication.	Effective communication.
2)	Utilizing information technology to improve his skills of diagnosis, treatment and control of animal internal diseases.	Utilizing information technology to serve development of professional practice.
3)	Set tools and indicators for assessment of his performance and determine his continues educational needs.	Self-assessment and determination of personal educational needs.
4)	Enrichment his knowledge and information about animal infectious diseases and keep updating through using of different sources of knowledge and information.	Using different resources to obtain knowledge and information.
5)	Establishing rules and indicators for assessment of the performance of others.	Establishing rules and indicators for assessment of the performance of others.
6)	Team working and leading a team in familiar professional contexts.	Team working and leading a team in familiar professional contexts.
7)	Efficient time management.	Efficient time management.
8)	Self and continuous learning.	Self and continuous learning.

## ثانياً: برامج الماجستير

### ١- مواصفات الخريج

- خريج برنامج الماجستير في أي تخصص يجب أن يكون قادراً على:
١. إجادة تطبيق أساسيات و منهجيات البحث العلمي واستخدام أدواته المختلفة
  ٢. تطبيق المنهج التحليلي واستخدامه في مجال التخصص
  ٣. تطبيق المعارف المتخصصة و دمجها مع المعارف ذات العلاقة في ممارسته المهنية
  ٤. إظهار وعيا بالمشاكل الجارية و الرؤى الحديثة في مجال التخصص
  ٥. تحديد المشكلات المهنية و إيجاد حلول لها
  ٦. إتقان نطاق مناسب من المهارات المهنية المتخصصة، واستخدام الوسائل التكنولوجية المناسبة بما يخدم ممارسته المهنية
  ٧. التواصل بفاعلية و القدرة على قيادة فرق العمل
  ٨. اتخاذ القرار في سياقات مهنية مختلفة
  ٩. توظيف الموارد المتاحة بما يحقق أعلى استفادة و الحفاظ عليها
  ١٠. إظهار الوعي بدوره في تنمية المجتمع و الحفاظ على البيئة في ضوء المتغيرات العالمية و الإقليمية
  ١١. التصرف بما يعكس الالتزام بالنزاهة و المصداقية و الالتزام بقواعد المهنة
  ١٢. تنمية ذاته أكاديمياً و مهنياً و قادراً علي التعلم المستمر

### ١٢- المعايير القياسية العامة

#### ١ المعرفة و الفهم

- بانتهاج دراسة برنامج الماجستير يجب ان يكون الخريج على فهم و دراية بكل من:
- أ- النظريات و الأساسيات المتعلقة بمجال التعلم وكذا في المجالات ذات العلاقة
  - ب- التأثير المتبادل بين الممارسة المهنية وانعكاسها علي البيئة
  - ت- التطورات العلمية في مجال التخصص
  - ث- المبادئ الأخلاقية و القانونية للممارسة المهنية في مجال التخصص
  - ج- مبادئ و أساسيات الجودة في الممارسة المهنية في مجال التخصص
  - ح- أساسيات وأخلاقيات البحث العلمي

#### ٢ المهارات الذهنية

- بانتهاج دراسة برنامج الماجستير يجب ان يكون الخريج قادراً على:

- أ- تحليل و تقييم المعلومات في مجال التخصص و القياس عليها لحل المشاكل
- ب- حل المشاكل المتخصصة مع عدم توافر بعض المعطيات
- ت- الربط بين المعارف المختلفة لحل المشاكل المهنية
- ث- إجراء دراسة بحثية و /أو كتابة دراسة علمية منهجية حول مشكلة بحثية
- ج- تقييم المخاطر في الممارسات المهنية في مجال التخصص
- ح- التخطيط لتطوير الأداء في مجال التخصص
- خ- اتخاذ القرارات المهنية في سياقات مهنية متنوعة

### ٣ المهارات المهنية

- بانتهاء دراسة برنامج الماجستير يجب ان يكون الخريج قادرا على:
- أ- إتقان المهارات المهنية الأساسية و الحديثة في مجال التخصص
  - ب- كتابة و تقييم التقارير المهنية
  - ت- تقييم الطرق و الأدوات القائمة في مجال التخصص

### ٤ المهارات العامة و المنتقلة

- بانتهاء دراسة برنامج الماجستير يجب أن يكون الخريج قادرا على:
- أ- التواصل الفعال بأنواعه المختلفة
  - ب- استخدام تكنولوجيا المعلومات بما يخدم الممارسة المهنية
  - ت- التقييم الذاتي وتحديد احتياجاته التعليمية الشخصية
  - ث- استخدام المصادر المختلفة للحصول على المعلومات و المعارف
  - ج- وضع قواعد ومؤشرات تقييم أداء الآخرين
  - ح- العمل في فريق ، وقيادة فرق في سياقات مهنية مختلفة
  - خ- إدارة الوقت بكفاءة
  - د- التعلم الذاتي و المستمر



## COURSE SPECIFICATION (2021-2022)

### 1 - Basic Information

Course title: Animal medicine ( Basic)

Academic Year: Master of veterinary medicine program

Total teaching hours: 336 h

Lectures: 144 hrs (48 weeks- 3hrs/week)

Practical: 192 hrs (48 weeks- 4hrs/week)

### 2 - OVERALL AIMS OF THE COURSE:

By course ending the students should gain up-to-date knowledge of medicinal diseases that are most commonly affecting Cows, Buffaloes, Camels, Sheep, Goats, horses, pets and their treatment and control. The students are enabling for accurate diagnosis, differential diagnosis and treatment of these diseases. Diseases of digestive, respiratory, urinary, skin affections, nutritional deficiency and metabolic disorders are of particular concern because of their direct relation to the milk and Examination of heard has a special attention.

### 3 - INTENDED LEARNING OUTCOMES (I. L.Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- a1- List the affections , treatment and control of digestive system.
- a2- Define the affections , treatment and control of respiratory system.
- a3- Determine the affections ,treatment and control of cardiovascular system.
- a4- Recognize the affections , treatment and control of urinary system.
- a5- Identify the affections ,treatment and control of nervous system

#### 3-B: INTELLECTUAL SKILLS:

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

- b1- Use the skills of differential diagnosis based on clinical signs.
- b2- Determine of inter-relation between system affections.
- b3- Identify other diagnostic aids.
- b4- Choose the appropriate treatment for each disease.
- b5- Interpret, reading and comment the lab and especial diagnostic results.

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

- c1- Determine case history professionally.
- c2- Carry out clinical and physical examinations.
- c3- Establish samples collection and preserve it for Lab diagnosis.

#### 3-D: GENERAL SKILLS:

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

- d1- Design oral presentation.
- d2- Use computer skills.
- d3- Plan time management.
- d4- Participates group work.

#### 4- COURSE CONTENTS:

Topic	No. of hours		
	Lectures	Practical	Total
1. Diseases of digestive system	24	32	56
2. Diseases of respiratory system	24	32	56
3. Diseases of musculoskeletal system	24	32	56
4. Diseases of urinary system	24	32	56
5. Diseases of cardiovascular system	16	24	40
6. Diseases of nervous system in ruminant, horses and pets and its diagnosis	16	20	36
7-Diseases of skin	16	20	36
Total	144	192	336

#### 5- TEACHING & LEARNING METHODS:

\* **Lectures:** PowerPoint presentations including videos, and whiteboard Discussion and brain storming.

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library

Making individual reports about different animals operations

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Lectures	a1 to a5	b1 to b5		d1, d4
Practical sessions		b1 to b5	c1 to c3	d3, d4
Self-Learning activities	a3 to a5		c1 o c3	d2, d3, d4
Distance Teaching and Learning	a1 to a5	b1 to b5	c1 to c3	d1 to d4

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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



<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	Allover the academic year
<b>7.c grads</b>	50	20	20	10

6.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a5	b1 to b5	C 1 to c3	d4
Practical exams			c1 to c3	d2, d3
Oral exams	a1 to a5	b1 to b5		d1
Student activities	a1, a5			d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8.1. Essential books (text books)

- Nelson, R. W., Couto, C. G. (2019): Small Animal INTERNAL MEDICINE, Sixth Ed.
- Kealy, J.K. and McAllister, H. (2005): Textbook of Diagnostic Radiology, ultrasonography of the dog and cat, 4th ed.: 1-19.
- Matwichuk, C. L., Daniel, G.B., De Novo, R.C., Schultze, A.E., Schnidt, D.E. and Creevy, K.E. (2000): Veterinary Radiology and Ultrasound, 41(1): 78-84.
- Jameson, L., Fauci, A and Kasper, D. (2018): Harrison's Principles of Internal Medicine, 20<sup>th</sup> Ed.
- Smith B.P, Van Metre. and pusterla, N. (2019): Large Animal INTERNAL MEDICINE, Sixth Ed.
- Noli, C, Foster, A and Rosenkrantz, Wayne. (2014): Veterinary Allergy, First Ed.

### 8.2.: web sites and journals

- [esarf.tripod.com/index.html](http://esarf.tripod.com/index.html).
- [WWW.PubMed.com](http://WWW.PubMed.com)
- International of veterinary information services (IVIS)
- [www.Vet.net.com](http://www.Vet.net.com)
- Journal of animal science
- British journal of animal science
- American journal of veterinary research

**Course Coordinator**

**Dr. Naglaa gomaa**

**Head of Department**

**Prof.Dr.Ismail Ismail Ibrahim**



**xxCourse Matrix for achievement of Intended Learning Outcomes**

	Topics	Hours	Knowledge & Understanding					Intellectual Skills					Practical & Professional Skills			General & Transferable Skills			
			1	2	3	4	5	1	2	3	4	5	1	2	3	1	2	3	4
1	1. Diseases of digestive system	56	X	X	X				X	X				X	X			X	
2	2. Diseases of respiratory system	56	X		X			X			X		X	X	X	X		X	
3	3. Diseases of musculoskeletal system	56	X			X		X	X			X	X		X				X
4	4. Diseases of urinary system	56	X		X			X	X	X			X	X					
5	5. Diseases of cardiovascular system	40		X		X		X	X	X			X	X	X		X	X	
6	6. Diseases of nervous system in ruminant, horses and pets and its diagnosis	36	X	X		X		X			X		X		X		X	X	
7	Diseases of skin	36		X		X		X		X	X	X	X	X		X	X		X

## COURSE SPECIFICATION (2021-2022)

### 1 - Basic Information

Code number: 227/1

Course title: *Diseases of Equine*

Academic Year: Master of veterinary medicine program

Total teaching hours: 192 h

Lectures: 96 hrs (48 weeks- 2hrs/week)

Practical: 96 hrs (48 weeks- 2hrs/week)

### 2 - OVERALL AIMS OF THE COURSE:

*By the end of this course, the student should acquire the concepts, principles and skills related to provide student with basic knowledge and skills concerning Diseases of equine. Provide master students with the skills of data collection in the field of pet animal diseases to enhance the self-learning skills through a series of research assays*

### 3 - INTENDED LEARNING OUTCOMES (I. L.Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

A1-List different diseases affecting equine diseases.

- A2-Know the economic impact of these diseases on nation income.
- A3- Identify the different methods for data collections.
- A4-Realize the methods used for his scientific research.
- A5-comprehend the general aim for study equine diseases.

#### 3-B: INTELLECTUAL SKILLS:

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

- B1- Design a research proposal in the area of specialization
- B2 - Estimate, Identify and evaluate the articles and collected research papers of equine diseases
- B3-Criticize and Assess their own research data regarding the research area
- B4-Comment accurately upon the obtained results and discuss these results
- B5-Determine area where further research is necessary

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

- C1- Write correctively the report of the examined clinical cases of equine diseases.
- C2- Perform relevant statistical analysis on data obtained from own research which support his clinical skills.
- C3- Conduct research project using appropriate range of experimental techniques.

#### 3-D: GENERAL SKILLS:

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

D1- Utilize computer and internet skills.

D2 -Develop the ethical behaviours between students and staff members as well as among the students themselves.

D3- gain skills in problem solving

D4- Secure Communication skills



- D5- attain Information technology skill  
 D6- use the continuous self learning (life long learning) strategy  
 D7- Work in a team work and effective groups  
 D8- Get discussion skills  
 D9- Acquire the negotiation skills

#### 4- COURSE CONTENTS:

Topic	No. of hours		
	Lectures	Practical	Total
1. Diseases of digestive system in equine	4	2	6
2. Diseases of respiratory system in equine	20	18	38
3. Diseases of musculoskeletal system in equine	16	20	36
4. Diseases of urinary system in equine	20	20	40
5. Diseases of cardiovascular system in equine	20	20	40
6. Skin diseases in equine	16	16	32
Total	96	96	192

#### 5- TEACHING & LEARNING METHODS:

- \* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard Discussion and brain storming.
- \* **Practical sessions:**
- \* **Self-Learning activities:** Mini reviews from the web and the library Making individual reports about equine diseases.
- \* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a5	b1 to b5		d1, d9
Practical sessions		b1 to b5	c1 to c3	d3, d9
Self-Learning activities				d2, d3, d4
Distance Teaching and Learning	a1 to a5	b1 to b5	c1 to c3	d1 to d9

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:-



<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	Allover the academic year
<b>7.c grads</b>	50	20	20	10

6.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a5	b1 to b5		d4
Practical exams			c1 to c3	d2, d3
Oral exams	a1 to a5	b1 to b5		d1
Student activities	a1, a5			d1 to d9

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8.1. Essential books (text books)

- Radostits O.M., Blood D.C. and Gay C.C. (2007): Veterinary Medicine, 9th Ed. Baillere Tindall, London.
- Smith B.P , Van Metre. and pusterla,N . (2019): Large Animal INTERNAL MEDICINE ,Sixth Ed.
- Matwichuk, C. L., Daniel, G.B., De Novo, R.C., Schultze, A.E., Schnidt, D.E. and Creevy, K.E. (2000): Veterinary Radiology and Ultrasound, 41(1): 78-84.
- Jameson, L., Fauci, A and Kasper,D . (2018): Harrison's Principles of Internal Medicine, 20<sup>th</sup> Ed.
- Noli, C ,Foster, A and Rosenkrantz, Wayne.(2014): Veterinary Allergy ,First Ed.

### 8.2.: web sites and journalls

- esarf.tripod.com/index.html.
- WWW.PubMed.com
- International of veterinary information services (IVIS)
- www.Vet.net.com
- Journal of animal science
- British journal of animal science

**Course Coordinator**

**Dr. Naglaa Gomaa**

**Head of Department**

**Prof.Dr.Ismail Ismail Ibrahim**

### Course Matrix for achievement of Intended Learning Outcomes

	Topics	Hours	Knowledge & Understanding					Intellectual Skills					Practical & Professional Skills			General & Transferable Skills								
			1	2	3	4	5	1	2	3	4	5	1	2	3	1	2	3	4	5	6	7	8	9
1	1. Diseases of digestive system in equine	6	X					X	X			X		X		X			X	X		X	X	X
2	2. Diseases of respiratory system in equine	38			X			X			X	X	X		X		X			X				
3	3. Diseases of musculoskeletal system in equine	36				X		X	X			X			X			X		X			X	
4	4. Diseases of urinary system in equine	40	X					X	X	X			X						X		X	X	X	
5	5. Diseases of cardiovascular system in equine	40		X				X	X	X			X	X		X	X		X		X	X	X	
6	6. Skin diseases in equine	32		X				X			X	X			X							X	X	X

## COURSE SPECIFICATION (2021-2022)

### 1 - Basic Information

Code number: 228/1

Course title: *diseases of pet animals*

Academic Year: Master of veterinary medicine program

Total teaching hours: 192 h

Lectures: 96 hrs (48 weeks- 2hrs/week)

Practical: 96 hrs (48 weeks- 2hrs/week)

### 2 - OVERALL AIMS OF THE COURSE:

*By the end of this course, the student should acquire the concepts, principles and skills related to* To provide student with basic knowledge and skills concerning Diseases in pet animals. Provide Master students with the skills of data collection in the field of pet animal diseases to enhance the self-learning skills through a series of research assays.

### 3 - INTENDED LEARNING OUTCOMES (I. L.Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

A1-Realize the different causes of pet animal medicine diseases.

A2-Analyze with clinical picture of pet animal medicine diseases.

- A3- Identify the different methods for data collections.
- A4-Recognize the methods used for his scientific research.
- A5-comprehend the general aim for study pet animals diseases.

#### 3-B: INTELLECTUAL SKILLS:

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

- B1- Design a research proposal in the area of specialization
- B2 - Estimate, Identify and evaluate the articles and collected research papers of pet animals diseases
- B3-Differentiate between different pet animal medicines diseases.
- B4-Comment accurately upon the obtained results and discuss these results
- B5-Determine area where further research is necessary

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

- C1- Distinguished basic laboratory skills for diagnosis of pet animal medicine diseases.
- C2- Perform relevant statistical analysis on data obtained from own research which support his clinical skills.
- C3- Conduct research project using appropriate range of experimental techniques.

#### 3-D: GENERAL SKILLS:

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

D1- Utilize computer and internet skills.

D2 -Develop the ethical behaviours between students and staff members as well as among the students themselves.

D3- Gain skills in problem solving

- D4- Acquire Communication skills
- D5- Attain Information technology skill
- D6-Use the continuous self learning (life long learning) strategy
- D7- Work in a team work and effective groups
- D8- Get discussion skills
- D9- Handel the negotiation skills

#### 4- COURSE CONTENTS:

Topic	No. of hours		
	Lectures	Practical	Total
1. Diseases of digestive system in pet	4	2	6
2. Diseases of respiratory system in pet	20	18	38
3. Diseases of musculoskeletal system in pet	16	20	36
4. Diseases of urinary system in pet	20	20	40
5. Diseases of cardiovascular system in pet	20	20	40
6. Skin diseases in pet	16	16	32
Total	96	96	192

#### 5- TEACHING & LEARNING METHODS:

- \* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard Discussion and brain storming.
- \* **Practical sessions:**
- \* **Self-Learning activities:** Mini reviews from the web and the library  
Making individual reports about pet animal medicines
- \* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a5	b1 to b5		d1, d9
Practical sessions		b1 to b5	c1 to c3	d3, d9
Self-Learning activities	a3 to a5		c1 o c3	d2, d3, d4
Distance Teaching and Learning	a1 to a5	b1 to b5	c1 to c3	d1 to d9

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	Allover the academic year
<b>7.c grads</b>	50	20	20	10

6.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a5	b1 to b5	C 1 to c3	d4
Practical exams			c1 to c3	d2, d3
Oral exams	a1 to a5	b1 to b5		d1
Student activities	a1, a5			d1 to d9

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8.1. Essential books (text books)

- **Paterson, D. (2008): "Skin Diseases of the Dog**
- Nelson, R. W., Couto, C. G. (2019): Small Animal INTERNAL MEDICINE, Sixth Ed.
- Kealy, J.K. and McAllister, H. (2005): Textbook of Diagnostic Radiology, ultrasonography of the dog and cat, 4th ed.: 1-19.
- Matwichuk, C. L., Daniel, G.B., De Novo, R.C., Schultze, A.E., Schnidt, D.E. and Creevy, K.E. (2000): Veterinary Radiology and Ultrasound, 41(1): 78-84.
- Jameson, L., Fauci, A and Kasper, D. (2018): Harrison's Principles of Internal Medicine, 20<sup>th</sup> Ed.

### 8.2.: web sites and jouranls

- [esarf.tripod.com/index.html](http://esarf.tripod.com/index.html).
- [WWW.PubMed.com](http://WWW.PubMed.com)
- International of veterinary information services (IVIS)
- [www.Vet.net.com](http://www.Vet.net.com)
- Journal of animal science
- British journal of animal science
- American journal of veterinary research

**Course Coordinator**

**Dr. Naglaa goma**

**Head of Department**

**Prof.Dr.Ismail Ibrahim**

**xxCourse Matrix for achievement of Intended Learning Outcomes**

	Topics	Hours	Knowledge & Understanding					Intellectual Skills					Practical & Professional Skills			General & Transferable Skills								
			1	2	3	4	5	1	2	3	4	5	1	2	3	1	2	3	4	5	6	7	8	9
1	1. Diseases of digestive system in pet	6	X	X	X				X	X				X	X	X		X			X	X	X	X
2	2. Diseases of respiratory system in pet	38	X		X			X			X	X	X	X	X	X		X			X	X		
3	3. Diseases of musculoskeletal system in pet	36	X			X		X	X			X	X		X			X			X	X	X	
4	4. Diseases of urinary system in pet	40	X		X			X	X	X			X	X	X					X		X	X	X
5	5. Diseases of cardiovascular system in pet	40		X				X	X	X			X	X		X	X		X		X	X	X	X
6	6. Skin diseases in pet	32	X	X				X			X	X			X							X	X	X



## COURSE SPECIFICATION (2021-2022)

### 1 - Basic Information

Code number: 229/1

Course title: *Diseases of Ruminants*

Academic Year: Master of veterinary medicine program

Total teaching hours: 288 hrs

Lectures: 144hrs (48 weeks- 3hrs/week)

Practical: 144hrs (48 weeks- 3hrs/week)

### 2 - OVERALL AIMS OF THE COURSE:

*Upon successful completion of the course, the student will be able to Diagnose, treat ruminant diseases.*

### 3 - INTENDED LEARNING OUTCOMES (I. L.Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

A1-Trace the different causes of diseases in ruminant.

A2-Define with clinical picture of ruminant medicine diseases. .

- A3-Explain the pathogenesis of Ruminant medicine diseases
- A4-Realize the methods used for his scientific research.
- A5-comprehend the general aim for study ruminant diseases.

#### 3-B: INTELLECTUAL SKILLS:

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

- B1- Differentiate between different medicine diseases of ruminant.
- B2 - Select the most suitable and economic line of treatment
- B3- Analyze and evaluate clinical reports about ruminant medicine diseases
- B4-Comment accurately upon the obtained results and discuss these results
- B5-Determine area where further research is necessary

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

- C1- Practice clinical examination and proper sampling from diseased ruminant.
- C2- Handle basic laboratory skills for diagnosis of ruminant diseases.
- C3- Conduct research project using appropriate range of experimental techniques.

#### 3-D: GENERAL SKILLS:

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

D1- Utilize computer and internet skills.

D2 -Develop the ethical behaviours between students and staff members as well as among the students themselves.

D3- Gain skills in problem solving

D4- Acquire Communication skills

D5- Attain Information technology skill



D6- Use the continuous self learning (life long learning) strategy

D7- Work in a team work and effective groups

D8- Get discussion skills

D9- Apply he negotiation skills

#### 4 - COURSE CONTENTS:

Topic	No. of hours		
	Lectures	Practical	Total
1. Diseases of digestive system in ruminant	24	24	48
2. Diseases of respiratory system in ruminant	24	24	48
3. Diseases of musculoskeletal system in ruminant	24	24	48
4. Diseases of urinary system in ruminant	24	24	48
5. Diseases of cardiovascular system in ruminant	24	24	48
6. Skin diseases in ruminant	24	24	48
Total	144	144	288

#### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard Discussion and brain storming.

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library  
Making individual reports about ruminants diseases

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a5	b1 to b5		d1, d9
Practical sessions		b1 to b5	c1 to c3	d3, d9
Self-Learning activities	a1 to a5		C1 to c3	d2, d3, d4
Distance Teaching and Learning	a1 to a5	b1 to b5	c1 to c3	d1 to d9

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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



<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	Allover the academic year
<b>7.c grads</b>	50	20	20	10

6.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a5	b1 to b5		d4
Practical exams			c1 to c3	d2, d3
Oral exams	a1 to a5	b1 to b5		d1
Student activities	a1, a5		C1 to c3	d1 to d9

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8.1. Essential books (text books)

- Radostits O.M., Blood D.C. and Gay C.C. (2007): Veterinary Medicine, 9th Ed. Baillere Tindall, London.
- Smith B.P , Van Metre. and pusterla,N . (2019): Large Animal INTERNAL MEDICINE ,Sixth Ed.
- Matwichuk, C. L., Daniel, G.B., De Novo, R.C., Schultze, A.E., Schnidt, D.E. and Creevy, K.E. (2000): Veterinary Radiology and Ultrasound, 41(1): 78-84.
- Jameson, L., Fauci, A and Kasper,D . (2018): Harrison's Principles of Internal Medicine, 20<sup>th</sup> Ed.
- Noli, C ,Foster, A and Rosenkrantz, W.(2014): Veterinary Allergy ,First Ed.

### 8.2.: web sites and jouranls

- esarf.tripod.com/index.html.
- WWW.PubMed.com
- International of veterinary information services (IVIS)
- www.Vet.net.com
- Journal of animal science
- British journal of animal science

**Course Coordinator**

**Dr. Naglaa Gomaa**

**Head of Department**

**Prof.Dr. Ismail Ibrahim**

**xxCourse Matrix for achievement of Intended Learning Outcomes**

	Topics	Hours	Knowledge & Understanding					Intellectual Skills					Practical & Professional Skills			General & Transferable Skills									
			1	2	3	4	5	1	2	3	4	5	1	2	3	1	2	3	4	5	6	7	8	9	
1	1. Diseases of digestive system in ruminant	48	X	X	X		X		X	X				X		X		X	X		X		X	X	X
2	2. Diseases of respiratory system in ruminant	48	X		X			X			X	X	X	X	X		X				X				
3	3. Diseases of musculoskeletal system in ruminant	48		X		X		X	X			X			X		X		X			X		X	
4	4. Diseases of urinary system in	48	X			X		X	X	X			X	X		X	X			X		X	X	X	X
5	5. Diseases of cardiovascular system in ruminant	48	X	X				X	X	X			X	X		X	X		X		X		X	X	X
6	6. Skin diseases in ruminant	48		X				X			X	X			X							X	X	X	



## COURSE SPECIFICATION (2021-2022)

### 1 - Basic Information

**Code number:** 230/1

**Course title:** *Metabolic diseases*

**Academic Year:** Master of veterinary medicine program

**Total teaching hours:** 192 h

Lectures: 96 hrs (48 weeks- 2hrs/week)

Practical: 96 hrs (48 weeks- 2hrs/week)

### 2 - OVERALL AIMS OF THE COURSE:

*By the end of this course, the student should acquire the concepts, principles and skills related to*  
Upon successful completion of the course, the student will be able to Diagnose, treat metabolic diseases.

### 3 - INTENDED LEARNING OUTCOMES (I. L.Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

A1-List different diseases affecting metabolic diseases.

- A2-Know the economic impact of these diseases on nation income.
- A3- Identify the different methods for data collections.
- A4-Realize the methods used for his scientific research
- A5-comprehend the general aim for study metabolic diseases.

#### 3-B: INTELLECTUAL SKILLS:

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

- B1- Design a research proposal in the area of specialization
- B2 - Estimate, Identify and evaluate the articles and collected research papers of metabolic diseases
- B3-Criticize and Assess their own research data regarding the research area
- B4-Comment accurately upon the obtained results and discuss these results
- B5-Determine area where further research is necessary

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

- C1- Write correctively the report of the examined clinical cases of metabolic and nutritional deficiency diseases
- C2- Perform relevant statistical analysis on data obtained from own research which support his clinical skills.
- C3- Conduct research project using appropriate range of experimental techniques.

#### 3-D: GENERAL SKILLS:

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

**D1-** Utilize computer and internet skills.

**D2 -**Develop the ethical behaviours between students and staff members as well as among the students themselves.

D3- gain skills in problem solving

D4- acquire Communication skills

- D5- attain Information technology skill
- D6- use the continuous self learning (life long learning) strategy
- D7- Work in a team work and effective groups
- D8- Get discussion skills
- D9- Acquire the negotiation skills

#### 4 - COURSE CONTENTS:

Topic	No. of hours		
	Lectures	Practical	Total
1. Introduction and course description	4	2	6
2. Parturient paresis, Parturient paresis in ewes, Lactation tetany of mares, Downer cow syndromes,	16	20	36
3-Hypomagnesaemic tetany, Hypomagnesaemic tetany of calf,	20	24	44
4- Post-parturient haemoglobinuria	20	34	54
5. Bovine ketosis, Ovine ketosis, Paralytic myoglobinuria	36	16	52
Total	96	96	192

#### 5- TEACHING & LEARNING METHODS:

- \* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard Discussion and brain storming.
- \* **Practical sessions:**
- \* **Self-Learning activities:** Mini reviews from the web and the library  
Making individual reports about *Metabolic diseases*
- \* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a5	b1 to b5		d1, d9
Practical sessions		b1 to b5	c1 to c3	d3, d9
Self-Learning activities				d2, d3, d4
Distance Teaching and Learning	a1 to a5	b1 to b5	c1 to c3	d1 to d9

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	Allover the academic year
<b>7.c grads</b>	50	20	20	10

6.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a5	b1 to b5		d4
Practical exams			c1 to c3	d2, d3
Oral exams	a1 to a5	b1 to b5		d1
Student activities	a1, a5			d1 to d9

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8.1. Essential books (text books)

- Noli, C ,Foster, A and Rosenkrantz, Wayne.(2014): Veterinary Allergy ,First Ed.
- Radostits O.M., Blood D.C. and Gay C.C. (2007): Veterinary Medicine, 9th Ed. Baillere Tindall, London.
- Smith B.P , Van Metre. and pusterla,N . (2019): Large Animal INTERNAL MEDICINE ,Sixth Ed.
- Kealy, J.K. and McAllister, H. (2005): Textbook of Diagnostic Radiology, ultrasonography of the dog and cat, 4th ed.: 1-19.
- Matwichuk, C. L., Daniel, G.B., De Novo, R.C., Schultze, A.E., Schnidt, D.E. and Creevy, K.E. (2000): Veterinary Radiology and Ultrasound, 41(1): 78-84.
- Jameson, L., Fauci, A and Kasper,D . (2018): Harrison's Principles of Internal Medicine, 20<sup>th</sup> Ed

### 8.2.: web sites and jouranls

- google.Com
- arabvet.com
- esarf.tripod.com/index.html.

### . 8.3 : Periodicals, Web sites, etc..

- 8.3WWW.PubMed.com
- International of veterinary information services (IVIS)
- www.Vet.net.com

**Course Coordinator**

**Dr. Naglaa Gomaa**

**Head of Department**

**Prof. Dr. Ismail Ibrahim**

Course Matrix for achievement of Intended Learning Outcomes

	Topics	Hours	Knowledge & Understanding					Intellectual Skills					Practical & Professional Skills			General & Transferable Skills									
			1	2	3	4	5	1	2	3	4	5	1	2	3	1	2	3	4	5	6	7	8	9	
1	1. Introduction and course description	6	X											X	X	X	X				X	X	X	X	X
2	2. Parturient paresis, Parturient paresis in ewes, Lactation tetany of mares, Downer cow syndromes,	36	X					X	X	X			X	X		X		X		X		X	X	X	
3	3. Hypomagnesaemic tetany, Hypomagnesaemic tetany of calf,	44		X					X	X	X		X	X	X	X		X		X		X	X	X	
4	4. Post-parturient haemoglobinuria,	54		X							X		X			X			X			X	X	X	
5	5. Bovine ketosis, Ovine ketosis, Paralytic myoglobinuria	52			X	X			X	X	X			X	X		X	X		X		X	X	X	

## COURSE SPECIFICATION (2021-2022)

### 1 - Basic Information

Code number: 231/1

Course title: Nutritional Deficiency Diseases

Academic Year: Master of veterinary medicine program

Total teaching hours: 192 h

Lectures: 96 hrs (48 weeks- 2hrs/week)

Practical: 96 hrs (48 weeks- 2hrs/week)

### 2 - OVERALL AIMS OF THE COURSE:

*By the end of this course, the student should acquire the concepts, principles and skills related to.*  
Upon successful completion of the course, the student will be able to Diagnose, treat nutritional deficiency diseases .

### 3 - INTENDED LEARNING OUTCOMES (I. L.Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

A1- Analyze the clinical picture of Nutritional deficiency Diseases.

- A2- Recognize different methods of diagnosis, treatment and control of Nutritional deficiency Diseases.
- A3- Identify the different methods for data collections.
- A4-Realize the methods used for his scientific research
- A5-comprehend the general aim for study metabolic diseases.

#### 3-B: INTELLECTUAL SKILLS:

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

- B1- Differentiate between nutritional deficiency diseases
- B2-Select the most suitable and economic line of treatment
- B3- Identify and evaluate clinical reports about Nutritional deficiency Diseases
- B4-Comment accurately upon the obtained results and discuss these results
- B5-Determine area where further research is necessary

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

- C1- Apply prevention and control strategy for Nutritional deficiency Diseases
- C2- Distinguished basic laboratory skills for diagnosis of Nutritional deficiency Diseases
- C3- Conduct research project using appropriate range of experimental techniques.

#### 3-D: GENERAL SKILLS:

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

D1- Utilize computer and internet skills.

D2 -Develop the ethical behaviours between students and staff members as well as among the students themselves.

D3- Gain skills in problem solving

D4- Acquire Communication skills



- D5- Attain Information technology skill  
 D6- Use the continuous self learning (life long learning) strategy  
 D7- Work in a team work and effective groups  
 D8- Get discussion skills  
 D9- Handle scientific meetings and time

#### 4 - COURSE CONTENTS:

Topic	No. of hours		
	Lectures	Practical	Total
1. Deficiency of vitamin A	4	2	6
2. Deficiency of Vitamin E and Selenium	16	20	36
3-Hypomagnesaemic tetany, Hypomagnesaemic tetany of calf,	20	24	44
4- Cupper and Zinc deficiency	20	34	54
5. <i>general</i> Nutritional deficiency Diseases examination	36	16	52
Total	96	96	192

#### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard Discussion and brain storming.

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library

Making individual reports about Nutritional Deficiency Diseases \*

**Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a5	b1 to b5		d1, d9
Practical sessions		b1 to b5	c1 to c3	d3, d9
Self-Learning activities	a1 to a5		C1 to c3	d2, d3, d4
Distance Teaching and Learning	a1 to a5	b1 to b5	c1 to c3	d1 to d9

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:-



<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	Allover the academic year
<b>7.c grads</b>	50	20	20	10

7. Student Assessment				
Intended Learning Outcomes Covered				
6.1. Methods	KU	IS	PPS	GTS
Written exams	a1 to a5	b1 to b5		d4
Practical exams			c1 to c3	d2, d3
Oral exams	a1 to a5	b1 to b5		d1
Student activities	a1, a5		C1 to c3	d1 to d9

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8.1. Essential books (text books)

- Radostits O.M., Blood D.C. and Gay C.C. (2007): Veterinary Medicine, 9th Ed. Baillere Tindall, London.
- Smith B.P , Van Metre. and pusterla,N . (2019): Large Animal INTERNAL MEDICINE ,Sixth Ed.
- Kealy, J.K. and McAllister, H. (2005): Textbook of Diagnostic Radiology, ultrasonography of the dog and cat, 4th ed.: 1-19.
- Matwichuk, C. L., Daniel, G.B., De Novo, R.C., Schultze, A.E., Schnidt, D.E. and Creevy, K.E. (2000): Veterinary Radiology and Ultrasound, 41(1): 78-84.

Jameson, L., Fauci, A and Kasper,D . (2018): Harrison's Principles of Internal Medicine, 20<sup>th</sup> Ed

### 8.2.: web sites and jouranls

- google.Com
- arabvet.com
- esarf.tripod.com/index.html.
- 3WWW.PubMed.com
- International of veterinary information services (IVIS)
- www.Vet.net.com

**Course Coordinator**

**Dr. Naglaa Gomaa**

**Head of Department**

**Prof. Dr. Ismail Ibrahim**

Course Matrix for achievement of Intended Learning Outcomes

	Topics	Hours	Knowledge & Understanding					Intellectual Skills					Practical & Professional Skills			General & Transferable Skills										
			1	2	3	4	5	1	2	3	4	5	1	2	3	1	2	3	4	5	6	7	8	9		
1	1. Deficiency of vitamin A	6	X											X	X	X	X					X	X	X	X	X
2	2. Deficiency of Vitamin E and Selenium	36	X				X	X	X	X				X	X		X		X		X		X	X	X	X
3	3-Hypomagnesaemic tetany, Hypomagnesaemic tetany of calf,	44		X				X	X	X				X	X	X	X		X		X		X	X	X	X
4	4- Cupper and Zinc deficiency	54		X							X			X			X			X			X	X	X	X
5	5. <i>general</i> Nutritional deficiency Diseases examination	52			X	X		X	X	X					X	X		X	X			X		X	X	X

## COURSE SPECIFICATION (2021-2022)

### 1 - Basic Information

Code number: 232/1

Course title: **Skin Diseases**

Academic Year: Master of veterinary medicine program

Total teaching hours: 144 h

Lectures: 48 hrs (48 weeks- 1hrs/week)

Practical: 96 hrs (48 weeks- 2hrs/week)

### 2 - OVERALL AIMS OF THE COURSE:

*By the end of this course, the student should acquire the concepts, principles and skills related to.*

Upon successful completion of the course, the student will be able to Diagnose, treat Skin Diseases.

### 3 - INTENDED LEARNING OUTCOMES (I. L.Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

A1-List different diseases affecting skin.

- A2- Analyze the clinical picture of skin diseases
- A3- Explain the pathogenesis of skin diseases
- A4-Realize the methods used for his scientific research.
- A5-comprehend the general aim for study equine diseases.

#### 3-B: INTELLECTUAL SKILLS:

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

- B1- Identify and evaluate clinical reports about skin diseases
- B2 - Differentiate between different skin diseases
- B3-Criticize and Assess their own research data regarding the research area
- B4-Comment accurately upon the obtained results and discuss these results
- B5-Determine area where further research is necessary

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

- C1- Figure out basic molecular and serological techniques for diagnosis of skin diseases
- C2- Distinguished basic laboratory skills for diagnosis of skin diseases
- C3- Conduct research project using appropriate range of experimental techniques.

#### 3-D: GENERAL SKILLS:

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

D1- Handle scientific meetings and time

D2 -Develop the ethical behaviours between students and staff members as well as among the students themselves.

D3- Gain skills in problem solving

D4- Acquire Communication skills

D5- Attain Information technology skill

D6- Use the continuous self learning (life long learning) strategy

D7- Work in a team work and effective groups

D8- Get discussion skills

D9- Manage research teams in the field of skin diseases

#### 4- COURSE CONTENTS:

Topic	No. of hours		
	Lectures	Practical	Total
1- Focal cutaneous hypoplasia and subcutaneous hypoplasia	8	2	10
2- Photosensitization, Alopecia and Dermatitis	8	18	26
3- general examination of the skin	8	20	28
4- Diagnosis of skin diseases	8	20	28
5- allergic tests	8	20	28
6- prognosis of skin diseases	8	16	24
Total	48	96	144

#### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard Discussion and brain storming.

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library

Making individual reports about Skin Diseases

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a5	b1 to b5		d1, d9
Practical sessions		b1 to b5	c1 to c3	d3, d9
Self-Learning activities	a1 to a2		c1 to c3	d2, d3, d4
Distance Teaching and Learning	a1 to a5	b1 to b5	c1 to c3	d1 to d9

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:-



<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	Allover the academic year
<b>7.c grads</b>	50	20	20	10

7. Student Assessment				
Intended Learning Outcomes Covered				
6.1. Methods	KU	IS	PPS	GTS
Written exams	a1 to a5	b1 to b5	C1 to c3	d4
Practical exams			c1 to c3	d2, d3
Oral exams	a1 to a5	b1 to b5		d1
Student activities	a1, a5		C1 to c3	d1 to d9

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8.1. Essential books (text books)

- Radostits O.M., Blood D.C. and Gay C.C. (2007): Veterinary Medicine, 9th Ed. Baillere Tindall, London.
- Smith B.P , Van Metre. and pusterla,N . (2019): Large Animal INTERNAL MEDICINE ,Sixth Ed.
- Kealy, J.K. and McAllister, H. (2005): Textbook of Diagnostic Radiology, ultrasonography of the dog and cat, 4th ed.: 1-19.
- Jameson, L., Fauci, A and Kasper,D . (2018): Harrison's Principles of Internal Medicine, 20<sup>th</sup> Ed.
- Noli, C ,Foster, A and Rosenkrantz, Wayne.(2014): Veterinary Allergy ,First Ed.

### 8.2.: web sites and journalls

- esarf.tripod.com/index.html.
- WWW.PubMed.com
- International of veterinary information services (IVIS)
- www.Vet.net.com
- Journal of animal science
- British journal of animal science

**Course Coordinator**

**Dr. Naglaa goma**

**Head of Department**

**Prof.Dr. Ismail Ibrahim**

### Course Matrix for achievement of Intended Learning Outcomes

	Topics	Hours	Knowledge & Understanding					Intellectual Skills					Practical & Professional Skills			General & Transferable Skills									
			1	2	3	4	5	1	2	3	4	5	1	2	3	1	2	3	4	5	6	7	8	9	
1	1- Focal cutaneous hypoplasia and subcutaneous hypoplasia	10	x						x	x				x		x		x	x		x		x	x	x
2	2- Photosensitization, Alopecia and Dermatitis	26			x				x			x	x	x	x		x				x			x	
3	3- general examination of the skin	28				x			x	x			x	x		x			x			x		x	
4	4- Diagnosis of skin diseases	28	x						x	x	x			x	x	x		x			x		x	x	x
5	5- allergic tests	28		x					x	x	x			x	x		x	x		x		x	x	x	x
6	6- prognosis of skin diseases	24		x					x			x		x			x			x			x	x	x

## COURSE SPECIFICATION (2021-2022)

### 1 - Basic Information

Code number: 233/1

Course title: **Diseases of Newly Born Animals**

Academic Year: Master of veterinary medicine program

Total teaching hours: 144 h

Lectures: 48 hrs (48 weeks- 1hrs/week)

Practical: 96 hrs (48 weeks- 2hrs/week)

### 2 - OVERALL AIMS OF THE COURSE:

Upon successful completion of the course, the student will be able to Diagnose, treat Newly Born animal Diseases.

### 3 - INTENDED LEARNING OUTCOMES (I. L.Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- A1- Realize the different causes of newly born diseases.
- A2- Analyze the clinical picture of newly born diseases
- A3- Explain the pathogenesis of newly born animal diseases
- A4-Realize the methods used for his scientific research.
- A5-comprehend the general aim for study newly born diseases.

#### 3-B: INTELLECTUAL SKILLS:

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

- B1- Identify and evaluate clinical reports about newly born animal diseases
- B2 - Differentiate between different newly born diseases
- B3-Criticize and Assess their own research data regarding the research area
- B4-Comment accurately upon the obtained results and discuss these results
- B5-Determine area where further research is necessary

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

- C1- Figure out basic molecular and serological techniques for diagnosis of newly born diseases
- C2- Distinguished basic laboratory skills for diagnosis of newly born diseases
- C3- Conduct research project using appropriate range of experimental techniques.

#### 3-D: GENERAL SKILLS:

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

D1- Handle scientific meetings and time

D2 -Develop the ethical behaviours between students and staff members as well as among the students themselves.

D3- Gain skills in problem solving

D4- Acquire Communication skills

D5- Attain Information technology skill



D6- Use the continuous self learning (life long learning) strategy

D7- Work in a team work and effective groups

D8- Get discussion skills

D9- Manage research teams in the field of newly borne diseases

#### 4- COURSE CONTENTS:

Topic	No. of hours		
	Lectures	Practical	Total
1- Mycotic abomasitis and Navel Ill	8	2	10
2- general examination of newly born animal	8	18	26
3- Diagnosis of newly born diseases	8	20	28
4- Dehydration and Diarrhea	8	20	28
5-Biochemical analysis	8	20	28
6-CBC	8	16	24
Total	48	96	144

#### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard Discussion and brain storming.

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library

Making individual reports about newly born animals.

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures *	a1 to a5	b1 to b5		d1, d9
Practical sessions		b1 to b5	c1 to c3	d3, d9
Self-Learning activities	a1 to a2		c1 to c3	d2, d3, d4
Distance Teaching and Learning	a1 to a5	b1 to b5	c1 to c3	d1 to d9

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:-



<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	Allover the academic year
<b>7.c grads</b>	50	20	20	10

7. Student Assessment				
Intended Learning Outcomes Covered				
6.1. Methods	KU	IS	PPS	GTS
Written exams	a1 to a5	b1 to b5	C1 to c3	d4
Practical exams			c1 to c3	d2, d3
Oral exams	a1 to a5	b1 to b5		d1
Student activities	a1, a5		C1 to c3	d1 to d9

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8.1. Essential books (text books)

- Radostits O.M., Blood D.C. and Gay C.C. (2007): Veterinary Medicine, 9th Ed. Baillere Tindall, London.
- Hungerford, T.G.(2010): "Diseases of Livestock." McGraw W. Hill, Book Co. Sydney
- Kealy, J.K. and McAllister, H. (2005): Textbook of Diagnostic Radiology, ultrasonography of the dog and cat, 4th ed.: 1-19.
- Jameson, L., Fauci, A and Kasper,D . (2018): Harrison's Principles of Internal Medicine, 20<sup>th</sup> Ed.
- Noli, C ,Foster, A and Rosenkrantz, Wayne.(2014): Veterinary Allergy ,First Ed.

### 8.2.: web sites and jounrnl

- esarf.tripod.com/index.html.
- WWW.PubMed.com
- International of veterinary information services (IVIS)
- www.Vet.net.com
- Journal of animal science
- British journal of animal science

**Course Coordinator**

**Dr. Naglaa goma**

**Head of Department**

**Prof.Dr. Ismail Ibrahim**

### Course Matrix for achievement of Intended Learning Outcomes

	Topics	Hours	Knowledge & Understanding					Intellectual Skills					Practical & Professional Skills			General & Transferable Skills								
			1	2	3	4	5	1	2	3	4	5	1	2	3	1	2	3	4	5	6	7	8	9
1	1- Mycotic abomasitis and Navel Ill	10	X						X	X				X		X		X		X		X	X	X
2	2- general examination of newly born animal	26			X			X			X	X	X	X		X				X			X	
3	3- <i>Diagnosis of newly born diseases</i>	28				X		X	X			X	X		X			X			X		X	
4	4- Dehydration and Diarrhea	28	X					X	X	X			X	X	X		X			X		X	X	X
5	5-Biochemical analysis	28		X				X	X	X			X	X		X	X		X		X	X	X	X
6	6-CBC	24		X				X			X	X			X			X			X	X	X	X

## COURSE SPECIFICATION (2021-2022)

### 1 - Basic Information

Code number: 234/1

Course title: **Wild Animal Medicine**

Academic Year: Master of veterinary medicine program

Total teaching hours: 192 h

Lectures: 96 hrs (48 weeks- 2hrs/week)

Practical: 96 hrs (48 weeks- 2hrs/week)

### 2 - OVERALL AIMS OF THE COURSE:

*Upon successful completion of the course, the student will be able to Diagnose, treat wild animal diseases.*

### 3 - INTENDED LEARNING OUTCOMES (I. L.Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- A1-List different diseases affecting wild animals.
- A2- Analyze the clinical picture of wild and zoo medicine diseases.
- A3- Identify the different methods for data collections.
- A4-Realize the methods used for his scientific research.
- A5-comprehend the general aim for study wild animal diseases.

#### 3-B: INTELLECTUAL SKILLS:

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

- B1- Plan a schedule for vaccination against medicine disease
- B2 - Estimate, Identify and evaluate the articles and collected research papers of wild animal diseases
- B3- Identify and evaluate clinical reports about wild and zoo medicine diseases
- B4-Comment accurately upon the obtained results and discuss these results
- B5-Determine area where further research is necessary

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

- C1- Distinguished basic laboratory skills for diagnosis of wild and zoo animals diseases.
- C2- Perform relevant statistical analysis on data obtained from own research which support his clinical skills.
- C3- Conduct research project using appropriate range of experimental techniques.

#### 3-D: GENERAL SKILLS:

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

- D1- Handle scientific meetings and time.
- D2 -Develop the ethical behaviours between students and staff members as well as among the students themselves.
- D3- Gain skills in problem solving .
- D4- Acquire Communication skills .

- D5- Attain Information technology skill.  
D6- Use the continuous self learning (life long learning) strategy.  
D7- Work in a team work and effective groups.  
D8- Get discussion skills.  
D9- Notificate effectively.

#### 4- COURSE CONTENTS:

Topic	No. of hours		
	Lectures	Practical	Total
<u>Diseases of Non-human Primates</u>	4	2	6
<u>Diseases of Felidae</u>	20	18	38
<u>Diseases of Wild Dogs and Hyenas</u>	16	20	36
<u>Diseases of Bears</u>	20	20	40
<u>Diseases of Artiodactyla</u>	20	20	40
<i>General</i> wild and zoo examination	16	16	32
<b>Total</b>	<b>96</b>	<b>96</b>	<b>192</b>

#### 5- TEACHING & LEARNING METHODS:

- \* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard Discussion and brain storming.
- \* **Practical sessions:**
- \* **Self-Learning activities:** Mini reviews from the web and the library  
Making individual reports about wild animals.
- \* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a5	b1 to b5		d1, d9
Practical sessions	a1 to a5	b1 to b5	c1 to c3	d3, d9
Self-Learning activities		b1 to b5	c1 to c3	d2, d3, d4
Distance Teaching and Learning	a1 to a5	b1 to b5	c1 to c3	d1 to d9

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	Allover the academic year
<b>7.c grads</b>	50	20	20	10

6.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a5	b1 to b5		d4
Practical exams			c1 to c3	d2, d3
Oral exams	a1 to a5	b1 to b5		d1
Student activities	a1, a5		c1 to c3	d1 to d9

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8.1. Essential books (text books)

- Radostits O.M., Blood D.C. and Gay C.C. (2007): Veterinary Medicine, 9th Ed. Baillere Tindall, London.
- Gosden, C. (2004): "Exotics and Wildlife- a manual of Veterinary nursing care." British library cataloguing in publication Data
- Matwichuk, C. L., Daniel, G.B., De Novo, R.C., Schultze, A.E., Schnidt, D.E. and Creevy, K.E. (2000): Veterinary Radiology and Ultrasound, 41(1): 78-84.
- Jameson, L., Fauci, A and Kasper, D . (2018): Harrison's Principles of Internal Medicine, 20<sup>th</sup> Ed.
- Noli, C ,Foster, A and Rosenkrantz, Wayne.(2014): Veterinary Allergy ,First Ed.

### 8.2.: web sites and jouranls

- esarf.tripod.com/index.html.
- WWW.PubMed.com
- International of veterinary information services (IVIS)
- www.Vet.net.com
- Journal of zoo and wild life medicine
- Journal of animal science
- British journal of animal science

**Course Coordinator**

**Dr. Naglaa gomaa**

**Head of Department**

**Prof.Dr.Medhat Nassif**

### Course Matrix for achievement of Intended Learning Outcomes

	Topics	Hours	Knowledge & Understanding					Intellectual Skills					Practical & Professional Skills			General & Transferable Skills									
			1	2	3	4	5	1	2	3	4	5	1	2	3	1	2	3	4	5	6	7	8	9	
1	<u>Diseases of Non-human Primates</u>	6	X						X	X				X		X		X			X		X	X	X
2	<u>Diseases of Felidae</u>	38			X			X			X			X	X		X		X			X			
3	<u>Diseases of Wild Dogs and Hyenas</u>	36				X		X	X				X			X			X			X		X	
4	<u>Diseases of Bears</u>	40	X					X	X	X			X		X					X		X	X	X	
5	<u>Diseases of Artiodactyla</u>	40		X				X	X	X			X	X	X		X	X		X		X	X	X	
6	<i>General wild and zoo examination</i>	32		X				X			X			X									X	X	X



**Kafrelsheikh University**  
Faculty of Veterinary Medicine







**Kafrelsheikh University**  
Faculty of Veterinary Medicine



---

**Kafrelsheikh University**

**Faculty of Veterinary Medicine**

**Department of Animal Wealth Development**

# **Program Specification for Master Degree**

**(2021 - 2022)**

**Program Title:**

**Master of The Veterinary Medicine  
(Economics and Farm Management)**



### **A- Administrative information:**

- 1- **Awarding Body:** Kafrelsheikh University
- 2- **Teaching Body:** Faculty of Veterinary Medicine
- 3- **Department responsible:** Animal Wealth Development
- 4- **Program Title:** Master Degree in Veterinary Medicine (Economics and Farm Management)
- 5- **Final award:** Master Degree
- 6- **Registration period:** 2-4 years
- 7- **Program Coordinator:** Prof. Dr. Mohamed Atef Helal
- 8- **External evaluator:**
- 9- **Date of revision:** -----
- 10- **Date of approval:** -----

### **B- Professional information:**

#### **1-Educational aims of the program**

- Provides graduates the opportunity to develop communication and teaching skills and the experience of scientific research.
- Develops the ability of graduate to engage critically with recent techniques and tools in the field of Veterinary Economics and Farm Management.
- Supplies the graduates with the most recent knowledge in science and technological applications in Veterinary Economics and Farm Management.
- Demonstrates an awareness of the connections between disciplines and develop the ability to engage critically with scientific literature and to critically review and present their own research data for the protection and promotion of the economics of animal production.
- Allows graduates to develop practical research project.
- Enables graduates to achieve competency in modern Veterinary Economics and Farm Management technology.

#### **2- Academic standards:**

**Academic reference standards (ARS) adopted by the faculty committee No (1) 14-9-2014)**

#### **3-Graduate attributes:**

At the end of the program, graduate must be able to:

- 1) Perfect application of scientific research basics and methodologies in Veterinary Economics and Farm Management, and using its various tools.
- 2) Application and use of analytical methodology in the field of Veterinary Economics and Farm Management.
- 3) Application of gained specialized knowledge and integrating them with the relevant



- knowledge in Veterinary Economics and Farm Management.
- 4) Awareness with current problems and recent visions in Veterinary Economics and Farm Management.
  - 5) Identification of animal and poultry economic problems suggesting suitable and economic solutions.
  - 6) Mastering an appropriate scale of specific professional skills, and using suitable technological means to serve professional practice.
  - 7) Effective communication with students, animal breeders and owners of animal and poultry farms and leading work team.
  - 8) Decision making in various veterinary economics and farm management contexts.
  - 9) Employment of the available resources efficiently to maximize animal and poultry production.
  - 10) Awareness with his role in society development and maximizing animal and poultry production with preservation of a clean environment.
  - 11) Reflection of the commitment to act with integrity, credibility and the rules of profession.
  - 12) Academic and professional self- development and ability for life-long learning and progress.

#### **4-Programme outcomes [intended learning outcomes (ILOs)]**

##### **a. Knowledge and understanding:**

*On successful completion of this program, postgraduate will be able to:*

- a.1. Explain different theories and principles in the field of Veterinary Economics and Farm Management and related fields..
- a.2. Identify the impact of different management systems on economics of animal and poultry production and its reflection on the environment
- a.3. Distinguish the scientific developments in the field of Veterinary Economics and Farm Management.
- a.4. Demonstrate the ethical and legal principles for professional practice in the field of Veterinary Economics and Farm Management.
- a.5. Realize the principles and basics of quality assurance in the area of Veterinary Economics and Farm Management.
- a.6. Apply the basics and ethics of scientific research in the field of Veterinary Economics and Farm Management.
- a.7. Realize the legal and ethical basics in the field of Veterinary Economics and Farm Management.

##### **b. Intellectual skills:**

*At the end of the program, graduate must be able to:*

- b.1. Analyze and judge the information collected from animal and poultry farms on the basis of economic productive and reproductive indices.
- b.2. Determine an accurate approach to economic problems and find the solution based on the available data.
- b.3. Relate between the various sources of knowledge to solve economic and management problems in producing animals and poultry.
- b.4. Develop a research proposal in the field of Veterinary Economics and Farm Management and/ or write scientific article on a research problem.
- b.5. Assess risks of professional practices in Veterinary Economics and Farm Management



and their possible consequences.

- b.6. Plan to enhance professional performance the field of Veterinary Economics and Farm Management.
- b.7. Make professional decisions and suggestions in dealing with economic problems in animals and poultry.

**c. Practical and professional skills:**

*At the end of the programme, graduate must be able to:*

- c.1. Master the fundamental and recent professional skills in the field of Veterinary Economics and Farm Management.
- c.2. Write and assess professional and conclusive report about the Veterinary Economics and Farm Management.
- c.3. Assess the existing methods and tools in the field of Veterinary Economics and Farm Management.
- c.4. Plan a research project in the field of Veterinary Economics and Farm Management with a consideration to the technical, ethical and safety issues and associated costs..
- c.5. Perform essential skills that underpin techniques associated with experimental design, collecting, summarizing, organizing, presenting and analyzing data

**d. General and transferable skills:**

*At the end of the programme, graduate must be able to:*

- d.1. Communicate effectively with his professors, collages and animal owner(s).
- d.2. Utilize different sources of knowledge and information.
- d.3. Assess him and identify his personal educational needs.
- d.4. Demonstrate interpersonal skills and team working ability
- d.5. Demonstrate an ability to learn independently for a career of lifelong learning.
- d.6. Use information technology to serve the professional practice.
- d.7. Manage time efficiently.
- d.8. Set tools and indicators for assessment of the performance of others.

**5-Program structure:**

a. Program duration (years):

Master degree from 2-4 years

b) Premaster courses – at least one academic year

Course	Lecture (hours/week)	Practical (hours/week)
Fundamental (core) course	3	4
Research methodology	1	3
2-5 Elective Courses Offered by other departments and are selected from the list below according to thesis topic (10-12 hours)	5-6	5-6



c) Master of Veterinary Medicine Thesis (at least one academic year)

- All master-degree students should prepare a master thesis.
- The department and the ethical committees must approve the protocol of the research.
- The thesis should include a review part and a research part.
- The thesis is supervised by one or more senior staff members of the department responsible for the program and may include other specialties according to the nature of the research.
- The thesis should be evaluated and approved by a committee of three professors including one of the supervisors and an external professor.

*A number of subsidiary courses are selected from the following list according to the title of the research work:*

Subject	Code	Course title	No of hours/week	
			Lecture	Practical Lab
Anatomy and embryology	101/1	<b>1- Applied anatomy</b>	2	2
	102/1	<b>2- Anatomical techniques and surface anatomy</b>	2	2
	103/1	<b>3- Osteology and arthrology</b>	2	2
	104/1	<b>4- Comparative digestive system</b>	2	2
	105/1	<b>5- Comparative uro-genital system</b>	2	2
	106/1	<b>6-Comparative respiratory system</b>	2	2
	107/1	<b>7- Comparative cardiovascular system</b>	2	2
	108/1	<b>8- Comparative nervous system and endocrine glands</b>	2	2
	109/1	<b>9- General and special embryology</b>	2	2
	110/1	<b>10- Avian anatomy</b>	1	2
Histology	111/1	<b>11- cytology and cytochemistry</b>	1	2
	112/1	<b>12- general histology</b>	2	2
	113/1	<b>13- Histology and histochemistry of blood, lymph and cardiovascular system.</b>	1	1
	114/1	<b>14- Comparative histology and histochemistry of body muscles, heart and blood vessels</b>	1	1
	115/1	<b>15- Comparative histology and histochemistry of respiratory system</b>	1	1
	116/1	<b>16-Comparative histology and histochemistry of digestive system</b>	2	2
	117/1	<b>17- Comparative histology and histochemistry of</b>	2	2



		<b>uro- genital system</b>		
	118/1	<b>18- Comparative histology and histochemistry of nervous and endocrine systems</b>	2	2
	119/1	<b>19- Histology and histochemistry of special sensors</b>	1	2
	120/1	<b>20-Histology and histochemistry of skin, hooves, claws and Nails</b>	2	2
	121/1	<b>21- Avian histology</b>	2	2
	122/1	<b>22- Fish histology</b>	1	2
<b>Physiology</b>	123/1	<b>23- Physiology of mammalian endocrine and reproduction</b>	2	2
	124/1	<b>24- poultry physiology (advanced)</b>	2	2
	125/1	<b>25- physiology of muscle and nerve</b>	1	2
	126/1	<b>26- physiology of ruminants</b>	2	2
	127/1	<b>27- physiology of environment, adaptation and cell</b>	2	2
	128/1	<b>28- physiology of blood</b>	2	2
	129/1	<b>29- physiology of digestion, metabolism and energy</b>	2	2
	130/1	<b>30- Physiology in pollution</b>	1	2
	131/1	<b>31- Radioactive isotopes and biological uses</b>	2	2
	132/1	<b>32- Physiology of heights</b>	1	1
	133/1	<b>33-Fish physiology.</b>	1	2
<b>Biochemistry</b>	134/1	<b>34- Basics of biochemistry</b>	2	3
	135/1	<b>35- Metabolism</b>	2	2
	136/1	<b>36- Biochemistry of tissue and body fluids .</b>	2	2
	137/1	<b>37- Biochemistry of hormones and reproduction</b>	2	2
	138/1	<b>38- Feeding biochemistry</b>	2	2
	139/1	<b>39- Clinical biochemistry</b>	2	2
	140/1	<b>40- Avian biochemistry</b>	2	2
	141/1	<b>41- Microbial biochemistry</b>	2	2
	142/1	<b>42- Biochemistry of radiation</b>	1	2
	143/1	<b>43- Fish biochemistry</b>		
<b>Animal behavior and management</b>	144/1	<b>44- Behavior and management of ruminants ( specific courses in cattle, buffalo, sheep, camels and goats)</b>	2	3
	145/1	<b>45- Behavior and management of horses</b>	2	3
	146/1	<b>46- Behavior and management of pet animals</b>	1	2
	147/1	<b>47- Behavior and management of laboratory animals</b>	1	2



	148/1	<b>48- Behavior and management of wild animals</b>	2	2
	149/1	<b>49- Behavior and management of poultry</b>	2	2
	150/1	<b>50- Behavior and management of rabbit</b>	1	2
	151/1	<b>51- Behavior of experimental animals</b>	1	2
<b>Nutrition and clinical nutrition</b>	152/1	<b>52- Basics of animal nutrition</b>	2	2
	153/1	<b>53- feedstuff</b>	2	2
	154/1	<b>54- nutrition of farm animals and fish specific courses in ( cattle and buffalo nutrition – sheep and goat nutrition – camel nutrition- equine nutrition – fish nutrition)</b>	2	2
	155/1	<b>55- poultry and rabbit nutrition( advanced)</b>	2	2
	156/1	<b>56- wild animal nutrition</b>	1	2
	157/1	<b>57- laboratory animal nutrition</b>	1	2
	158/1	<b>58- feed additives</b>	1	2
	159/1	<b>59- feedstuff analysis</b>	2	2
	160/1	<b>60- Quality control of feed and feed factories</b>	2	2
	161/1	<b>61- Clinical nutrition and malnutrition</b>	2	2
	162/1	<b>62- Fish nutrition</b>	1	2
<b>Pathology</b>	163/1	<b>63- General pathology and neoplasm( progressive)</b>	2	2
	164/1	<b>64-pathology of microbial and parasitic diseases in animal</b>	2	2
	165/1	<b>65- pathology of bad nutrition</b>	1	2
	166/1	<b>66- pathology of environmental pollution</b>	1	2
	167/1	<b>67- pathology of reproductive diseases</b>	1	2
	168/1	<b>68- Avian pathology</b>	2	2
	169/1	<b>69-Experimental pathology</b>	2	2
	170/1	<b>70- toxins pathology</b>	2	2
	171/1	<b>71- surgical pathology</b>	2	2
	172/1	<b>72- Pathology of experimental animals.</b>		
	173/1	<b>73- Pathology of genetics</b>		
	174/1	<b>74-- Fish pathology</b>	2	2
<b>Clinical pathology</b>	175/1	<b>75- Advanced clinical pathology</b>	2	2
	176/1	<b>76-Organ function tests and body and urine balance</b>	2	2
	177/1	<b>77- Clinical hematology and bone marrow examination</b>	1	2
<b>Bacteriology, immunology and mycology</b>	178/1	<b>78- General bacteriology(advanced)</b>	1	2
	179/1	<b>79-systemic bacteriology</b>	2	3
	182/1	<b>80- Advanced immunology</b>	2	2
	183/2	<b>81- Advanced mycology</b>	1	2
<b>Virology</b>	180/3	<b>82- General virology</b>	1	2



	181/4	<b>83-Systemic virology( specific courses)</b>	2	3
	182/5	<b>84- Advanced immunology</b>	2	2
<b>Mixed courses between Bacteriology and Virology</b>	184/1	<b>85- Microbiology of poultry</b>	2	2
	185/1	<b>86- Microbiology of ??????</b>	1	2
	186/1	<b>87- Microbiology of animal product</b>	2	2
	187/1	<b>88- Fish Microbiology</b>	1	2
			<b>81- Advanced immunology</b>	2
<b>Parasitology</b>	188/1	<b>89- Veterinary medical entomology and acarology</b>	2	2
	189/1	<b>90-helminthology</b>	2	2
	190/1	<b>91- protozoology</b>	2	2
	191/1	<b>92- Avian and rabbits parasitology</b>	2	2
	192/1	<b>93Malacology and its vet. Importance</b>	1	2
	193/1	<b>94- parasitic Immunology</b>	1	2
	194/1			
	195/1			
	196/1			
	197/1	<b>98- Physiology and biochemistry of parasites</b>	2	2
	198/1	<b>99- Fish parasitology</b>	1	2
<b>Pharmacology</b>	199/1	<b>100- Aeneral pharmacology ( advanced)</b>	2	2
	200/1	<b>101- pharmacology of autonomic nervous system and autocoid</b>	2	2
	201/1	<b>102- pharmacology of central nervous system</b>	2	2
	202/1	<b>103 pharmacology of anesthesia</b>	2	2
	203/1	<b>104- Systemic pharmacology</b>	2	2
	204/1	<b>105- pharmacology of metabolism</b>	2	2
	205/1	<b>106- pharmacology of hormones</b>	2	2
	206/1	<b>107-Chemotherapy</b>	2	2
	207/1	<b>108-Biological evolution of drug</b>	1	1
<b>Hygiene and control of milk and dairy products</b>	208/1	<b>108- Hygiene and control of milk and dairy products</b>	2	2
	209	<b>109- Microbiology of milk and dairy products</b>	2	2
	210/1	<b>110- Milk technology and preservation</b>	2	2
	211/1	<b>111- Food analysis</b>	2	2
	212/1	<b>112- Food poisoning</b>	1	2
	213/1	<b>113- Specific courses on sources of contamination, disturbances of milk production, milk born diseases, hygiene of table egg, edible fats and oils</b>	1	1
	214/1	<b>114- The sanitation of dairy plant</b>	2	2
<b>Control of meat hygiene and their</b>	215/1	<b>115- Slaughter animal Hygiene</b>	1	2
	216/1	<b>116- Abattoir management and hygiene</b>	2	2





<b>products</b>	217/1	<b>117- Hygienic control of meat and their product</b>	2	2
	218/1	<b>118 inspection of poultry meat.</b>	1	2
	219/1	<b>119- Food technology</b>	1	2
	220/1	<b>120- Microbiology of meat and fish meats and their product</b>	2	1
	221/1	<b>121- Chilled meal microbiology</b>	1	2
	222/1	<b>122- Analysis of meat and fish and their product</b>	1	2
	223/1	<b>123- Preservation of meat, poultry, fish and their products</b>	1	2
	224/1	<b>124- Sanitation affairs of meat and fish plants.</b>	2	2
<b>Internal medicine</b>	225/1	<b>125- advanced general medicine</b>	2	2
	226/1	<b>126- disease of ruminants( cattle, buffalo, camels, sheep and goats)</b>	3	3
	227/1	<b>127- diseases of equines</b>	2	2
	228/1	<b>128 diseases of pet animals</b>	2	2
	229/1	<b>129- diseases of wild animals</b>	2	2
	230/1	<b>130- diseases of metabolic disorders</b>	2	2
	231/1	<b>131- nutritional deficiency diseases</b>	2	2
	232/1	<b>132- Skin diseases</b>	1	2
	233/1	<b>133 - diseases of newly born animals</b>	2	2
234/ 1	<b>134- Stress diseases during animals transport.</b>			
<b>Infectious diseases</b>	235/ 1	<b>135- Infectious diseases of cattle</b>	2	2
	236/ 1	<b>136- Infectious diseases of sheep and goat</b>	2	2
	237/ 1	<b>137- Infectious diseases camel</b>	2	2
	238/ 1	<b>138 Infectious diseases of equine</b>	2	2
	239/ 1	<b>139- Infectious diseases of pet animals</b>	2	2
	240/ 1	<b>140- Infectious diseases lab animals</b>	1	2
	241/ 1	<b>141- Infectious diseases of udder and newly born animals</b>	2	2
	242/ 1	<b>142- Infectious diseases buffaloes</b>	2	1
	243/1	<b>143- Infectious diseases of wild animals.</b>		
<b>Forensic medicine and toxicology</b>	244/1	<b>144- Forensic medicine and veterinary procedures</b>	2	2
	245/1	<b>145- general toxicology</b>	2	2
	246/1	<b>146- environmental toxicology</b>	2	2
	247/1	<b>147- forensic toxicology</b>	2	2
	248/1	<b>148- laboratory diagnostic toxicology</b>	2	2
249/1	<b>149- Drug toxicology</b>			
<b>Veterinary Surgery</b>	259/1	<b>159- General surgery (advanced)</b>	2	2
	260/1	<b>160- Special surgery( organs)</b>	2	3
	261/1	<b>161- surgery of eye, ear, nose and larynx</b>	2	2
	262/1	<b>162 digestive system surgery</b>	2	2



	263/1	<b>163- surgery of the limbs, hoof and claws</b>	2	2
	264/1	<b>164- experimental surgery</b>	2	2
	265/1	<b>165- anesthesiology</b>	1	1
	266/1	<b>166- radiology and ultrasonography</b>	2	2
<b>Poultry and rabbit diseases</b>	267/1	<b>167- bacterial diseases of poultry</b>	2	2
	268/1	<b>168- viral diseases of poultry</b>	2	2
	269/1	<b>169- fungal diseases of poultry</b>	2	2
	270/1	<b>170 parasitic diseases of poultry</b>	1	2
	271/1	<b>171 - nutritional diseases of poultry</b>	1	2
	272/1	<b>172-diseases of rabbit (advanced)</b>	2	2
	273/1	<b>173-Diseases of wild and migrating birds</b>	2	2
	274/1	<b>174- Preventive vaccines and their evaluation in poultry</b>	2	2
	275/1	<b>175- Laboratory diagnosis of poultry diseases.</b>		
<b>Animal and environmental hygiene</b>	276/1	<b>176- farm animal hygiene ( advanced)</b>	2	2
	277/1	<b>177- poultry hygiene ( advanced)</b>	2	2
	278/1	<b>178- environmental hygiene and pollution</b>	2	2
	279/1	<b>179- control of contagious diseases</b>	2	2
	280/1	<b>180- eradication of rodents and disease vector</b>	2	2
	281/1	<b>181- insecticides and public health</b>	2	2
	282/1	<b>182-hygiene of animal enclosures- specific courses in :- cattle houses – poultry houses – rabbit houses- pet animals house3s – experimental animals houses</b>	2	2
	283/1	<b>183-disinfections and disinfectants</b>	2	2
	284/1	<b>184- veterinary epidemiology – specific courses in animal environment</b>	2	-
<b>Zoonoses</b>	285/1	<b>185- advanced zoonoses ( specific courses in bacterial and Mycotic diseases – viral diseases – parasitic diseases)</b>	2	2
	286/1	<b>186- role of rodents in transmission of zoonoses</b>	2	2
	287/1	<b>187- role of wild animals in transmission of zoonoses</b>	2	2
	288/1	<b>188- role of birds (special courses in: poultry, wild migrating or pets) in transmission of zoonoses</b>		
<b>Genetics and genetic engineering</b>	289/1	<b>189- Genetics of microorganisms .</b>	1	2
	290/1	<b>190- Genetic engineering( advanced)</b>	1	2
	291/1	<b>191- Cytological genetics</b>	1	-
	292/1	<b>192- Genetics of genuses.</b>	2	-
	293/1	<b>193- physiological genetics</b>	2	-
	294/1	<b>194- Chemical and radiological genetics.</b>	1	2



<b>Animal production</b>	295/1	<b>195- Animal breeding and improvement (advanced).</b>	2	-
	296/1	<b>196- Poultry breeding and improvement(advanced).</b>	2	-
	297/1	<b>197- Cattle and buffalo production (advanced).</b>	2	2
	298/1	<b>198- Sheep and goat production (advanced).</b>	2	2
	299/1	<b>199- Poultry production (advanced).</b>	2	2
	300	<b>200-Rabbit production (advanced).</b>	2	2
	301	<b>201-Improving by artificial insemination in poultry and rabbits.</b>	2	2
<b>Fish diseases and management</b>	302/1	<b>202- Biology of fish.</b>	2	2
	303/1	<b>203-Fish diseases (advanced)</b>	2	2
	304/1	<b>204-Fish farms.</b>	1	2
	305/1	<b>205-Fish breeding .</b>	2	2
<b>Biostatistics</b>	312/1	<b>212- Biostatistics (advanced)</b>	2	-
	313/1	<b>213- Experimental design</b>	2	2
	314/1	<b>214- Computer and data processing</b>	2	1

### 6-Teaching and Learning Methods:

*The program features a variety of teaching approaches for different intended learning objectives including:*

- Lectures to gain knowledge and understanding skills
- Writing a review paper to gain the skills of self-learning and presentation
- Practical and lab sessions to gain practical skills
- Seminars

### 7- Students assessments:

The program depends on different assessment ways:

#### a. Course assessment:

<b>1- Written examination</b>	<b>For assessment of knowledge, back calling and Intellectual skills</b>
<b>2- Practical examination</b>	<b>For assessment of practical and professional skill</b>
<b>3- Oral examination</b>	<b>For assessment of knowledge and Intellectual skills</b>

#### b. Master Thesis

- Annual reports adopted by the Faculty



- Finally, the assessment of thesis measure the individual student ability to work independently in the field specialization
- Final evaluation and approval by a judging committee of at least three professors including one or more of the supervisors and an external professor. This assesses the ability to write a review article, perform the needed practical steps and to present the results in tables and graphs. In addition, the skills of analysis of results and discussion with previous findings obtained by other authors are also assessed.

**Assessment of program intended learning outcomes**

Tool or method		ILOs
1-	Written	a1,2,3,; b1,2,3
2-	Oral	a1,2,5; b2,3,4,6
3-	Practical	c1-5
4-	Thesis	a2-7; b1-7, c1-5, d1-8

**8. Marking scale as follow:-**

<b>Excellent</b>		> 90
<b>Very good</b>		>80
<b>Good</b>		>70
<b>Pass</b>		>60
<b>Fail</b>	<b>Weak</b>	45 to less than 60
	<b>very weak</b>	Less than 45

**9. Program evaluation methods**

Evaluator	Tool	Sample
Postgraduate Student	Questioners	<b>20%</b>
	Meeting	<b>1</b>
Postgraduate alumni	Questioners	<b>5</b>
Stakeholders (employers)	Questioners	<b>10</b>
	Meeting	<b>1</b>
External evaluator/External examiner	Reports	<b>1</b>

**10. Program Admission Requirements:**

The Applicant must normally satisfy the faculty of veterinary medicine- kafrelsheikh University general entrance and requirement. The normal minimum entrance qualification for registration at the faculty on a master’s program

- 1- Bachelor degree in Veterinary Medical Sciences of one of the Egyptian Universities or hold a degree in Veterinary Medical Sciences equivalent through the Supreme Council of Universities with general grade at least “Good” and at least grade “Very Good” in



specialization.

- 2- Diploma of general grade at least “Good” and at least grade “Very Good” in specialization. The total number of study hours must be not less than 3 weekly in that specialization.
- 3- After he has passed the courses studied during premaster he must perform a research work in a subject approved by the faculty council at least for one year. He must submit the results of this work in thesis that should be approved by the discussion committee.

## 11. Regulations for progression of program

- a) Registration period for the M.V.Sc in veterinary medical science is at least 2 years after the approval date by the faculty council and it should not exceed a period of 4 years, an extension could be approved by the faculty council depending on the supervisor report that approved by the department council and postgraduate and research committee refers to the universities regulation law.
- b) The student should conduct the courses proposed by both department council and approved by postgraduate and research committee and faculty council and include, 2-5 courses of the postgraduates stated in article (28) in regulation law list and the student will entitled to apply for the exam only after meeting attendance rate for each courses.
- c) The student should pass written, practical and oral exams successfully in all courses, and the examination is held two times annually.
- d) The Faculty council should deprive the student from entering the exam if his attendance rate in the course is less than 75%.
- e) Failure or depriving from entering one or more course did not require reexamination of successful passed courses.
- f) The applicant should conduct an innovate research on the subject that has been registered for at least 2 years from the date of registration approved by the faculty council. And the faculty council depending on a request from the supervisor has the right to authorize the student to do scientific experiments at recognized scientific institute.
- g) The applicant should submit the thesis that accepted by the judging committee in an open discussion and the following policies should be met:
- h) Pass all courses.
- i) The applicant should submit 4 copies of his thesis concerned department council to form committee examining the thesis to be presented to the postgraduate studies committee and the faculty council, and in case of thesis approval by the department council, the applicant will submit 6 copies for the faculty library, 1 copy for public university library before introducing the report of examination committee to the post graduate studies committee and the faculty council.
- j) Registration will be during March and September of each year.
- k) The applicant should submit a request enrolment for the dean who forwards bit to the concerned department council to determine the research subject and the study program and then take calendar after complete documentation on the faculty council for approval.



- l) The thesis title should be identified before being submitted at least 2 months and the judging committee has the right to amend the title without prejudice the subject of research.
- m) The Faculty council has the right to suspend the student enrolment for a certain period if he has acceptable excuse preventing him from continuing his study or research, and his period will not counted within the period stated in article 25.
- n) The applicant should submit 5 hard copies and 10 electronic copies (CDs) of the thesis after its validity approved by the judging committee and head of department to be distributed to the committee members and faculty library and the judging committee can decide the exchange of the thesis with other universities or printing at the expense of the university.

**12. Registration will be cancelled in one of the following cases:**

1. If the supervisors report during the registration period is un satisfactory (2 reports).
2. If he did not submit his thesis before the end of registration period.
3. If the judging committee rejected the thesis twice.

**13. Examination Regulations**

- a- Time of written exam, 3 hours for each course that has 3 hours or more for lecture / practical /week. **If has less than 3 hours/week, the time of exam, is 2 hours only.**
- b- The final degree of each course which has 3 hours (lecture and practical) per week is **100 and less than 3 hours is 50 degrees and divided into 50% for written exam, and 50% for practical and oral exam.**

**14. Program completion:**

- Successfully completion of the required courses and submission of a thesis.

**Program Coordinator**

**Dr. Seham Mohammed Elkassas**

**Head of Department**

**Prof. Dr. Mohamed Atef Helal**



**Matching program ILOs with ARS - Matrix**

Program ILOs	ARS																								
	K&U (a)						I.S. (b)							P.P. (c)				G.T. (d)							
	1	2	3	4	5	6	1	2	3	4	5	6	7	1	2	3	4	1	2	3	4	5	6	7	8
<b>K&amp;U</b>	1 2	3	4	5	6	7																			
<b>I.S.</b>							1	2	3	4	5	6	7												
<b>P.P.</b>													1 2	3 4	4	5									
<b>G.T.</b>																	1	2	3	4	5	6	7	8	









**Kafrelsheikh University**  
Faculty of Veterinary Medicine



**Kafrelsheikh University**  
**Faculty of Veterinary Medicine**  
**Department of Animal Wealth Development**



## **ARS for Master in Veterinary Medical Sciences (Economics and Farm management)**

### **1) Graduate attributes**

*The graduate should have the ability for:*

- 13) Perfect application of scientific research basics and methodologies in Veterinary Economics and Farm Management, and using its various tools.
- 14) Application and use of analytical methodology in the field of Veterinary Economics and Farm Management.
- 15) Application of gained specialized knowledge and integrating them with the relevant knowledge in Veterinary Economics and Farm Management.
- 16) Awareness with current problems and recent visions in Veterinary Economics and Farm Management.
- 17) Identification of animal and poultry economic problems suggesting suitable and economic solutions.
- 18) Mastering an appropriate scale of specific professional skills, and using suitable technological means to serve professional practice.
- 19) Effective communication with students, animal breeders and owners of animal and poultry farms and leading work team.
- 20) Decision making in various veterinary economics and farm management contexts.
- 21) Employment of the available resources efficiently to maximize animal and poultry production.
- 22) Awareness with his role in society development and maximizing animal and poultry production with preservation of a clean environment.
- 23) Reflection of the commitment to act with integrity, credibility and the rules of profession.
- 24) Academic and professional self- development and ability for life-long learning and progress.

#### **A) Knowledge and understanding**

**Adopted ARS**

**NARS (Master)**



	<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Theories , principles and specialized knowledge in Veterinary Economics and Farm Management	Theories and principles in the field of specialization and related fields.
2)	The impact of different scientific progress in the field of Veterinary Economics and Farm Management.	Mutual effect between professional practice and its impact on environment
3)	Application of his knowledge of Veterinary Economics and Farm Management research methods by evaluating the utility of those techniques to specific research question for improvement of economic efficiency of animal and poultry production	Scientific progress in the field of specialization
4)	Applying legal and ethical principal in field application in Veterinary Economics and Farm Management.	Legal and ethical basics in professional practice in the field of specialization
5)	Recognizing standard levels of perfection in field application in Veterinary Economics and Farm Management	Principles and basics of quality assurance in the area of specialization
6)	Basics and ethics of scientific research especially that associated with animal welfare.	Basics and ethics of scientific research

## B) Intellectual skills

	<b>Adopted ARS</b>	<b>NARS (Master)</b>
	<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Integration of the available record information, analysis of data and judgment of animal and poultry on the basis of economic indices.	Analysis and judgment of information in the field of specialization and analog to solve problems.
2)	Solving some economic problems based on the available data	Solving professional problems even in scarcity of data.
3)	Connectivity between the various sources of knowledge to solve economic problems in producing animal and poultry.	Relating between different knowledge to solve professional problems.
4)	Demonstration insight into research and scientific methods, experimental design, formulating research questions that are relevant to Veterinary Economics and Farm Management and writing scientific article	Preparing research plan in specialization and/ or writing scientific article on a research problem.



	on a research problem.	
5)	Assessing professional risk in the field of Veterinary Economics and Farm Management	Risk-assessment of professional practices in specialization.
6)	Development of plans to improvement of performance of animal and poultry.	Planning for improvement of professional performance.
7)	Making decisions and suggestions for improvement of economic efficiency of animal and poultry production in different contexts	Taking professional decisions in a variety of professional contexts.

### C) Professional and practical skills

Adopted ARS		NARS (Master)	
	<i>By the end of this program the graduate should understand and accommodate the following:</i>		<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Efficient mastering of information technology and using of available data to improvement of economic efficiency of animal and poultry production.		Mastering basic and recent professional skills in the field of specialization
2)	Writing and evaluation professional reports in the diagnosis of some economic problems		Writing and evaluating professional reports.
3)	Planning a research project in the field of Veterinary Economics and Farm Management with a consideration to the technical, ethical and safety issues and associated costs.		Evaluating existing materials and methods in the area of specialization.
4)	Performing essential skills that underpin techniques associated with experimental design, collecting, summarizing, organizing, presenting and analyzing data		

### D) General and transferable skill

Adopted ARS		NARS (Master)	
	<i>By the end of this program the graduate should understand and accommodate the following:</i>		<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Communicating effectively with teaching staff, colleagues and farm owners		Effective communication.



2)	Using information technology in scientific research and publications.	Utilizing information technology to serve development of professional practice.
3)	Demonstrating appropriate attitude towards teaching staff and colleagues.	Self-assessment and determination of personal educational needs.
4)	Identifying and use different sources of information and knowledge.	Using different resources to obtain knowledge and information.
5)	Using appropriate attitude and rules towards teaching staff and colleagues and use evidence based evaluations.	Establishing rules and indicators for assessment of the performance of others.
6)	Respecting the importance of team work.	Team working and leading a team in familiar professional contexts.
7)	Doing good control of timing.	Efficient time management.
8)	Performing continuous self-learning.	Self and continuous learning.

ثانياً: برامج الماجستير

### ١- مواصفات الخريج

- خريج برنامج الماجستير في أي تخصص يجب أن يكون قادراً على:
١. إجادة تطبيق أساسيات و منهجيات البحث العلمي واستخدام أدواته المختلفة
  ٢. تطبيق المنهج التحليلي واستخدامه في مجال التخصص
  ٣. تطبيق المعارف المتخصصة و دمجها مع المعارف ذات العلاقة في ممارسته المهنية
  ٤. إظهار وعيا بالمشاكل الجارية و الرؤى الحديثة في مجال التخصص
  ٥. تحديد المشكلات المهنية و إيجاد حلولاً لها
  ٦. إتقان نطاق مناسب من المهارات المهنية المتخصصة، واستخدام الوسائل التكنولوجية المناسبة بما يخدم ممارسته المهنية
  ٧. التواصل بفاعلية و القدرة على قيادة فرق العمل
  ٨. اتخاذ القرار في سياقات مهنية مختلفة
  ٩. توظيف الموارد المتاحة بما يحقق أعلى استفادة و الحفاظ عليها
  ١٠. إظهار الوعي بدوره في تنمية المجتمع و الحفاظ على البيئة في ضوء المتغيرات العالمية و الإقليمية
  ١١. التصرف بما يعكس الالتزام بالنزاهة و المصداقية و الالتزام بقواعد المهنة
  ١٢. تنمية ذاته أكاديمياً و مهنياً و قادراً على التعلم المستمر

### ١٢- المعايير القياسية العامة

#### ١- المعرفة و الفهم

- بانتهاؤ دراسة برنامج الماجستير يجب ان يكون الخريج على فهم و دراية بكل من:
- أ- النظريات و الأساسيات المتعلقة بمجال التعلم وكذا في المجالات ذات العلاقة
  - ب- التأثير المتبادل بين الممارسة المهنية و انعكاسها على البيئة
  - ت- التطورات العلمية في مجال التخصص
  - ث- المبادئ الأخلاقية و القانونية للممارسة المهنية في مجال التخصص
  - ج- مبادئ و أساسيات الجودة في الممارسة المهنية في مجال التخصص
  - ح- أساسيات و أخلاقيات البحث العلمي

#### ٢- المهارات الذهنية



- بانتهاة دراسة برنامج الماجستير يجب ان يكون الخريج قادرا على:
- أ - تحليل و تقييم المعلومات في مجال التخصص و القياس عليها لحل المشاكل
  - ب - حل المشاكل المتخصصة مع عدم توافر بعض المعطيات
  - ت - الربط بين المعارف المختلفة لحل المشاكل المهنية
  - ث - إجراء دراسة بحثية و /أو كتابة دراسة علمية منهجية حول مشكلة بحثية
  - ج - تقييم المخاطر في الممارسات المهنية في مجال التخصص
  - ح - التخطيط لتطوير الأداء في مجال التخصص
  - خ - اتخاذ القرارات المهنية في سياقات مهنية متنوعة

### ٣ المهارات المهنية

- بانتهاة دراسة برنامج الماجستير يجب ان يكون الخريج قادرا على:
- أ - إتقان المهارات المهنية الأساسية و الحديثة في مجال التخصص
  - ب - كتابة و تقييم التقارير المهنية
  - ت - تقييم الطرق و الأدوات القائمة في مجال التخصص

### ٤ المهارات العامة و المنتقلة

- بانتهاة دراسة برنامج الماجستير يجب أن يكون الخريج قادرا على:
- أ - التواصل الفعال بأنواعه المختلفة
  - ب - استخدام تكنولوجيا المعلومات بما يخدم الممارسة المهنية
  - ت - التقييم الذاتي و تحديد احتياجاته التعليمية الشخصية
  - ث - استخدام المصادر المختلفة للحصول على المعلومات و المعارف
  - ج - وضع قواعد و مؤشرات تقييم أداء الآخرين
  - ح - العمل في فريق ، و قيادة فرق في سياقات مهنية مختلفة
  - خ - إدارة الوقت بكفاءة
  - د - التعلم الذاتي و المستمر



## COURSE SPECIFICATION (2021 / 2022)

### 1 - Basic Information:

Code number: .....

Course title: Economy and Farm Management (Basic) (اقتصاد و ادارة مزارع أساسى)

Academic Year: **Master of Veterinary Medicine Program**

Total teaching hours: 336 h

Lectures: 144 hrs. (48 weeks- 3hrs/week)

Practical: 192 hrs. (48 weeks- 4hrs/week)

### 2 - OVERALL AIMS OF THE COURSE:

*At the end of this course, students should gain the basic concepts, principles and the essential practical skills in the field of veterinary economics and farm management in addition to marketing of veterinary resources, services and animal products and planning of feasibility studies of different animal and poultry projects.*

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- a1. Define the basic terms in veterinary economics, farm management and marketing animal products and veterinary services in connection with the field of veterinary services.
- a2. Discuss the pricing of the goods and the business of veterinary practice and veterinary marketing .
- a3. Outline the production and cost function theory.
- a4. State the economic and productive efficiency of animal production farms.
- a5. Explain the economic justification of diseases control and methods used for assessing the economic benefits of diseases control
- a6. Recognize farm records and accounts and Position of animal farms and their requirements

#### 3-B: INTELLECTUAL SKILLS:

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

- b1. Direct proper approaches for veterinary economics and farm management.
- b2. Discriminate reasons and sources of economic inefficiency in different farm animals,
- b3. Interpret veterinary economic problems and dealing with it.
- b4. Handle the veterinary and economic resources.
- b5. Modify management schedules in response to emerging and unexpected economic problems.

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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



- c1. Apply sound management practices to economic problems and farm inefficiency.
- c2. Determine economic principles of herd/flock size, economic basis of drug treatment and assessing the economic benefits of diseases control.
- c3. Design herd health program according to the economic basis.
- c4. Perform farm budgeting and designing animal and poultry production records.
- c5. Design and planning budgeting , farm records and feasibility studies for different animal projects.
- c6. Practice Feasibility studies of animal and poultry projects.

### **3- D: GENERAL SKILLS:**

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

- d.1. Communicate effectively with his professors, and collages.
- d.2. Utilize different sources of knowledge and information
- d.3. Use information technology to serve the professional practice.
- d.4. Manage time efficiently.

### **4- COURSE CONTENTS:**

TOPIC	Total hours (Semester)	Hours for lecture	Hours for practical
1- Introduction about veterinary economics and the importance of economics in veterinary medicine	16	16	---
2- Pricing of the goods	16	16	---
3- The business of veterinary practice and veterinary marketing.	16	16	---
4- Production and cost function theory	16	16	---
5- Economic and productive efficiency of animal production farms	16	16	---
6- The economic justification of diseases control	16	16	---
7- Methods used for assessing the economic benefits of diseases control	16	16	---
8- Farm records and accounts.	16	16	---
9- Position of animal farms and their requirements	16	16	---
10- Large and small animal problems	32	---	32
11- Economics of drug treatment.	32	---	32





TOPIC	Total hours (Semester)	Hours for lecture	Hours for practical
12- Culling and costs of diseases in dairy herds	32	---	32
13- Management quality	32	---	32
14- Judgment on the farm income statement	32	---	32
15- Feasibility studies Animal and poultry projects	32	---	32
<b>Total</b>	<b>336</b>	<b>144</b>	<b>192</b>

### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library

Making individual reports about poultry or dairy operations

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a6	b1 to b5		d1, d4
Practical sessions		b1 to b5	c1 to c6	d2, d4
Self-Learning activities				d2, d3, d4
Distance Teaching and Learning	a1 to a6	b1 to b5	c1 to c6	d1 to d4

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	Allover the academic year
<b>7.c grads</b>	50	20	20	10

6.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS



Written exams	a1 to a6	b1 to b5		d4
Practical exams			c1 to c6	d2, d3
Oral exams	a1 to a6	b1 to b5		d1
Student activities	a1, a6,			d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Essential Books

- Bath, L. Donald; F. N. Dickinson; H. A. Tucker; and R. Appleman. (1985):"Dairy cattle: Principles, practices, problems, profits". 3<sup>rd</sup> Edition, Lea & Febiger. Philadelphia.
- Economics for veterinarians (2009):" Proceedings of a course in economics fo veterinarians of the Western Australian Department of Agriculture, February 14 to 18.

### 8-2: Recmended books:

- Economics for veterinarians (2018):" Proceedings of a course in economics for veterinarians of the Western Australian Department of Agriculture, February 14 to 18.
- Heady, E. H. and R. Jensen. (2014):" Farm management economics". Pren. of India, New Delhi.
- Lasley, J. F. (2016):" Beef cattle production ". Prentice-Hall, Inc. Englewood cliffs, New Jersey 07632.
- Knippenberg, R., Michael R. D., Bridgette B., and Michael D. 2015. Estimating the financial return on a veterinary education. JAVMA, Vol 246, No. 4, February 15, 2015
- Ahmadi B.V., Dominic M., Rick D. 2020. The Economics of Farm Animal Welfare: Theory, Evidence and Policy Kindle Edition. CABI (July 9, 2020)

### 8.3: web sites and jouranls .....and so on

- <https://www.ekb.eg/>
- Intrnational of veterinary information services (IVIS)
- [www.Vet.net.com](http://www.Vet.net.com)
- <https://www.avma.org/resources-tools/veterinary-economics> Egyptian poultry science
- <https://www.scimagojr.com/journalsearch.php?q=29625&tip=sid>: Veterinary Economics
- British poultry science
- World poultry science

**Course Coordinator**

**Head of Department**

**Prof. Dr. M. Atef Helal**

**Prof. Dr. M. Atef Helal**



### Course Matrix for achievement of Intended Learning Outcomes

Topics	Hours	Knowledge & Understanding						Intellectual Skills					Practical & Professional Skills						General & Transferable Skills			
		1	2	3	4	5	6	1	2	3	4	5	1	2	3	4	5	6	1	2	3	4
1. Introduction about veterinary economics and the importance of economics in veterinary medicine	16	X																	X	X	X	X
2. Pricing of the goods	16		X					X											X	X	X	X
3. The business of veterinary practice and veterinary marketing.	16		X					X			X								X	X	X	X
4. Production and cost function theory	16			X				X											X	X	X	X
5. Economic and productive efficiency of animal production farms	16				X			X	X			X							X	X	X	X
6. The economic justification of diseases control	16					X		X				X							X	X	X	X
7. Methods used for assessing the economic benefits of diseases control	16					X		X	X	X									X	X	X	X
8. Farm records and accounts.	16						X	X		X									X	X	X	X
9. Position of animal farms and their requirements	16						X	X			X								X	X	X	X
10. Large and small animal problems	32											X	X						X	X	X	X
11. Economics of drug treatment.	32													X					X	X	X	X
12. Culling and costs of diseases in dairy herds	32													X	X				X	X	X	X
13. Management quality	32														X				X	X	X	X
14. Judgment on the farm income statement	32															X			X	X	X	X
15. Feasibility studies Animal and poultry projects	32																X	X	X	X	X	X



## COURSE SPECIFICATION (2021 / 2022)

### 1 - Basic Information:

**Code number: 306/1**

**Course title: Economics of dairy production farms (اقتصاديات مزارع انتاج اللبن)**

**Academic Year: Master of Veterinary Medicine Program**

**Total teaching hours: 96 hrs.**

Lectures: 96 hrs. (48 weeks- 2hrs/week)

Practical: -----

### 2 - OVERALL AIMS OF THE COURSE:

*At the end of this course, students should gain the basic concepts, principles and skills in the field of dairy economics and farm management in addition the different economic tools that measure and maximize the revenue of dairy farms.*

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- a.1. Explain the economic methods and problems for feeding dairy cattle.
- a.2. Express the different economic programs used for improvement the economic, productive and reproductive efficiency of dairy farms and heifer replacement and marketing of dairy products.
- a.3. Define the different types of farm records and risks in dairy farms.
- a.4. Name the factors affecting demand and supply of milk and dairy products.
- a.5. Describe the different characters of dairy cattle.

#### 3-B: INTELLECTUAL SKILLS:

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

- b.1. Analyze different farm records.
- b.2. Detect the economic problems of dairy farms and how you can deal with it.
- b.3. Diagram the economic information in determine the risks and uncertainty in dairy farms.

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

#### 3- D: GENERAL SKILLS:

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

- d.1. Communicate effectively with his professors, and collages.
- d.2. Utilize different sources of knowledge and information
- d.3. Use information technology to serve the professional practice.
- d.4. Manage time efficiently

### 4 - COURSE CONTENTS:

Topic	No. of hours		
	Lectures	Practical	Total
1- Economics of dairy nutrition	10	---	10
2- Economic of heifer replacement	10	---	10
3-Factors affecting demand and supply of milk and dairy products.	10	---	10
4- Dairy farm records	15	---	15
5- Risks and uncertainty of dairy cattle	15	---	15



6- Economic problems of dairy farms	10	---	10
7- Marketing of dairy products	10	---	10
8- Characters of dairy enterprises	16	---	16
<b>Total</b>	<b>96</b>	<b>---</b>	<b>96</b>

### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming

\* **Self-Learning activities:** Mini reviews from the web and the library  
Making individual reports about poultry breeding

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a5	b1 to b3		d1, d4
Self-Learning activities		b1 to b3		d2, d3, d4
Distance Teaching and Learning	a1 to a5	b1 to b3		d1 to d4

\*Lectures may be offered face to face or via distance teaching and 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 lectures.

### 7. STUDENT ASSESSMENT:-

<u>7.a Used methods</u>	Written examination	Oral examination	Practical examination	Activities
<u>7.b time</u>	At the end of the academic year	At the end of the academic year		All over the academic year
<u>7.c grads</u>	25	20	-----	5

7. Student Assessment				
6.1. Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a5	b1 to b3		d4
Practical exams	-----	-----	-----	-----
Oral exams	a1 to a5	b1 to b3		d1
Student activities	a1, a5,			d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

### 8. LEARNING AND REFERENCE MATERIALS:



### **8-1: Essential Books**

- Bill LaFayette, Stephen A. Buser. 2017. **Economic and Social Impacts of Veterinary Medicine**, the Ohio State University College of Veterinary Medicine and the Ohio Veterinary Medical Association
- Bath, L. Donald; F. N. Dickinson; H. A. Tucker; and R. Appleman. (1985):”Dairy cattle: Principles, practices, problems, profits”. 3<sup>rd</sup> Edition, Lea & Febiger. Philadelphia.
- Economics for veterinarians (2009):” Proceedings of a course in economics for veterinarians of the Western Australian Department of Agriculture, February 14 to 18.

### **8-2: Recommended books:**

- Economics for veterinarians (2018):” Proceedings of a course in economics for veterinarians of the Western Australian Department of Agriculture, February 14 to 18.
- Heady, E. H. and R. Jensen. (2014):” Farm management economics”. Pren. of India, New Delhi.
- Lasley, J. F. (2016):” Beef cattle production “. Prentice-Hall, Inc. Englewood cliffs, New Jersey 07632.
- Knippenberg, R., Michael R. D., Bridgette B., and Michael D. 2015. Estimating the financial return on a veterinary education. JAVMA, Vol 246, No. 4, February 15, 2015
- Ahmadi B.V., Dominic M., Rick D. 2020. The Economics of Farm Animal Welfare: Theory, Evidence and Policy Kindle Edition. CABI (July 9, 2020)

### **8-3: Egyptian Knowledge Bank:**

- Max K. Hinds , William F. Johnstone, 2010. Dairy economics handbook. U.S. Department of Agriculture, Federal Extension Service
- Lawrence, A., Vigers, B. 2020. The economics of farm animal welfare: theory, evidence and policy. Animal Behaviour and Welfare, Animal and Veterinary Sciences, Scotland's Rural College (SRUC), Edinburgh, Scotland, UK.

### **Scientific Journals**

- Journal of Animal Science.
- Livestock Production Science.
- British Journal of Animal Science.

### **Scientific websites**

- The Egyptian Knowledge Bank: <https://www.ekb.eg/web/guest/home>
- DeLaval Dairy Supply. <http://www.delaval.com/en/-/Dairy-knowledge-and-advice/>
- Lactation Biology: <http://classes.aces.uiuc.edu/ansci308/index.html>
- National Dairy Database: <http://www.inform.umd.edu:8080/edres/topic/agr/ndd>
- WWW Virtual Library for Dairy Production\* (Oklahoma). <http://www.ansi.okstate.edu/library/dairy/>
- US Dairy Export Council: <http://www.usdec.org/about/whoweare.htm>
- The International Dairy Federation (IDF): <http://www.fil-idf.org/>
- Managing of dairy heifers: <http://www3.das.psu.edu/dcn/calfmgt/385/index.html>
- Management Practices Associated with High-Producing U.S. Dairy Herds (USDA): [http://www.aphis.usda.gov/vs/ceah/cahm/Dairy\\_Cattle/drymgmt.htm](http://www.aphis.usda.gov/vs/ceah/cahm/Dairy_Cattle/drymgmt.htm)

**Course Coordinator**

**Head of Department**

**Prof. Dr. M. Atef Helal**

**Prof. Dr. M. Atef Helal**





## COURSE SPECIFICATION (2021 / 2022)

### 1 - Basic Information:

**Code number:** 307/1

**Course title:** Economics of meat production farms (اقتصاديات مزارع انتاج اللحم)

**Academic Year:** Master of Veterinary Medicine Program

**Total teaching hours:** 96 hrs

Lectures: 96 hrs (48 weeks- 2hrs/week)

Practical: -----

### 2 - OVERALL AIMS OF THE COURSE:

*At the end of this course, students should gain the basic concepts, principles and skills in the field of beef production economics and allocate the production and economic resources in improving the economic efficiency of beef production farms.*

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- a.1. Identify the economic information in improving the economic and productive efficiency of beef production farms.
- a.2. Point the Cost benefit analysis of beef production farms.
- a.3. Recognize the economics of commercial beef production.
- a.4. Describe the factors affecting demand and supply of beef products.

#### 3-B: INTELLECTUAL SKILLS:

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

- b.1. Attain the economic information in improving the economic and productive efficiency of beef production farms.
- b.2. Examine of economic efficiency of beef production farms.
- b.3. Detect the economics of commercial beef production, economic problems of beef farms and how you can deal with it.
- b.4. Lay out the economic information in marketing of beef farms

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

There is no practical course

#### 3- D: GENERAL SKILLS:

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

- d.1. Communicate effectively with his professors, and collages.
- d.2. Utilize different sources of knowledge and information
- d.3. Use information technology to serve the professional practice.
- d.4. Manage time efficiently

### 4 - COURSE CONTENTS:

Topic	No. of hours		
	Lectures	Practical	Total
1-Managerial function of Beef production	20	---	20
2-Cost benefit analysis of beef production.	20	---	20
3-Economics of commercial beef production.	30	---	30





4-Factors affecting demand and supply of beef products.	26	---	26
<b>Total</b>	<b>96</b>	<b>---</b>	<b>96</b>

### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming

\* **Self-Learning activities:** Mini reviews from the web and the library  
Making individual reports about poultry breeding

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a4	b1 to b4		d1, d4
Self-Learning activities		b1 to b4		d2, d3, d4
Distance Teaching and Learning	a1 to a4	b1 to b4		d1 to d4

\*Lectures may be offered face to face or via distance teaching and 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 lectures.

### 7. STUDENT ASSESSMENT:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year		All over the academic year
<b>7.c grads</b>	25	20	-----	5

7. Student Assessment				
Intended Learning Outcomes Covered				
6.1. Methods	KU	IS	PPS	GTS
Written exams	a1 to a4	b1 to b4		d4
Practical exams	-----	-----	-----	-----
Oral exams	a1 to a4	b1 to b4		d1
Student activities	a1, a4,			d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

### 8. LEARNING AND REFERENCE MATERIALS:

#### 8-1: Essential Books

- Bill LaFayette, Stephen A. Buser. 2017. **Economic and Social Impacts of Veterinary Medicine**, he Ohio State University College of Veterinary Medicine and the Ohio Veterinary Medical Association



- Bath, L. Donald; F. N. Dickinson; H. A. Tucker; and R. Appleman. (1985):”Dairy cattle: Principles, practices, problems, profits”. 3<sup>rd</sup> Edition, Lea & Febiger. Philadelphia.
- Economics for veterinarians (2009):” Proceedings of a course in economics for veterinarians of the Western Australian Department of Agriculture, February 14 to 18.

### **8-2: Recmended books:**

- Economics for veterinarians (2018):” Proceedings of a course in economics for veterinarians of the Western Australian Department of Agriculture, February 14 to 18.
- Heady, E. H. and R. Jensen. (2014):” Farm management economics”. Pren. of India, New Delhi.
- Lasley, J. F. (2016):” Beef cattle production “. Prentice-Hall, Inc. Englewood cliffs, New Jersey 07632.
- Knippenberg, R., Michael R. D., Bridgette B., and Michael D. 2015. Estimating the financial return on a veterinary education. JAVMA, Vol 246, No. 4, February 15, 2015
- Ahmadi B.V., Dominic M., Rick D. 2020. The Economics of Farm Animal Welfare: Theory, Evidence and Policy Kindle Edition. CABI (July 9, 2020)

### **8-3: Egyptian Knowledge Bank:**

- Max K. Hinds , William F. Johnstone, 2010. Dairy economics handbook. U.S. Department of Agriculture, Federal Extension Service
- Lawrence, A., Vigors, B. 2020. The economics of farm animal welfare: theory, evidence and policy. Animal Behaviour and Welfare, Animal and Veterinary Sciences, Scotland's Rural College (SRUC), Edinburgh, Scotland, UK.

### **Scientific Journals**

- Journal of Animal Science.
- Livestock Production Science.
- British Journal of Animal Science.

### **Scientific websites**

- The Egyptian Knowledge Bank: <https://www.ekb.eg/web/guest/home>
- DeLaval Dairy Supply. <http://www.delaval.com/en/-/Dairy-knowledge-and-advice/>
- Lactation Biology: <http://classes.aces.uiuc.edu/ansci308/index.html>
- National Dairy Database: <http://www.inform.umd.edu:8080/edres/topic/agr/ndd>
- WWW Virtual Library for Dairy Production\* (Oklahoma). <http://www.ansi.okstate.edu/library/dairy/>
- US Dairy Export Council: <http://www.usdec.org/about/whoweare.htm>
- The International Dairy Federation (IDF): <http://www.fil-idf.org/>
- Managing of dairy heifers: <http://www3.das.psu.edu/dcn/calfmgt/385/index.html>
- Management Practices Associated with High-Producing U.S. Dairy Herds (USDA): [http://www.aphis.usda.gov/vs/ceah/cahm/Dairy\\_Cattle/drymgmt.htm](http://www.aphis.usda.gov/vs/ceah/cahm/Dairy_Cattle/drymgmt.htm)

**Course Coordinator**

**Head of Department**

**Prof. Dr. M. Atef Helal**

**Prof. Dr. M. Atef Helal**





## COURSE SPECIFICATION (2021 / 2022)

### 1 - Basic Information:

**Code number:** 308/1

**Course title:** Economics of Poultry farms (اقتصاديات مزارع الدواجن)

**Academic Year:** Master of Veterinary Medicine Program

**Total teaching hours:** 96 hrs

Lectures: 96 hrs (48 weeks- 2hrs/week)

Practical: -----

### 2 - OVERALL AIMS OF THE COURSE:

*At the end of this course, students should gain the basic concepts, principles and skills in the field of economic basics of poultry business, as well as have good economic information about poultry diseases of sever economic losses.*

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- a.1. Identify the economic information important in poultry production.
- a.2. Enumerate the different economic resources in improving and maximize the financial position and marketing of poultry farms.
- a.3. Classify the different poultry disease and problems with high economic losses and strategy of control.
- a.4. Outline the usefulness of farm records and economic resources in improving the efficiency of poultry farms.

#### 3-B: INTELLECTUAL SKILLS:

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

- b.1. Diagram the economic strategy for improving farm efficiency and marketing of poultry enterprises.
- b.2. Contrast of different farm records.
- b.3. Interpret the economic problems of poultry farms and how you can deal with it

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

**There is no practical course**

#### 3- D: GENERAL SKILLS:

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

- d.1. Communicate effectively with his professors, and collages.
- d.2. Utilize different sources of knowledge and information
- d.3. Use information technology to serve the professional practice.
- d.4. Manage time efficiently

### 4 - COURSE CONTENTS:

Topic	No. of hours		
	Lectures	Practical	Total
1- Economics concepts of poultry production	<b>20</b>	---	<b>20</b>
2-Economic and productive efficiency of poultry farms	<b>15</b>	---	<b>15</b>
3- Farm records	<b>10</b>	---	<b>10</b>



4- Economic losses of poultry diseases	13	---	13
5- Marketing of poultry animals	10		10
6- Marketing of poultry products	18		18
7- Economic resources and problems	10		10
<b>Total</b>	<b>96</b>	<b>---</b>	<b>96</b>

### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming

\* **Self-Learning activities:** Mini reviews from the web and the library  
Making individual reports about poultry breeding

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a4	b1 to b3		d1, d4
Self-Learning activities		b1 to b3		d2, d3, d4
Distance Teaching and Learning	a1 to a4	b1 to b3		d1 to d4

\*Lectures may be offered face to face or via distance teaching and 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 lectures.

### 7. STUDENT ASSESSMENT:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year		All over the academic year
<b>7.c grads</b>	25	20	-----	5

6.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a4	b1 to b3		d4
Practical exams	-----	-----	-----	-----
Oral exams	a1 to a4	b1 to b3		d1
Student activities	a1, a4,			d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

### 8. LEARNING AND REFERENCE MATERIALS:



### **8-1: Essential Books**

- Bill LaFayette, Stephen A. Buser. 2017. Economic and Social Impacts of Veterinary Medicine, The Ohio State University College of Veterinary Medicine and the Ohio Veterinary Medical Association
- Jonathan Rushton 2009. The Economics of Animal Health and Production. CAB International. ISBN: 9781 84593 1940
- Economics for veterinarians (2009):” Proceedings of a course in economics fo veterinarians of the Western Australian Department of Agriculture, February 14 to 18.
- Leeson, S., Summers, J.2018. Commercial Poultry Nutrition, 3rd Edition. Nottingham University Press.England.
- Donald D. Bell & William D. Weaver, Jr. 2012. Commercial Chicken Meat and Egg Production. Springer publishing, New York, USA.

### **8-2: Recmoned books:**

- Economics for veterinarians (2018):” Proceedings of a course in economics for veterinarians of the Western Australian Department of Agriculture, February 14 to 18.
- Heady, E. H. and R. Jensen. (2014):” Farm management economics”. Pren. of India, New Delhi.
- Knippenberg, R., Michael R. D., Bridgette B., and Michael D. 2015. Estimating the financial return on a veterinary education. JAVMA, Vol 246, No. 4, February 15, 2015
- Ahmadi B.V., Dominic M., Rick D. 2020. The Economics of Farm Animal Welfare: Theory, Evidence and Policy Kindle Edition. CABI (July 9, 2020)

### **8-3: Egyptian Knowledge Bank:**

- Beaver, BV and Höglund, DL. 2016. Efficient Livestock Handling. The Practical Application of Animal Welfare and Behavioral Science
- Blair, R. 2018. Nutrition and feeding of organic poultry. University of British Columbia, British Columbia, Canada. ISBN 9781786392985
- Burton, E., Gatcliffe, J., O'Neill, H. M., Scholey, D. 2016. Sustainable poultry production in Europe. School of Animal, Rural and Environmental Sciences, Nottingham Trent University, Brackenhurst Campus, Southwell, Nottinghamshire NG25 0AF, UK.

### **Scientific Journals**

- Poultry Science Association
- American journal of poultry science
- British Poultry Science
- International journal of Poultry Science.
- Journal of Applied Poultry Research

### **Scientific websites**

- The Egyptian Knowledge Bank: <https://www.ekb.eg/web/guest/home>
- <http://www.thepoultrysite.com/>
- <http://www.worldpoultry.net/>
- <http://www.dawagen.com>

**Course Coordinator**

**Head of Department**

**Prof. Dr. M. Atef Helal**

**Prof. Dr. M. Atef Helal**





## COURSE SPECIFICATION (2021 / 2022)

### 1 - Basic Information:

**Code number:** 309/1

**Course title:** Economics of fish production farms (اقتصاديات مزارع سمكية)

**Academic Year:** Master of Veterinary Medicine Program

**Total teaching hours:** 96 hrs

Lectures: 96 hrs (48 weeks- 2hrs/week)

Practical: -----

### 2 - OVERALL AIMS OF THE COURSE:

*At the end of this course, students should gain the basic concepts, principles and skills in the field of fish production farms and allocate the production and economic resources in improving the economic efficiency of fish production farms.*

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- a.1. Outline the economic information in improving the production of fish farms.
- a.2. Identify the economic resources in improving the marketing and demand of fish production farms.
- a.3. Enumerate the different economic programs used for improvement the economic and productive efficiency of fish farms.
- a.4. Explain the usefulness of data records in improving the efficiency of fish farms through computer skills.

#### 3-B: INTELLECTUAL SKILLS:

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

- b.1. Classify the economic information in improving the productivity of fish production farms.
- b.2. Detect the economic efficiency of fish production farms.
- b.3. Layout the economic problems of fish farms though records and how you can deal with it.
- b.4. Figure out the economic information in fish marketing

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

**There is no practical course**

#### 3- D: GENERAL SKILLS:

#### 3- D: GENERAL SKILLS:

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

- d.1. Communicate effectively with his professors, and collages.
- d.2. Utilize different sources of knowledge and information
- d.3. Use information technology to serve the professional practice.
- d.4. Manage time efficiently

### 4 - COURSE CONTENTS:

Topic	No. of hours		
	Lectures	Practical	Total
1-Fish production systems	20	---	20
2-Economics of commercial fish production systems.	20	---	20





3-Evaluation of fish production records.	30	---	30
4-Factors affecting demand and supply of fish production.	26	---	26
<b>Total</b>	<b>96</b>	<b>---</b>	<b>96</b>

### 5- TEACHING & LEARNING METHODS:

- \* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard Discussion and brain storming
- \* **Self-Learning activities:** Mini reviews from the web and the library Making individual reports about poultry breeding
- \* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a4	b1 to b4		d1, d4
Self-Learning activities		b1 to b4		d2, d3, d4
Distance Teaching and Learning	a1 to a4	b1 to b4		d1 to d4

\*Lectures may be offered face to face or via distance teaching and 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 lectures.

### 7. STUDENT ASSESSMENT:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year		Allover the academic year
<b>7.c grads</b>	25	20	-----	5

7. Student Assessment				
Intended Learning Outcomes Covered				
6.1. Methods	KU	IS	PPS	GTS
Written exams	a1 to a4	b1 to b4		d4
Practical exams	-----	-----	-----	-----
Oral exams	a1 to a4	b1 to b4		d1
Student activities	a1, a4,			d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.



## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Essential Books

- Clem Tisdell. 2001. Aquaculture Economics and Marketing: An Overview. ISSN 1327-8231.
- Bill LaFayette, Stephen A. Buser. 2017. Economic and Social Impacts of Veterinary Medicine, The Ohio State University College of Veterinary Medicine and the Ohio Veterinary Medical Association
- Jonathan Rushton 2009. The Economics of Animal Health and Production. CAB International. ISBN: 9781 84593 1940
- Economics for veterinarians (2009):” Proceedings of a course in economics fo veterinarians of the Western Australian Department of Agriculture, February 14 to 18.
- Salahu Ayemi Jibril and Alh Yusuf Ibrahim. Essential of Fisheries and Aquaculture Techniques. Finix Publication Bauch. ISBN: 978 - 978 - 950 - 155 – 7
- Fish Farming Handbook. 1980. SEAFDEC INSTITUTE OF AQUACULTURE. Aquaculture Department, SEAFDEC Tigbauan, Iloilo, Philippines P.O. Box 256 Iloilo City, Philippines

### 8-2: Recmoned books:

- Economics for veterinarians (2018):” Proceedings of a course in economics for veterinarians of the Western Australian Department of Agriculture, February 14 to 18.
- Heady, E. H. and R. Jensen. (2014):” Farm management economics”. Pren. of India, New Delhi.
- Knippenberg, R., Michael R. D., Bridgette B., and Michael D. 2015. Estimating the financial return on a veterinary education. JAVMA, Vol 246, No. 4, February 15, 2015
- Ahmadi B.V., Dominic M., Rick D. 2020. The Economics of Farm Animal Welfare: Theory, Evidence and Policy Kindle Edition. CABI (July 9, 2020)

### 8-3: Egyptian Knowledge Bank:

- Beaver, BV and Höglund, DL. 2016. Efficient Livestock Handling. The Practical Application of Animal Welfare and Behavioral Science
- Ágúst Einarsson, Ásta Dís Óladóttir. 2020. Fisheries and Aquaculture The Food Security of the Future. □ eBook ISBN: 9780128231920- Paperback ISBN: 9780128210567

### Scientific Journals

- AQUACULTURE
- Aquaculture Reports
- AQUACULTURE RESEARCH
- AQUACULTURE NUTRITION.
- AQUACULTURE ECONOMICS & MANAGEMENT

### Scientific websites

- The Egyptian Knowledge Bank: <https://www.ekb.eg/web/guest/home>
- <http://www.biozoomer.com/2011/11/fishes-economic-importance.html>
- <http://www.biologydiscussion.com/fisheries/fisheries-types-of-fisheries-and-it-economical-importance/1361>

**Course Coordinator**

**Head of Department**

**Prof. Dr. M. Atef Helal**

**Prof. Dr. M. Atef Helal**





## COURSE SPECIFICATION (2021 / 2022))

### 1 - Basic Information:

Code number: 310/1

Course title: Feasibility studies of animal production projects (دراسات جدوى)

Academic Year: Master of Veterinary Medicine Program

Total teaching hours: 96 hrs

Lectures: 96 hrs (48 weeks- 2hrs/week)

Practical: -----

### 2 - OVERALL AIMS OF THE COURSE:

*At the end of this course, students should gain the basic concepts, principles and skills in the field of different feasibility studies of animal production projects, as well as use the computer programs in design and making the feasibility studies of animal production projects.*

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- a.1. Define the information used for making feasibility study of animal production projects (market survey) and its importance.
- a.2. Outline types of feasibility study of animal, poultry and fish production projects.
- a.3. Discuss the different programs used for financial analysis and adopt of animal production projects.
- a.4. Recognize the usefulness of feasibility study of animal production projects.

#### 3-B: INTELLECTUAL SKILLS:

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

- b.1. Analyze the economic information in feasibility study of animal production projects.
- b.2. Interpret feasibility studies of animal production projects.
- b.3. consider the different types of feasibility study and how to design them.
- b.4. Investigate the economic information in feasibility studies of animal production projects.

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

There is no practical course

#### 3- D: GENERAL SKILLS:

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

- d.1. Communicate effectively with his professors, and collages.
- d.2. Utilize different sources of knowledge and information
- d.3. Use information technology to serve the professional practice.
- d.4. Manage time efficiently



#### 4 - COURSE CONTENTS:

Topic	No. of hours		
	Lectures	Practical	Total
1-Feasibility studies and its economic importance.	20	---	20
2-Types of feasibility studies.	23	---	23
3-Application of feasibility studies in production farms.	30	---	30
4-Evaluation of feasibility studies.	23	---	23
<b>Total</b>	<b>96</b>	<b>---</b>	<b>96</b>

#### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard Discussion and brain storming

\* **Self-Learning activities:** Mini reviews from the web and the library Making individual reports about poultry breeding

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a4	b1 to b4		d1, d4
Self-Learning activities		b1 to b4		d2, d3, d4
Distance Teaching and Learning	a1 to a4	b1 to b4		d1 to d4

\*Lectures may be offered face to face or via distance teaching and 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 lectures.

#### 7. STUDENT ASSESSMENT:-

<u>7.a Used methods</u>	Written examination	Oral examination	Practical examination	Activities
<u>7.b time</u>	At the end of the academic year	At the end of the academic year		Allover the academic year
<u>7.c grads</u>	25	20	-----	5

6.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a4	b1 to b4		d4
Practical exams	-----	-----	-----	-----



Oral exams	a1 to a4	b1 to b4		d1
Student activities	a1, a4,			d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Essential Books

- Rodney Overton. 2007. Feasibility Studies Made Simple. ISBN: 9781921360329. Martin Books
- Bill LaFayette, Stephen A. Buser. 2017. Economic and Social Impacts of Veterinary Medicine, The Ohio State University College of Veterinary Medicine and the Ohio Veterinary Medical Association
- Economics for veterinarians (2009):” Proceedings of a course in economics fo veterinarians of the Western Australian Department of Agriculture, February 14 to 18.
- Saeed Al-Muharrami. 2019. Economic Feasibility Study: Preparation and Analysis. □ Sultan Qaboos University. ISBN: 978-99969-3-254-0

### 8-2: Recmended books:

- Economics for veterinarians (2018):” Proceedings of a course in economics for veterinarians of the Western Australian Department of Agriculture, February 14 to 18.
- Heady, E. H. and R. Jensen. (2014):” Farm management economics”. Pren. of India, New Delhi.
- Knippenberg, R., Michael R. D., Bridgette B., and Michael D. 2015. Estimating the financial return on a veterinary education. JAVMA, Vol 246, No. 4, February 15, 2015
- Ahmadi B.V., Dominic M., Rick D. 2020. The Economics of Farm Animal Welfare: Theory, Evidence and Policy Kindle Edition. CABI (July 9, 2020)

### 8-3: Egyptian Knowledge Bank:

- Beaver, BV and Höglund, DL. 2016. Efficient Livestock Handling. The Practical Application of Animal Welfare and Behavioral Science
- Ndalaha MUSA Masanja, 2020. A Practical Guide To Writing A Feasibility Study. NMM Printers

### Scientific Journals

- AQUACULTURE
- AQUACULTURE ECONOMICS & MANAGEMENT
- Poultry Science Association
- Journal of Animal Science.
- Livestock Production Science.

### Scientific websites

- The Egyptian Knowledge Bank: <https://www.ekb.eg/web/guest/home>
- <https://www.scribd.com/doc/.../Developing-Feasibility-Studies-notes>
- [www.ifc.org/wps/wcm/connect/.../PartTwo\\_FeasibilityStudies.pdf?MOD](http://www.ifc.org/wps/wcm/connect/.../PartTwo_FeasibilityStudies.pdf?MOD)
- <https://www.projectsmart.co.uk/elements-of-a-good-feasibility-study.php>

**Course Coordinator**

**Head of Department**

**Prof. Dr. M. Atef Helal**

**Prof. Dr. M. Atef Helal**





## COURSE SPECIFICATION (2021 / 2022)

### 1 - Basic Information:

**Code number:** 311/1

**Course title:** Management of animal farms (ادارة حقول حيوانية)

**Academic Year:** Master of Veterinary Medicine Program

**Total teaching hours:** 96 hrs

Lectures: 96 hrs (48 weeks- 2hrs/week)

Practical: -----

### 2 - OVERALL AIMS OF THE COURSE:

*At the end of this course, students should gain the basic concepts, principles and skills in the field of management practices of animal production farms.*

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- a.1. Outline the basics of farm management and its importance in veterinary science
- a.2. Name a good design for improvement management of different animal farms in relation to veterinary practice.
- a.3. Describe the different programs and strategy used for management of animal and their evaluation.
- a.4. Discuss the usefulness of good management in success of animal production farms.

#### 3-B: INTELLECTUAL SKILLS:

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

- b.1. consider the economic information in management of different animal production farms.
- b.2. Evaluate the management quality in different animal production farms.
- b.3. Explore the problems of different strategies of management in animal production farms and how you can deal with it.
- b.4. Interpret the degree of success in management of different animal production farms.

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

**There is no practical course**

#### 3- D: GENERAL SKILLS:

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

- d.1. Communicate effectively with his professors, and collages.
- d.2. Utilize different sources of knowledge and information
- d.3. Use information technology to serve the professional practice.
- d.4. Manage time efficiently

### 4 - COURSE CONTENTS:

Topic	No. of hours		
	Lectures	Practical	Total
1- Basics of farm management	20	---	20
2-Application of advanced management information on animal production farms.	13	---	13
3-Systems of management of animal production	20	---	20





farms.			
4-Evaluation of management quality.	15	---	15
5- Animal farm strategies	10		10
6- Measures of farm success	18		18
<b>Total</b>	<b>96</b>	<b>---</b>	<b>96</b>

### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming

\* **Self-Learning activities:** Mini reviews from the web and the library  
Making individual reports about poultry breeding

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a4	b1 to b4		d1, d4
Self-Learning activities		b1 to b4		d2, d3, d4
Distance Teaching and Learning	a1 to a4	b1 to b4		d1 to d4

\*Lectures may be offered face to face or via distance teaching and 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 lectures.

### 7. STUDENT ASSESSMENT:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year		All over the academic year
<b>7.c grads</b>	25	20	-----	5

7. Student Assessment				
Intended Learning Outcomes Covered				
6.1. Methods	KU	IS	PPS	GTS
Written exams	a1 to a4	b1 to b4		d4
Practical exams	-----	-----	-----	-----
Oral exams	a1 to a4	b1 to b4		d1
Student activities	a1, a4,			d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

### 8. LEARNING AND REFERENCE MATERIALS:



### **8-1: Essential Books**

- Rodney Overton. 2007. Feasibility Studies Made Simple. ISBN: 9781921360329. Martin Books
- Bill LaFayette, Stephen A. Buser. 2017. Economic and Social Impacts of Veterinary Medicine, The Ohio State University College of Veterinary Medicine and the Ohio Veterinary Medical Association
- Economics for veterinarians (2009):” Proceedings of a course in economics fo veterinarians of the Western Australian Department of Agriculture, February 14 to 18.
- Saeed Al-Muharrami. 2019. Economic Feasibility Study: Preparation and Analysis. □ Sultan Qaboos University. ISBN: 978-99969-3-254-0

### **8-2: Recmoned books:**

- Economics for veterinarians (2018):” Proceedings of a course in economics for veterinarians of the Western Australian Department of Agriculture, February 14 to 18.
- Heady, E. H. and R. Jensen. (2014):” Farm management economics”. Pren. of India, New Delhi.
- Knippenberg, R., Michael R. D., Bridgette B., and Michael D. 2015. Estimating the financial return on a veterinary education. JAVMA, Vol 246, No. 4, February 15, 2015
- Ahmadi B.V., Dominic M., Rick D. 2020. The Economics of Farm Animal Welfare: Theory, Evidence and Policy Kindle Edition. CABI (July 9, 2020)

### **8-3: Egyptian Knowledge Bank:**

- Beaver, BV and Höglund, DL. 2016. Efficient Livestock Handling. The Practical Application of Animal Welfare and Behavioral Science
- Ndalaha MUSA Masanja, 2020. A Practical Guide To Writing A Feasibility Study. NMM Printers

### **Scientific Journals**

- AQUACULTURE
- AQUACULTURE ECONOMICS & MANAGEMENT
- Poultry Science Association
- Journal of Animal Science.
- Livestock Production Science.

### **Scientific websites**

- The Egyptian Knowledge Bank: <https://www.ekb.eg/web/guest/home>
- <https://www.scribd.com/doc/.../Developing-Feasibility-Studies-notes>
- [www.ifc.org/wps/wcm/connect/.../PartTwo\\_FeasibilityStudies.pdf?MOD](http://www.ifc.org/wps/wcm/connect/.../PartTwo_FeasibilityStudies.pdf?MOD)
- <https://www.projectsmart.co.uk/elements-of-a-good-feasibility-study.php>

**Course Coordinator**

**Head of Department**

**Prof. Dr. M. Atef Helal**

**Prof. Dr. M. Atef Helal**





Kafrelsheikh University  
Faculty of Veterinary Medicine  
Department of Nutrition and Clinical  
Nutrition

**Program Specification for Master Degree  
of Veterinary Medicine  
(2021 - 2022)**

**Program Title:**

**Master of The Veterinary Medicine  
(Nutrition of animal and poultry and  
Mal-nutrition Diseases)**



#### **A- Administrative information:**

1. **Awarding Body:** Kafrelsheikh University
2. **Teaching Body:** Faculty of Veterinary Medicine
3. **Department responsible:** Nutrition and Clinical Nutrition
4. **Program Title:** Master Degree in Veterinary Science (Nutrition of animal and poultry and Mal-nutrition Diseases)
5. **Final award:** Master Degree
6. **Registration period:** 2-4 years
7. **Program Coordinator:**
8. **External evaluator:**
9. **Date of revision:**
10. **Date of approval:** /12/2016

#### **B- Professional information:**

##### **1-Educational aims of the Programme:**

- Provides graduates the opportunity to develop communication and teaching skills and the experience of scientific research.
- Develops the ability of graduate to engage critically with recent techniques and diagnostic tools in the field of Nutrition and clinical nutrition.
- Supplies the graduates with the most recent knowledge in science and technological applications in Nutrition and clinical nutrition.
- Demonstrates an awareness of the connections between disciplines and develop the ability to engage critically with scientific literature and to critically review and present their own research data for the protection and promotion of the animal health.
- Allows graduates to develop practical research project.
- Enables graduates to achieve competency in modern laboratory technology.

##### **2- Academic standards:**

Academic reference standards (ARS) adopted by the faculty committee No 1 (14/9/2014)

##### **3-Graduate attributes:**

*Upon successful completion of the program, the graduate has the ability to:*

- 1) Perfect application of scientific research basics and methodologies in



- Nutrition and Clinical Nutrition using its varied tools.
- 2) Application and use of analytical methods in Nutrition and Clinical Nutrition
  - 3) Application of gained specialized knowledge and integrating them with the relevant knowledge in nutrition and clinical nutrition
  - 4) Awareness with current problems and recent visions in area of his research
  - 5) Identification of nutritional deficiencies and suggesting suitable and economic methods of treatment and control.
  - 6) Mastering the proper scope of a range specialized professional skills, and using appropriate technological means to serve the diagnosis malnutrition diseased animals.
  - 7) Effective communication with students, nutritionist and animal owners and leading work team.
  - 8) Decision making for suggesting the cause of decreasing growth performance and lowering production
  - 9) Employ available resources efficiently including history, clinical signs, and feed analysis
  - 10) Awareness with his role in society development and fighting diseases results from mycotoxins.
  - 11) Reflection of the commitment to act with integrity, credibility and the rules of profession.
  - 12) Academic and professional self- development and ability for life-long learning and progress by studying new forensic and toxicological cases.

#### **4-Programme outcomes [intended learning outcomes (ILOs)]**

##### **a) Knowledge and understanding**

*By the end of this program the graduate should be able to:*

- a.1. Recognize theories and principles about the components in animal feed, digestion and metabolism of different nutrients in animal body.
- a.2. Realize the effect of combating diseases of nutritional deficiency on animal wealth.
- a.3. Recognize scientific progress concerning production of balanced feeds for large and small animals, poultry and aquatic organisms.
- a.4. Realize the new types of feed additives used to increase metabolic performance and thus production of milk and meat.
- a.5. Ethical principles in professional practice in the field of Nutrition and Clinical Nutrition.
- a.6. List the safety and security measures in the laboratory.
- a.7. Apply the basics and ethics of scientific research concerning using farm animals, lab animals, poultry and fish.



**b) Intellectual skills**

*By the end of this program the graduate should be able to:*

- b.1. Interpretation of data about animal nutritional requirements comparing with reference standard values.
- b.2. Find clues for problems in Nutrition and clinical nutrition even in scarcity of resources via contact with professional experts.
- b.3. Relate Nutrition to biochemistry, physiology and biotechnology to solve professional problems.
- b.4. Participate in preparing research plan in in Nutrition and clinical nutrition
- b.5. Write scientific article on a specific nutritional problem.
- b.6. Assess risks of professional practices in Nutrition and clinical nutrition and their possible consequences.
- b.7. Plan for improvement of field of nutrition and clinical nutrition.
- b.8. Make professional decisions in a variety of nutritional contexts with the desire to meet new challenges.

**c) Professional and practical skills**

*By the end of this program the graduate should be able to:*

- c.1. Master basic and recent professional skills in calculations of animal nutritional requirements and formulation of balanced rations.
- c.2. Performing analysis of feed constituents and deleterious elements including mycotoxins.
- c.3. Write and conclude a professional report in the field of Nutrition.
- c.4. Evaluation of reports of other researches concerning farm and lab animals.
- c.5. Evaluate existing materials and methods in the area of specialization.

**d) general and transferable skill**

*By the end of this program, the graduate should be able to:*

- d.1. Communicate effectively with his professors, collages and animal owner(s).
- d.2. Utilize different sources of knowledge and information.
- d.3. Assess him and identify his personal educational needs.
- d.4. Demonstrate interpersonal skills and team working ability
- d.5. Demonstrate an ability to learn independently for a career of lifelong learning.
- d.6. Use information technology to serve the professional practice.
- d.7. Manage time efficiently.
- d.8. Set tools and indicators for assessment of the performance of others.



Faculty of Veterinary Medicine Assiut

**5-Program structure:**

a. Program duration (years):

Master degree from 2-4 years

b) Premaster courses – at least one academic year

Course	Lecture (hours/week)	Practical (hours/week)
Fundamental (core) course	3	4
Research methodology	1	2
2-5 Elective Courses Offered by other departments and are selected from the list below according to thesis topic (10-12 hours)	5-6	5-6

c) M.V.Sc Thesis (at least one academic year)

- All master-degree students should prepare a master thesis.
- The department and the ethical committees must approve the protocol of the research.
- The thesis should include a review part and a research part.
- The thesis is supervised by one or more senior staff members of the department responsible for the program and may include other specialties according to the nature of the research.
- The thesis should be evaluated and approved by a committee of three professors including one of the supervisors and an external professor.

*A number of subsidiary courses are selected from the following list according to the title of the research work:*

Subject	Code	Course title	No of hours/week	
			Lecture	Practic Lab
Anatomy and embryology	101/1	<b>1- Applied anatomy</b>	2	2
	102/1	<b>2- Anatomical techniques and surface anatomy</b>	2	2
	103/1	<b>3- Osteology and arthrology</b>	2	2
	104/1	<b>4- Comparative digestive system</b>	2	2
	105/1	<b>5- Comparative uro-genital system</b>	2	2
	106/1	<b>6-Comparative respiratory system</b>	2	2
	107/1	<b>7- Comparative cardiovascular system</b>	2	2





Faculty of Veterinary Medicine  
 Assiut University

	108/1	8- Comparative nervous system and endocrine glands	2	2
	109/1	9- General and special embryology	2	2
	110/1	10- Avian anatomy	1	2
<b>Histology</b>	111/1	11- cytology and cytochemistry	1	2
	112/1	12- general histology	2	2
	113/1	13- Histology and histochemistry of blood, lymph and cardiovascular system.	1	1
	114/1	14- Comparative histology and histochemistry of body muscles, heart and blood vessels	1	1
	115/1	15- Comparative histology and histochemistry of respiratory system	1	1
	116/1	16- Comparative histology and histochemistry of digestive system	2	2
	117/1	17- Comparative histology and histochemistry of urogenital system	2	2
	118/1	18- Comparative histology and histochemistry of nervous and endocrine systems	2	2
	119/1	19- Histology and histochemistry of special sensors	1	2
	120/1	20- Histology and histochemistry of skin, hooves, claws and Nails	2	2
	121/1	21- Avian histology	2	2
	122/1	22- Fish histology	1	2
<b>Physiology</b>	123/1	23- Physiology of mammalian endocrine and reproduction	2	2
	124/1	24- poultry physiology (advanced)	2	2
	125/1	25- physiology of muscle and nerve	1	2
	126/1	26- physiology of ruminants	2	2
	127/1	27- physiology of environment, adaptation and cell	2	2
	128/1	28- physiology of blood	2	2



Faculty of Veterinary Medicine

	129/1	29- physiology of digestion, metabolism and energy	2	2
	130/1	30- Physiology in pollution	1	2
	131/1	31- Radioactive isotopes and biological uses	2	2
	132/1	32- Physiology of heights	1	1
	133/1	33-Fish physiology.	1	2
<b>Biochemistry</b>	134/1	34- Basics of biochemistry	2	3
	135/1	35- Metabolism	2	2
	136/1	36- Biochemistry of tissue and body fluids .	2	2
	137/1	37- Biochemistry of hormones and reproduction	2	2
	138/1	38- Feeding biochemistry	2	2
	139/1	39- Clinical biochemistry	2	2
	140/1	40- Avian biochemistry	2	2
	141/1	41- Microbial biochemistry	2	2
	142/1	42- Biochemistry of radiation	1	2
	143/1	43- Fish biochemistry		
<b>Animal behavior and management</b>	144/1	44- Behavior and management of ruminants ( specific courses in cattle, buffalo, sheep, camels and goats)	2	3
	145/1	45- Behavior and management of horses	2	3
	146/1	46- Behavior and management of pet animals	1	2
	147/1	47- Behavior and management of laboratory animals	1	2
	148/1	48- Behavior and management of wild animals	2	2
	149/1	49- Behavior and management of poultry	2	2
	150/1	50- Behavior and management of rabbit	1	2
	151/1	51- Behavior of experimental animals	1	2
<b>Pathology</b>	163/1	63- General pathology and neoplasm( progressive)	2	2



Faculty of Veterinary Medicine

	164/1	64-pathology of microbial and parasitic diseases in animal	2	2
	165/1	65- pathology of bad nutrition	1	2
	166/1	66- pathology of environmental pollution	1	2
	167/1	67- pathology of reproductive diseases	1	2
	168/1	68- Avian pathology	2	2
	169/1	69-Experimental pathology	2	2
	170/1	70- toxins pathology	2	2
	171/1	71- surgical pathology	2	2
	172/1	72- Pathology of experimental animals.		
	173/1	73- Pathology of genetics		
	174/1	74-- Fish pathology	2	2
Clinical pathology	175/1	75- Advanced clinical pathology	2	2
	176/1	76-Organ function tests and body and urine balance	2	2
	177/1	77- Clinical hematology and bone marrow examination	1	2
Bacteriology, immunology and mycology	178/1	78- General bacteriology(advanced)	1	2
	179/1	79-systemic bacteriology	2	3
	182/1	80- Advanced immunology	2	2
	183/2	81- Advanced mycology	1	2
Virology	180/3	82- General virology	1	2
	181/4	83-Systemic virology( specific courses)	2	3
	182/5	84- Advanced immunology	2	2
Mixed courses between Bacteriology and Virology	184/1	85- Microbiology of poultry	2	2
	185/1	86- Microbiology of ??????	1	2
	186/1	87- Microbiology of animal product	2	2
	187/1	88- Fish Microbiology	1	2
		81- Advanced immunology	2	2
Parasitology	188/1	89- Veterinary medical entomology and acarology	2	2
	189/1	90-helminthology	2	2
	190/1	91- protozoology	2	2
	191/1	92- Avian and rabbits parasitology	2	2
	192/1	93Malacology and its vet. Importance	1	2
	193/1	94- parasitic Immunology	1	2



Faculty of Veterinary Medicine Assiut

	194/1	<b>95- Clinical parasitology</b>	2	2
	195/1	<b>96- Wild life parasitology</b>	1	2
	196/1	<b>97- Special vet. Parasitology</b>	2	2
	197/1	<b>98- Physiology and biochemistry of parasites</b>	2	2
	198/1	<b>99- Fish parasitology</b>	1	2
<b>Pharmacology</b>	199/1			
	200/1	nervous system and autocooid		
	201/1	<b>102- pharmacology of central nervous system</b>	2	2
	202/1	<b>103 pharmacology of anesthesia</b>	2	2
	203/1	<b>104- Systemic pharmacology</b>	2	2
	204/1	<b>105- pharmacology of metabolism</b>	2	2
	205/1	<b>106- pharmacology of hormones</b>	2	2
	206/1	<b>107- Chemotherapy</b>	2	2
	207/1	<b>108- Biological evolution of drug</b>	1	1
<b>Hygiene and control of milk and dairy products</b>	208/1	<b>108- Hygiene and control of milk and dairy products</b>	2	2
	209	<b>109- Microbiology of milk and dairy products</b>	2	2
	210/1	<b>110- Milk technology and preservation</b>	2	2
	211/1	<b>111- Food analysis</b>	2	2
	212/1	<b>112- Food poisoning</b>	1	2
	213/1	<b>113- Specific courses on sources of contamination, disturbances of milk production, milk born diseases, hygiene of table egg, edible fats and oils</b>	1	1
	214/1	<b>114- The sanitation of dairy plant</b>	2	2
<b>Control of meat hygiene and their products</b>	215/1	<b>115- Slaughter animal Hygiene</b>	1	2
	216/1	<b>116- Abattoir management and hygiene</b>	2	2
	217/1	<b>117- Hygienic control of meat and their product</b>	2	2
	218/1	<b>118 inspection of poultry meat.</b>	1	2
	219/1	<b>119- Food technology</b>	1	2



Faculty of Veterinary Medicine

	220/1	120- Microbiology of meat and fish meats and their product	2	1
	221/1	121- Chilled meal microbiology	1	2
	222/1	122- Analysis of meat and fish and their product	1	2
	223/1	123- Preservation of meat, poultry, fish and their products	1	2
	224/1	124- Sanitation affairs of meat and fish plants.	2	2
Internal medicine	225/1	125- advanced general medicine	2	2
	226/1	126- disease of ruminants( cattle, buffalo, camels, sheep and goats)	3	3
	227/1	127- diseases of equines	2	2
	228/1	128 diseases of pet animals	2	2
	229/1	129- diseases of wild animals	2	2
	230/1	130- diseases of metabolic disorders	2	2
	231/1	131- nutritional deficiency diseases	2	2
	232/1	132- Skin diseases	1	2
	233/1	133 - diseases of newly born animals	2	2
	234/1	134- Stress diseases during animals transport.		
Infectious diseases	235/ 1	135- Infectious diseases of cattle	2	2
	236/ 1	136- Infectious diseases of sheep and goat	2	2
	237/ 1	137- Infectious diseases camel	2	2
	238/ 1	138 Infectious diseases of equine	2	2
	239/ 1	139- Infectious diseases of pet animals	2	2
	240/ 1	140- Infectious diseases lab animals	1	2
	241/ 1	141- Infectious diseases of udder and newly born animals	2	2
	242/ 1	142- Infectious diseases buffaloes	2	1
	243/1	143- Infectious diseases of wild animals.		
Forensic medicine and toxicology	244/1	144- Forensic medicine and veterinary procedures	2	2
	245/1	145- general toxicology	2	2
	246/1	146- environmental toxicology	2	2



Faculty of Veterinary Medicine

	247/1	147- forensic toxicology	2	2
	248/1	148- laboratory diagnostic toxicology	2	2
	249/1	149- Drug toxicology		
<b>Theriogenology</b>	250/1	150- Female infertility (special specific courses in ruminants- equine- pet animals)	2	2
	251/1	151- Male infertility (special specific courses in ruminants- equine- pet animals)	2	2
	252/1	152- Genital diseases.		
	253/1	153 - obstetrics (special specific courses in farm and pet Animals)	2	2
	254/1	153- reproduction and immunity	1	2
	255/1	155- artificial insemination in ruminants	2	2
	256/1	156- artificial insemination in equine	2	2
	257/1	157- artificial insemination in pet animals	1	2
	258/1	158- embryo transfer	1	2
<b>Veterinary Surgery</b>	259/1	159- General surgery (advanced)	2	2
	260/1	160- Special surgery( organs)	2	3
	261/1	161- surgery of eye, ear, nose and larynx	2	2
	262/1	162 digestive system surgery	2	2
	263/1	163- surgery of the limbs, hoof and claws	2	2
	264/1	164- experimental surgery	2	2
	265/1	165- anesthesiology	1	1
	266/1	166- radiology and ultrasonography	2	2
<b>Poultry and rabbit diseases</b>	267/1	167- bacterial diseases of poultry	2	2
	268/1	168- viral diseases of poultry	2	2
	269/1	169- fungal diseases of poultry	2	2
	270/1	170 parasitic diseases of poultry	1	2
	271/1	171 - nutritional diseases of poultry	1	2
	272/1	172-diseases of rabbit (advanced)	2	2



Faculty of Veterinary Medicine  
 Assiut University

	273/1	173-Diseases of wild and migrating birds	2	2
	274/1	174- Preventive vaccines and their evaluation in poultry	2	2
	275/1	175- Laboratory diagnosis of poultry diseases.		
Animal and environmental hygiene	276/1	176- farm animal hygiene ( advanced)	2	2
	277/1	177- poultry hygiene ( advanced)	2	2
	278/1	178- environmental hygiene and pollution	2	2
	279/1	179- control of contagious diseases	2	2
	280/1	180- eradication of rodents and disease vector	2	2
	281/1	181- insecticides and public health	2	2
	282/1	182-hygiene of animal enclosures-specific courses in :- cattle houses – poultry houses – rabbit houses- pet animals house3s – experimental animals houses	2	2
	283/1	183-disinfections and disinfectants	2	2
	284/1	184- veterinary epidemiology – specific courses in animal environment	2	-
Zoonoses	285/1	185- advanced zoonoses ( specific courses in bacterial and Mycotic diseases – viral diseases – parasitic diseases)	2	2
	286/1	186- role of rodents in transmission of zoonoses	2	2
	287/1	187- role of wild animals in transmission of zoonoses	2	2
	288/1	188- role of birds (special courses in: poultry, wild migrating or pets) in transmission of zoonoses		
Genetics and genetic engineering	289/1	189- Genetics of microorganisms .	1	2
	290/1	190- Genetic engineering( advanced)	1	2
	291/1	191- Cytological genetics	1	-
	292/1	192- Genetics of genuses.	2	-



	293/1	193- physiological genetics	2	
	294/1	194- Chemical and radiological genetics.	1	
<b>Animal production</b>	295/1	195- Animal breeding and improvement (advanced).	2	
	296/1	196- Poultry breeding and improvement(advanced).	2	
	297/1	197- Cattle and buffalo production (advanced).	2	
	298/1	198- Sheep and goat production (advanced).	2	
	299/1	199- Poultry production (advanced).	2	
	300/1	200-Rabbit production (advanced).	2	
	301/1	201-Improving by artificial insemination in poultry and rabbits.	2	
<b>Fish diseases and management</b>	302/1	202- Biology of fish.	2	
	303/1	203-Fish diseases (advanced)	2	
	304/1	204-Fish farms.	1	
	305/1	205-Fish breeding .	2	
<b>Economic and farms management</b>	306/1	206- economics of animals and dairy production	2	
	307/1	207- economics of poultry farms	2	
	308/1	208-economics of fish farms	2	
	309/1	209- feasibility studies	2	
	310/1	210- farm management	2	
	311/1	211- economics of beef production	2	
<b>Biostatistics</b>	312/1	212- Biostatistics (advanced)	2	
	313/1	213- Experimental design	2	
	314/1	214- Computer and data processing	2	

#### 6-Teaching and Learning Methods:

*The program features a variety of teaching approaches for different intended learning objectives including:*

- Lectures to gain knowledge and understanding skills
- Writing a review paper to gain the skills of self-learning and presentation
- Practical and lab sessions to gain practical skills
- Seminars





## 7- Students assessments:

The program depends on different assessment ways:

### a. Course assessment:

1- Written examination	For assessment of knowledge, back calling and Intellectual skills
2- Practical examination	For assessment of practical and professional skill
3- Oral examination	For assessment of knowledge and Intellectual skills

### b. Master Thesis

- Annual reports adopted by the Faculty
- Finally, the assessment of thesis measure the individual student ability to work independently in the field specialization
- Final evaluation and approval by a judging committee of at least three professors including one or more of the supervisors and an external professor. This assesses the ability to write a review article, perform the needed practical steps and to present the results in tables and graphs. In addition, the skills of analysis of results and discussion with previous findings obtained by other authors are also assessed.

### Assessment of program intended learning outcomes

Tool or method	ILOs
1- Written	a1,2; b1,2,3,5,6,7
2- Oral	a1,2,5; b2,3,4,6
3- Practical	b1,7; c1-5
4- Thesis	a2-7; b1-7, c1-6, d1-8

## 8. Marking scale as follow:-

Excellent	> 90	
Very good	>80	
Good	>70	
Pass	>60	
Fail	Weak	45 to less than 60
	very weak	Less than 45

## 9. Program evaluation methods

Evaluator	Tool	Sample
Postgraduate Student	Questioners	20%



	Meeting	1
Postgraduate alumni	Questioners	5
Stakeholders (employers)	Questioners	10
	Meeting	1
External evaluator/External examiner	Reports	1

#### 10. Program Admission Requirements:

The Applicant must normally satisfy the faculty of veterinary medicine- kafrelsheikh University general entrance and requirement. The normal minimum entrance qualification for registration at the faculty on a master's program

- 1- Bachelor degree in Veterinary Medical Sciences of one of the Egyptian Universities or hold a degree in Veterinary Medical Sciences equivalent through the Supreme Council of Universities with general grade at least "Good" and at least grade "Very Good" in specialization.
- 2- Diploma of general grade at least "Good" and at least grade "Very Good" in specialization. The total number of study hours must be not less than 3 weekly in that specialization.
- 3- After he has passed the courses studied during premaster he must perform a research work in a subject approved by the faculty council at least for one year. He must submit the results of this work in thesis that should be approved by the discussion committee.

#### 11. Regulations for progression of program

- a) Registration period for the M.V.Sc in veterinary medical science is at least 2 years after the approval date by the faculty council and it should not exceed a period of 4 years, an extension could be approved by the faculty council depending on the supervisor report that approved by the department council and postgraduate and research committee refers to the universities regulation law.
- b) The student should conduct the courses proposed by both department council and approved by postgraduate and research committee and faculty council and include, 2-5 courses of the postgraduates stated in article (28) in regulation law list and the student will entitled to apply for the exam only after meeting attendance rate for each courses.
- c) The student should pass written, practical and oral exams successfully in all courses, and the examination is held two times annually.
- d) The Faculty council should deprive the student from entering the exam if his attendance rate in the course is less than 75%.
- e) Failure or depriving from entering one or more course did not require reexamination of successful passed courses.
- f) The applicant should conduct an innovate research on the subject that has been registered for at least 2 years from the date of registration approved by the faculty council. And the faculty council depending on a request from the supervisor has the right to authorize the student to do scientific experiments at recognized scientific institute.
- g) The applicant should submit the thesis that accepted by the judging committee in an open discussion and the following policies should be met:
- h) Pass all courses.
- i) The applicant should submit 4 copies of his thesis concerned department council to form committee examining the thesis to be presented to the postgraduate studies committee and



the faculty council, and in case of thesis approval by the department council, the applicant will submit 4 copies for the faculty library, 1 copy for public university library before introducing the report of examination committee to the post graduate studies committee and the faculty council.

- j) Registration will be during March and September of each year.
- k) The applicant should submit a request enrolment for the dean who forwards it to the concerned department council to determine the research subject and the study program and then take calendar after complete documentation on the faculty council for approval.
- l) The thesis title should be identified before being submitted at least 2 months and the judging committee has the right to amend the title without prejudice the subject of research.
- m) The Faculty council has the right to suspend the student enrolment for a certain period if he has acceptable excuse preventing him from continuing his study or research, and his period will not counted within the period stated in article 25.
- n) The applicant should submit 5 hard copies and 10 electronic copies (CDs) of the thesis after its validity approved by the judging committee and head of department to be distributed to the committee members and faculty library and the judging committee can decide the exchange of the thesis with other universities or printing at the expense of the university.

#### **12. Registration will be cancelled in one of the following cases:**

1. If the supervisor report during the registration period is unsatisfactory (2 reports).
2. If he did not submit his thesis before the end of registration period.
3. If the judging committee rejected the thesis twice.

#### **13. Examination Regulations**

- a- Time of written exam, 3 hours for each course that has 3 hours or more for lecture / practical /week. **If less than 3 hours/week, the time of exam, is 2 hours only.**
- b- The final degree of each course which has 3 hours (lecture and practical) per week is **100 and less than 3 hours is 50 degrees and divided into 50% for written exam, and 50% for practical and oral exam.**

#### **14. Program completion:**

- Successfully completion of the required courses and submission of a thesis.

**Course coordinator:**

**Dr. Eldsoky Elsaid Nassef**

**Head of Department:**

**Prof Dr. Abdel Nasser Bakr**



## Matching program ILOs with ARS - Matrix

Program ILOs	ARS																								
	K&U (a)						I.S. (b)							P.P. (c)			G.T. (d)								
	1	2	3	4	5	6	1	2	3	4	5	6	7	1	2	3	1	2	3	4	5	6	7	8	
K&U	1	2	3	4	5	6	7																		
I.S.							1	2	3	4	5	6	7	8											
P.P.														1	2	3	4	5							
G.T.																	1	2	3	4	5	6	7	8	

Faculty of Veterinary Medicine Assiut University





**Kafrelsheikh University**  
Faculty of Veterinary Medicine



**Kafrelsheikh University**

**Faculty of Veterinary Medicine**



---

## **ARS for Master in Veterinary Medicine (Animal and Poultry Nutrition and Malnutrition diseases)**

### **1) Graduate attributes**

*The graduate should have the ability for:*

- 1) Perfect application of scientific research basics and methodologies in Animal and Poultry Nutrition and Malnutrition diseases using its varied tools.
- 2) Application and use of analytical methods in Animal and Poultry Nutrition and Malnutrition diseases
- 3) Application of gained specialized knowledge and integrating them with the relevant knowledge in Animal and Poultry Nutrition and Malnutrition diseases.
- 4) Awareness with current problems and recent visions in area of his research
- 5) Identification of nutritional deficiencies and suggesting suitable and economic methods of treatment and control.
- 6) Mastering the proper scope of a rate specialized professional skills, and using appropriate technological means to serve the diagnosis malnutrition diseased animals.
- 7) Effective communication with students, nutritionist and animal owners and leading work team.
- 8) Decision making for suggesting the cause of decreasing growth performance and lowering production
- 9) Employ available resources efficiently including history, clinical signs, and feed analysis
- 10) Awareness with his role in society development and fighting diseases results from mycotoxins.
- 11) Reflection of the commitment to act with integrity, credibility and the rules of profession.
- 12) Academic and professional self- development and ability for life-long learning and progress by studying new Animal and Poultry Nutrition and Malnutrition diseases cases.



### A) Knowledge and understanding

<b>Adopted ARS</b>		<b>NARS (Master)</b>
	<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Theories and principles in the field of Animal and Poultry Nutrition and Malnutrition diseases, requirement and related fields.	Theories and principles in the field of specialization and related fields.
2)	The impact of formulating balanced rations on animal production and human health	Mutual effect between professional practice and its impact on environment
3)	Scientific progress in feed additives, feed analysis, ration formulation and feed stuff hygiene	Scientific progress in the field of specialization
4)	Principles of feed evaluation and presenting animal products fit for human consumption.	Legal and ethical basics in professional practice in the field of specialization
5)	Safety and security measures in the laboratory for the veterinary nutrition laboratory.	Principles and basics of quality assurance in the area of specialization
6)	Basics and ethics of scientific research especially that involving laboratory animals and poultry	Basics and ethics of scientific research

### B) Intellectual skills

<b>Adopted ARS</b>		<b>NARS (Master)</b>
	<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Analysis of data about ration formulation and requirements for each animal, comparing with feeding standards	Analysis and judgment of information in the field of specialization and analog to solve problems.
2)	Solving nutritional problems by identification of the cause of mal nutrition disease.	Solving professional problems even in scarcity of data.
3)	Relating physical characters to chemical and biological properties of feed to solve professional nutritional problems	Relating between different knowledge to solve professional problems.
4)	Making research plan in specialization and identification, summarizing and evaluating prior researches finding Animal and Poultry Nutrition and Malnutrition diseases	Preparing research plan in specialization and/ or writing scientific article on a research problem.



5)	Risk-assessment of feed additives and different mycotoxins	Risk-assessment of professional practices in specialization.
6)	Development of Plans for improvement of field of Animal and Poultry Nutrition and Malnutrition diseases.	Planning for improvement of professional performance.
7)	Using appropriate intellectual strategy to deal with nutritional problems.	Taking professional decisions in a variety of professional contexts.

### C) Professional and practical skills

Adopted ARS		NARS (Master)
	<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Conducting recent techniques in feed analysis and ration formulation	Mastering basic and recent professional skills in the field of specialization
2)	Evaluating professional reports about nutritional problems in farm animal, poultry and fish in addition to writing a conclusive report in a focus area.	Writing and evaluating professional reports.
3)	Planning a research project in the field of Animal and Poultry Nutrition and Malnutrition diseases with a consideration to the technical, ethical and safety issues and associated costs.	Evaluating existing materials and methods in the area of specialization.

### D) General and transferable skill

Adopted ARS		NARS (Master)
	<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Communicating effectively with teaching staff, colleagues and the community.	Effective communication.
2)	Using information technology in scientific research and publications.	Utilizing information technology to serve development of professional practice.
3)	Demonstrating appropriate attitude towards teaching staff and colleagues.	Self-assessment and determination of personal educational needs.
4)	Identifying and use different sources of information and knowledge.	Using different resources to obtain knowledge and information.
5)	Using appropriate attitude and rules towards	Establishing rules and indicators for





	teaching staff and colleagues and use evidence based evaluations.	assessment of the performance of others.
6)	Respecting the importance of team work.	Team working and leading a team in familiar professional contexts.
7)	Doing good control of timing.	Efficient time management.
8)	Performing continuous self-learning.	Self and continuous learning.

## ثانيا :برامج الماجستير

### ١ - مواصفات الخريج

- خريج برنامج الماجستير في أي تخصص يجب أن يكون قادرا على:
١. إجادة تطبيق أساسيات و منهجيات البحث العلمي واستخدام أدواته المختلفة
  ٢. تطبيق المنهج التحليلي واستخدامه في مجال التخصص
  ٣. تطبيق المعارف المتخصصة و دمجها مع المعارف ذات العلاقة في ممارسته المهنية
  ٤. إظهار وعيا بالمشاكل الجارية و الرؤى الحديثة في مجال التخصص
  ٥. تحديد المشكلات المهنية و إيجاد حلول لها
  ٦. إتقان نطاق مناسب من المهارات المهنية المتخصصة، واستخدام الوسائل التكنولوجية المناسبة بما يخدم ممارسته المهنية
  ٧. التواصل بفاعلية و القدرة على قيادة فرق العمل
  ٨. اتخاذ القرار في سياقات مهنية مختلفة
  ٩. توظيف الموارد المتاحة بما يحقق أعلى استفادة و الحفاظ عليها
  ١٠. إظهار الوعي بدوره في تنمية المجتمع و الحفاظ على البيئة في ضوء المتغيرات العالمية و الإقليمية
  ١١. التصرف بما يعكس الالتزام بالنزاهة و المصداقية و الالتزام بقواعد المهنة
  ١٢. تنمية ذاته أكاديميا و مهنيا و قادرا علي التعلم المستمر

### ١٢ - المعايير القياسية العامة

#### ١ المعرفة و الفهم

- بانتهاؤ دراسة برنامج الماجستير يجب ان يكون الخريج على فهم و دراية بكل من:
- أ- النظريات و الأساسيات المتعلقة بمجال التعلم وكذا في المجالات ذات العلاقة
  - ب- التأثير المتبادل بين الممارسة المهنية وانعكاسها علي البيئة



- ت -التطورات العلمية في مجال التخصص
- ث -المبادئ الأخلاقية و القانونية للممارسة المهنية في مجال التخصص
- ج -مبادئ و أساسيات الجودة في الممارسة المهنية في مجال التخصص
- ح -أساسيات وأخلاقيات البحث العلمي

### ٢ المهارات الذهنية

- بانتهاء دراسة برنامج الماجستير يجب ان يكون الخريج قادرا على:
- أ -تحليل و تقييم المعلومات في مجال التخصص و القياس عليها لحل المشاكل
  - ب -حل المشاكل المتخصصة مع عدم توافر بعض المعطيات
  - ت -الربط بين المعارف المختلفة لحل المشاكل المهنية
  - ث -إجراء دراسة بحثية و /أو كتابة دراسة علمية منهجية حول مشكلة بحثية
  - ج -تقييم المخاطر في الممارسات المهنية في مجال التخصص
  - ح -التخطيط لتطوير الأداء في مجال التخصص
  - خ -اتخاذ القرارات المهنية في سياقات مهنية متنوعة

### ٣ المهارات المهنية

- بانتهاء دراسة برنامج الماجستير يجب ان يكون الخريج قادرا على:
- أ -إتقان المهارات المهنية الأساسية و الحديثة في مجال التخصص
  - ب -كتابة و تقييم التقارير المهنية
  - ت -تقييم الطرق و الأدوات القائمة في مجال التخصص

### ٤ المهارات العامة و المنتقلة

- بانتهاء دراسة برنامج الماجستير يجب أن يكون الخريج قادرا على:
- أ -التواصل الفعال بأنواعه المختلفة
  - ب -استخدام تكنولوجيا المعلومات بما يخدم الممارسة المهنية
  - ت -التقييم الذاتي و تحديد احتياجاته التعليمية الشخصية
  - ث -استخدام المصادر المختلفة للحصول على المعلومات و المعارف
  - ج -وضع قواعد و مؤشرات تقييم أداء الآخرين
  - ح -العمل في فريق ، وقيادة فرق في سياقات مهنية مختلفة
  - خ -إدارة الوقت بكفاءة
  - د -التعلم الذاتي و المستمر



(2021 / 2022)

### 1 - Basic Information:

Code number: -

Course title: **Animal and poultry nutrition and mal nutrition diseases**

Total teaching hours: 336 hrs

Lectures: 144 hrs

Practical: 192 hrs

### 2 - OVERALL AIMS OF THE COURSE:

The course aimed to provide the postgraduate students with the animal nutritional science which includes livestock nutrition and animal feed science.

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

A1- Define the nutrient functions

A2- Recognize the metabolism of nutrients

A3- Illustrate the proper ration formulation

A4- Define the nutrients requirements for different animals.

A5- Identify the maintenance, growth, lactation and reproductive requirements for different animals.

A6- Describe the proper use of feeds to achieve maximum animal production.

A7- Memorize the basic knowledge about the nutrient requirements of different animal species.

#### 3-B: INTELLECTUAL SKILLS:

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

B1- Combine the fitness of forages for animal feeding

B2- Compose the nutritive value of forages

B3- Generate the alternative economic feedstuff which could be used in replacement of the corn grains and soybean meal.

B4- Interpret the fitness of forages chemical composition

B5- Apply the balanced ration formulation

B6- Plan to prevent the nutritional problems associated with animal feeding.

#### 3-C: PRACTICAL AND PROFESSIONAL SKILLS:

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

C1- Perform and practice the balanced ration formulation

C2- Show the problems of feed preparation

C3- Organize the methods of feed manufacturing

C4- Evaluate the forages

C5- Perform the experimental design

#### 3-D: GENERAL SKILLS:

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

D1- Work in a team

D2- Use computers, software and CDs for educational purposes

D3- Communicate with others

D4- Conduct a search in digital library

D5- Presentation skills: capacity to make oral presentations

### 4 - COURSE CONTENTS:



TOPIC	Total hours	Hours for lecture	Hours for practical
Water nutrition	5	5	
Carbohydrates nutrition	15	15	-
Protein nutrition	15	15	-
Lipids nutrition	10	10	-
Nutritional problems	10	10	
Vitamins nutrition	10	10	-
Minerals nutrition	10	10	
Evaluation of feedstuffs	40	-	40
Feedstuffs	60	-	60
Feeding standards for maintenance, growth and fattening.	10	10	-
Requirements of reproduction, lactation, wool and growth	10	10	-
Dairy Nutrition	15	15	-
Beef Nutrition	6	6	-
Sheep and goat nutrition	8	8	-
Fish nutrition	10	10	-
Poultry and rabbit nutrition	10	10	-
Ration formulation for different animal species.	60		60
Feed processing and storage	32		32
<b>Total</b>	<b>336</b>	<b>144</b>	<b>192</b>

### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a7	b1 to b6		d1, d4
Practical sessions		b1 to b6	c1 to c5	d1,d3, d5
Self-Learning activities				d2, d4
Distance Teaching and Learning	a1 to a7	b1 to b6	c1 to c6	d1 to d5

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	Allover the academic year
<b>7.c grads</b>	50	20	20	10

6.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a7	b1 to b6		d4
Practical exams			c1 to c5	d2, d3
Oral exams	a1 to a7	b1 to b6		d1
Student activities	a1 to a7			d1 to d5

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Essential Books

- Animal nutrition, 7<sup>th</sup> edition, 2014, (P. McDonald R. A. Edwards J. F. D. Greenhalgh)
- Fundamentals of Animal Nutrition 1st ed. 2021 Edition (**Subodh Kumar Saha , Nitya Nand Pathak** )
- *Animal Nutrition Strategies and Options to Reduce the Use of Antimicrobials in Animal Production, 2021 (J. F. Patience, D. Li)*
- *Recent Advances in Animal Nutrition and Metabolism*
- *Book, 2021 (Guoyao Wu)*
- *Pet Nutrition Guide: The Nature of Animal Feeding, 2021 (Gregory Lisa H).*
- Principles of Animal Nutrition 1st ed. 2018 Edition (**Guoyao Wu** )
- Basic Animal Nutrition and Feeding, 5th Edition 2004, (**Wilson G. Pond, David B. Church, Kevin R. Pond, Patricia A. Schoknecht**)
- Nutrient Requirements of Domestic Animals published by *National Research Council (NRC)*.

### 8-2: Recmonded books:

- Basic animal nutrition and feeding, 5<sup>th</sup> edition, 2004, (Wilson G. Pond, David B. Church, Kevin R. Pond, Patricia A. Schoknecht )



**Scientific Journals:**

- Journal of American Veterinary Medical Association.
- -Nutritional Abstract and Review
- -Veterinary Bulletin.
- -Journal of dairy science

**Scientific websites**

- -Animal feed - Nutrition, additives supplements, processing (feednavigator.com)
- - Animal Nutrition (keaipublishing.com)
- -Cargill Animal Nutrition | Livestock Feed & Fish Feed | Cargill

**Course Coordinator**

**Head of Department**

**Dr. Eldsoky Elsaïd Nassef**

**Dr. Abdelnasser Abdullatif Bakr**

**Course Matrix for achievement of Intended Learning Outcomes**

Topic	Hours	Knowledge & Understanding			Intellectual skills			Practical & professional skills			General & Transferable Skills				
		1	2	3	1	2	3	1	2	3	1	2	3	4	5
Water nutrition	6	✓			✓						✓	✓	✓	✓	✓
Carbohydrates nutrition	20	✓	✓		✓						✓	✓	✓	✓	✓
Protein nutrition	20	✓	✓		✓						✓	✓	✓	✓	✓
Lipids nutrition	15	✓	✓		✓						✓	✓	✓	✓	✓
Nutritional problems	10			✓			✓				✓	✓	✓	✓	✓
Vitamins nutrition	10	✓	✓		✓						✓	✓	✓	✓	✓



Minerals nutrition	15	✓	✓		✓						✓	✓	✓	✓	✓
Classification of feedstuffs	5					✓		✓			✓	✓	✓	✓	✓
Protein supplements	20					✓			✓	✓	✓	✓	✓	✓	✓
Energy source feeds	20				✓				✓	✓	✓	✓	✓	✓	✓
Forages	40				✓				✓	✓	✓	✓	✓	✓	✓
Mineral and vitamin supplements	11				✓				✓	✓	✓	✓	✓	✓	✓



## COURSE SPECIFICATION (2021 / 2022)

### 1 - Basic Information:

Code number: ... 156/1

Course title: : Wild animal nutrition.

Academic Year: : master degree in veterinary medical science

Total teaching hours: 144 h

Lectures: 48 hrs

Practical: 96hrs

### 2 - OVERALL AIMS OF THE COURSE:

The course aimed to provide the postgraduate students with the proper nutrition of wild animals. Also the feedstuffs that are important for these animals.

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-a: KNOWLEDGE and UNDERSTANDING:

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

- a1. Define the nutrient required for wild animals
- a2. Recognize the metabolism of nutrients in wild animals
- a3. Describe the proper use of feeds for wild animals

#### 3-b: INTELLECTUAL SKILLS:

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

- b1 Compose the nutritive value of feeds used for wild animals
- b2. Interpret the fitness of feeds for wild animals
- b3. Plan to prevent the nutritional problems

#### 3-c: PRACTICAL AND PROFESSIONAL SKILLS:

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

- c1. Analyze and evaluate different feeds used for wild animals
- c2. Formulate a balanced ration for wild animals
- c3. Determine the nutritional problems associated with animal feeding

#### 3-d: GENERAL SKILLS:

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

- d1. Be a successful member in animal nutrition team. . Work in a team
- d2 . Use computers, software and CDs for educational purposes
- d3. Communicate with others
- d4. Conduct a search in digital library
- d5. Presentation skills: capacity to make oral presentations





#### 4 - COURSE CONTENTS:

Topic	No. of hours		
	Lectures	Practical	Total
Water nutrition for wild animals	3	6	9
Carbohydrates nutrition for wild animals	10	15	25
Protein nutrition for wild animals	10	15	25
Lipids nutrition for wild animals	5	15	20
Nutritional problems of wild animals	10	15	25
Vitamins nutrition for wild animals	5	15	20
Minerals nutrition for wild animals	5	15	20
<b>Total</b>	<b>48</b>	<b>96</b>	<b>144</b>

#### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a3	b1 to b3		d1, d4
Practical sessions		b1 to b3	c1 to c3	d2, d5
Self-Learning activities				d2, d3, d5
Distance Teaching and Learning	a1 to a3	b1 to b3	c1 to c3	d1 to d5

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	Allover the academic year
<b>7.c grads</b>	50	20	20	10

7. Student Assessment				
Intended Learning Outcomes Covered				
6.1. Methods	KU	IS	PPS	GTS
Written exams	a1 to a3	b1 to b3		d5
Practical exams			c1 to c3	d2, d3
Oral exams	a1 to a3	b1 to b3		d1
Student activities	a1, a3			d1 to d5

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8.1. Essential Books:

- Animal nutrition, 7<sup>th</sup> edition, 2014, **(P. McDonald R. A. Edwards J. F. D. Greenhalgh)**
- Fundamentals of Animal Nutrition 1st ed. 2021 Edition (**Subodh Kumar Saha , Nitya Nand Pathak** )
- *Wildlife Feeding and Nutrition*, 1992, (**Charles T. Robbins**)
- *Recent Advances in Animal Nutrition and Metabolism Book*, 2021 (**Guoyao Wu**)

### 8.2: Recmended books:

Basic animal nutrition and feeding, 5<sup>th</sup> edition, 2004, (**Wilson G. Pond, David B. Church, Kevin R. Pond, Patricia A. Schoknecht** )

### 8.3. Periodicals, Web sites,..... etc

#### Scientific journals

- Animal feed science journal
- Journal of American Veterinary Medical Association.
- Nutritional Abstract and Review
- Veterinary Bulletin.
- Archives of Animal Nutrition.



**Kafrelsheikh University**  
Faculty of Veterinary Medicine



### Web sites

- Animal feed - Nutrition, additives supplements, processing  
([feednavigator.com](http://feednavigator.com))
- Animal Nutrition ([keaipublishing.com](http://keaipublishing.com))

Cargill Animal Nutrition | Livestock Feed & Fish Feed | Cargill

**Course Coordinator**

**Dr. Eldoky Elsaid Nassef**

**Head of Department**

**Prof. Dr Abdelnasser Abdellatif  
baker**



**Course Matrix for achievement of Intended Learning Outcomes**

Topics	Hours	Knowledge & Understanding			Intellectual Skills			Practical & Professional Skills			General & Transferable Skills				
		1	2	3	1	2	3	1	2	3	1	2	3	4	5
Water nutrition for wild animals	9	✓				✓		✓			✓	✓	✓	✓	✓
Carbohydrates nutrition for wild animals	25		✓	✓	✓			✓			✓	✓	✓	✓	✓
Protein nutrition for wild animal	25	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓
Lipids nutrition for wild animals	20	✓	✓	✓	✓			✓			✓	✓	✓	✓	✓
Nutritional problems of wild animals	25			✓			✓			✓	✓	✓	✓	✓	✓
Vitamins nutrition for wild animals	20	✓	✓		✓	✓		✓	✓		✓	✓	✓	✓	✓
Minerals nutrition for wild animals	20	✓	✓		✓			✓			✓	✓	✓	✓	✓



## COURSE SPECIFICATION (2021 / 2022)

### 1 - Basic Information:

Code number:... 153/1

Course title: : Feedstuffs.

Academic Year: : master degree in veterinary medical science

Total teaching hours:192 h

Lectures: 96 hrs

Practical: 96hrs

### 2 - OVERALL AIMS OF THE COURSE:

The course aimed to provide the postgraduate students with the animal feed science which include its evaluation, nutritional value, inclusion level and deleterious substances.

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-a: KNOWLEDGE and UNDERSTANDING:

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

- a1. Classify feedstuffs
- a2. Determine the chemical composition of different feedstuff
- a3. Illustrate the proper inclusion level in the diets

#### 3-b: INTELLECTUAL SKILLS:

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

- b1. Combine the fitness of feedstuffs for animal feeding
- b2. Compose the nutritive value of feeds



b3. Interpret the fitness of feeds chemical composition

**3- c: PRACTICAL AND PROFESSIONAL SKILLS:**

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

- c1. Perform and practices the inclusion of feedstuffs
- c2. Show the problems of deleterious substances
- c3. Evaluate the nutritional value of the feed

**3- d: GENERAL SKILLS:**

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

- d1. Work in a teamd
- d2 . Use computers, software and CDs for educational purposes
- d3. Communicate with others
- d4. Conduct a search in digital library
- d5. Presentation skills: capacity to make oral presentations

**4 - COURSE CONTENTS:**

Topic	No. of hours		
	Lectures	Practical	Total
Feedstuffs classification	6	-	6
Feedstuffs evaluation	-	35	35
Forages	25	20	45
Roughages	5	6	11
Protein supplements	20	-	20
Lipids supplements	10	-	10
Deleterious substances	-	35	35
Vitamins supplemnts	10	-	10



Minerals supplements	20	-	20
<b>Total</b>	<b>96</b>	<b>96</b>	<b>192</b>

## 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library

Making individual reports about poultry or dairy operations

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a3	b1 to b3		d1, d5
Practical sessions		b1 to b3	c1 to c3	d2, d8
Self-Learning activities				d2, d3, d5
Distance Teaching and Learning	a1 to a3	b1 to b3	c1 to c3	d1 to d5

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	Allover the academic year
<b>7.c grads</b>	50	20	20	10

6.1. Methods	7. Student Assessment
--------------	-----------------------



	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a3	b1 to b3		D5
Practical exams			c1 to c3	d2, d3
Oral exams	a1 to a3	b1 to b3		d1
Student activities	a1, a3			d1 to d5

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8.1. Essential Books:

- Animal nutrition, 7<sup>th</sup> edition, 2014, (**P. McDonald R. A. Edwards J. F. D. Greenhalgh**)
- Fundamentals of Animal Nutrition 1st ed. 2021 Edition (**Subodh Kumar Saha , Nitya Nand Pathak** )
- *Animal Nutrition Strategies and Options to Reduce the Use of Antimicrobials in Animal Production, 2021* (**J. F. Patience, D. Li**)
- *Recent Advances in Animal Nutrition and Metabolism Book, 2021* (**Guoyao Wu**)

### 8.2: Recommended books:

Basic animal nutrition and feeding, 5<sup>th</sup> edition, 2004, (**Wilson G. Pond, David B. Church, Kevin R. Pond, Patricia A. Schoknecht** )

### 8.3. Periodicals, Web sites,..... etc

#### Scientific journals

- Animal feed science journal
- Journal of American Veterinary Medical Association.
- Nutritional Abstract and Review
- Veterinary Bulletin.
- Archives of Animal Nutrition.

#### Web sites





**Kafrelsheikh University**  
Faculty of Veterinary Medicine



- Animal feed - Nutrition, additives supplements, processing  
(feednavigator.com)
- Animal Nutrition (keaipublishing.com)
- Cargill Animal Nutrition | Livestock Feed & Fish Feed | Cargill

**Course Coordinator**

**Dr. Eldoky Elsaid Nassef**

**Head of Department**

**Prof. Dr Abdelnasser Abdellatif  
baker**



**Course Matrix for achievement of Intended Learning Outcomes**

Topics	Hours	Knowledge & Understanding			Intellectual Skills			Practical & Professional Skills			General & Transferable Skills				
		1	2	3	1	2	3	1	2	3	1	2	3	4	5
Feedstuff classification	6	✓					✓				✓	✓	✓	✓	✓
Feedstuff evaluation	35		✓			✓				✓	✓	✓	✓	✓	
Forages	45		✓	✓	✓		✓	✓			✓	✓	✓	✓	✓
Roughages	11		✓	✓	✓		✓	✓			✓	✓	✓	✓	✓
Protein supplement	20	✓	✓	✓	✓		✓				✓	✓	✓	✓	✓
Lipid supplement	10		✓		✓		✓				✓	✓	✓	✓	✓
Deleterious substances	35								✓		✓	✓	✓	✓	✓
Vitamin supplement	10			✓	✓						✓	✓	✓	✓	✓
Mineral supplement	20			✓	✓						✓	✓	✓	✓	✓



## COURSE SPECIFICATION (2021 / 2022)

### 1 - Basic Information:

Code number:... 154/1

Course title: Farm animal nutrition

Academic Year: : master degree in veterinary medical science

Total teaching hours:192 h

Lectures: 96 hrs

Practical: 96hrs

### 2 - OVERALL AIMS OF THE COURSE:

The course aimed to provide the postgraduate students with the proper nutrition of farm animals (cow, buffalo, sheep, goats, equines and camels)

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- a1. Illustrate the proper nutrition of cows
- a2. Demonstrate the proper nutrition of buffaloe
- a3. Define the proper nutrition of sheep and goats
- a4. Identify the proper nutrition of equines and camels

#### 3-B: INTELLECTUAL SKILLS:

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

- b1. Combine the fitness of feeds for small and large ruminants
- b2. Compose the nutritive value of feedstuff for equines and camels
- b3. Plan to prevent the nutritional problems associated with each animal species

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

- c1. Choose the suitable feeds for small and large ruminants
- c2. Determine the suitable feeds for equines and camels
- c3. Formulate a balanced ration for each animal species

#### 3- D: GENERAL SKILLS:

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

- d1. Work in a team
- d2 . Use computers, software and CDs for educational purposes
- d3. Communicate with others
- d4. Conduct a search in digital library
- d5. Presentation skills: capacity to make oral presentations



#### 4 - COURSE CONTENTS:

Topic	No. of hours		
	Lectures	Practical	Total
Dairy cow nutrition	30	15	45
buffaloe nutrition	21	10	31
Sheep and goat nutrition	10	5	15
Equine nutrition	8	3	11
Camel nutrition	7	2	9
Nutritional deficiency diseases	20	10	30
Feed stuffs	-	51	51
Total	96	96	192

#### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library  
Making individual reports about poultry or dairy operations

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures *	a1 to a4	b1 to b3		d1, d4
Practical sessions		b1 to b3	c1 to c3	d2, d5
Self-Learning activities				d2, d3, d4
Distance Teaching and Learning	a1 to a4	b1 to b3	c1 to c3	d1 to d5

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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



<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	Allover the academic year
<b>7.c grads</b>	50	20	20	10

7.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a4	b1 to b3		
Practical exams			c1 to c3	d1 to d5
Oral exams	a1 to a4	b1 to b3		
Student activities	a4		d1,d2,d4	d1 to d5

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8.1.Essential Books:

- Fundamentals of Animal Nutrition 1st ed. 2021 Edition (**Subodh Kumar Saha** , **Nitya Nand Pathak** )
- *Animal Nutrition Strategies and Options to Reduce the Use of Antimicrobials in Animal Production, 2021* (**J. F. Patience**, **D. Li**)
- *Recent Advances in Animal Nutrition and Metabolism*Book, 2021 (**Guoyao Wu**)
- Principles of Animal Nutrition 1st ed. 2018 Edition (**Guoyao Wu** )
- Basic Animal Nutrition and Feeding, 5th Edition 2004, (**Wilson G. Pond**, **David B. Church**, **Kevin R. Pond**, **Patricia A. Schoknecht**)
- Nutrient Requirements of Domestic Animals published by *National Research Council (NRC)*.

### 8-2: Recmonded books:

- Basic animal nutrition and feeding, 5<sup>th</sup> edition,2004, (**Wilson G. Pond**, **David B. Church**, **Kevin R. Pond**, **Patricia A. Schoknecht** )

### 8.4.Periodicals, Web sites,..... etc

- Animal feed science journal
- Small ruminant research journal
- Dairy science journal



- Journal of American Veterinary Medical Association.
- Nutritional Abstract and Review
- Veterinary Bulletin.

**Web sites:**

- Animal feed - Nutrition, additives supplements, processing (feednavigator.com)
- Animal Nutrition (keaipublishing.com)
- -Cargill Animal Nutrition | Livestock Feed & Fish Feed | Cargill

**Course Coordinator**

**Head of Department**

**Dr. Eldesoky Elsaid Nassef**

**Prof. Dr Abdelnasser Abdellatif  
baker**

**Course Matrix for achievement of Intended Learning Outcomes**

Topics	Hours	Knowledge & Understanding				Intellectual Skills			Practical & Professional Skills			General & Transferable Skills				
		1	2	3	4	1	2	3	1	2	3	1	2	3	4	5
Dairy cow nutrition	45	✓				✓					✓	✓	✓	✓	✓	✓
Buffaloe nutrition	31		✓			✓					✓	✓	✓	✓	✓	✓
Sheep and goat nutrition	15			✓		✓					✓	✓	✓	✓	✓	✓
Equine nutrition	11				✓		✓				✓	✓	✓	✓	✓	✓
Camel nutrition	9				✓		✓				✓	✓	✓	✓	✓	✓
Nutritional problems	30	✓	✓	✓	✓			✓			✓	✓	✓	✓	✓	✓
Feedstuffs	51					✓	✓		✓	✓		✓	✓	✓	✓	✓



## COURSE SPECIFICATION (2021 / 2022)

### 1 - Basic Information:

Code number: ... 155/1

Course title: poultry and rabbit nutrition

Academic Year: : master degree in veterinary medical science

Total teaching hours: 192 h

Lectures: 96 hrs

Practical: 96hrs

### 2 - OVERALL AIMS OF THE COURSE:

The course aimed to provide the postgraduate students with the proper nutrition of poultry and rabbit.

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-a: KNOWLEDGE and UNDERSTANDING:

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

- a1. Define nutrients required for poultry
- a2. Recognize nutrients required for rabbit
- a3. Describe the proper use of feeds to achieve maximum animal production

#### 3-b: INTELLECTUAL SKILLS:

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

- b1. Compose the nutritive value of feeds for poultry
- b2. Interpret the fitness of feeds for rabbit
- b3. Plan to prevent the nutritional problems associated with poultry and rabbit

#### 3-c: PRACTICAL AND PROFESSIONAL SKILLS:

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

- c1. Demonstrate the available feedstuff used for poultry and rabbit
- c2. Determine the appropriate method for ration formulation in poultry and rabbit
- c3. Outline the nutritional disorders in poultry and rabbit

#### 3-d: GENERAL SKILLS:

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

- d1. Work in a team
- d2. Use computers, software and CDs for educational purposes
- d3. Communicate with others
- d4. Conduct a search in digital library
- d5. Presentation skills: capacity to make oral presentations

### 4 - COURSE CONTENTS:

Topic	No. of hours		
	Lectures	Practical	Total
Broiler nutrition	20	20	40
Layer nutrition	10	10	20



Breeder nutrition	10	10	20
Duck nutrition	10	10	20
Turkey nutrition	10	10	20
Quails nutrition	10	10	20
Pigeon nutrition	10	10	20
Rabbit nutrition	10	10	20
Nutritional deficiency diseases	6	6	12
Total	96	96	192

### 5- TEACHING & LEARNING METHODS:

- \* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard Discussion and brain storming
- \* **Practical sessions:**
- \* **Self-Learning activities:** Mini reviews from the web and the library Making individual reports about poultry
- \* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures	a1 to a3	b1 to b3		d1,d2, d5
Practical sessions		b1 to b3	c1 to c3	d2, d3,d4
Self-Learning activities				d2, d4, d5
Distance Teaching and Learning	a1 to a3	b1 to b3	c1 to c3	d1 to d5

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	All over the academic year





<b>7.c grads</b>	50	20	20	10
------------------	----	----	----	----

7.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a3	b1 to b3		d1,d2,d4
Practical exams		b1 to b3	c1 to c3	d2, d3,d5
Oral exams	a1 to a3	b1 to b3		d1
Student activities	a1 to a3			d1 to d5

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8.1:Essential Books

- **Future Challenges in Rabbit Nutrition,2021 ( Francesco Gai, Laura Gasco, Angela Trocino )**
- **Applied Nutrition: Livestock, Poultry, Rabbits and Laboratory Animals,2019 ( D.V.REDDY )**
- **Chicken Nutrition: A Guide for Nutritionists and Poultry professionals ,2013 ( Rick Kleyn )**
- **Commercial Poultry Nutrition, third edition, 2009 ( S. Leeson J. D. Summers )**
- **Poultry Nutrition and Feeding,2005 ( E. H. Foster, A. Atencio, J. P. Driver, Gene M. Pesti, R. I. Bakalli )**

### 8.2: Recommended books

- **Nutrient Requirements of Poultry: 1994**

### 8.3.Periodicals, Web sites,..... etc

#### Scientific journals:

- **Poultry science journal**
- **Journal of applied poultry research.**
- **British poultry science**
- **World's poultry science**
- **Poultry science oxford.**

#### Web sites:



**Kafrelsheikh University**  
Faculty of Veterinary Medicine



1. <https://www.thepoultrysite.com/articles/a-simple-guide-to-the-nutritional-requirements-of-poultry>

2. <https://www.cambridge.org/core/journals/world-s-poultry-science-journal>

3. <https://www.thepoultrysite.com/articles/a-simple-guide-to-the-nutritional-requirements-of-poultry>

4. [https://www.academia.edu/12404309/POULTRY NUTRITION AND FEEDING](https://www.academia.edu/12404309/POULTRY_NUTRITION_AND_FEEDING)  
<https://naldc.nal.usda.gov/download/IND43893691/PDF>

**Course Coordinator**

**Head of Department**

**Dr. Eldoky Elsaid Nassef**

**Prof. Dr Abdelnasser Abdellatif  
baker**



**Course Matrix for achievement of Intended Learning Outcomes**

Topics	Hours	Knowledge & Understanding			Intellectual Skills			Practical & Professional Skills			General & Transferable Skills				
		1	2	3	1	2	3	1	2	3	1	2	3	4	5
1. Broiler nutrition	40	✓		✓	✓			✓	✓		✓	✓	✓	✓	✓
2. Layer nutrition	20	✓		✓	✓			✓	✓		✓	✓	✓	✓	✓
3. Breeder nutrition	20	✓		✓	✓			✓	✓		✓	✓	✓	✓	✓
4. Duck nutrition	20	✓		✓	✓			✓	✓		✓	✓	✓	✓	✓
5. Turkey nutrition	20	✓		✓	✓			✓	✓		✓	✓	✓	✓	✓
6. Quails nutrition	20	✓		✓	✓			✓	✓		✓	✓	✓	✓	✓
7. Pigeon nutrition	20	✓		✓	✓			✓	✓		✓	✓	✓	✓	✓
8. Rabbit nutrition	20	✓	✓	✓		✓		✓	✓		✓	✓	✓	✓	✓
9. Nutritional deficiency disease	15						✓			✓	✓	✓	✓	✓	✓



## COURSE SPECIFICATION (2021 / 2022)

### 1 - Basic Information:

Code number:... 157/1

Course title: lab and pet animal nutrition

Academic Year: : master degree in veterinary medical science

Total teaching hours:144 h

Lectures: 48 hrs

Practical: 96hrs

### 2 - OVERALL AIMS OF THE COURSE:

The course aimed to provide the postgraduate students with the proper nutrition of Lab and pet animals (dog and cat).

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-a: KNOWLEDGE and UNDERSTANDING:

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

- a1. Define the nutrient required for Lab animals
- a2. Recognize nutrients required for dog and cat
- a3. Customize the nutritional disorders in pet and lab animals

#### 3-b: INTELLECTUAL SKILLS:

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

- b1. Compose the nutritive value of feeds for Lab animals
- b2. Interpret the fitness of feeds for dog and cat
- b3. Plan to prevent the nutritional problems associated with Lab and pet animals

#### 3-c: PRACTICAL AND PROFESSIONAL SKILLS:

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

- c1. Outline the available feeds used for pet and lab animals
- c2. Determine the appropriate method for feeding lab animal
- c3. Demonstrate the suitable method for feeding pet animal

#### 3-d: GENERAL SKILLS:

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

- d1. Work in a team
- d2. Use computers, software and CDs for educational purposes
- d3. Communicate with others
- d4. Conduct a search in digital library
- d5. Presentation skills: capacity to make oral presentations

### 4 - COURSE CONTENTS:

Topic	No. of hours		
	Lectures	Practical	Total
Lab animal nutrition	10	20	30



Dog nutrition	10	20	30
Cat nutrition	10	20	30
Nutritional deficiency diseases	10	20	30
Feedstuff	8	16	24
Total	48	96	144

### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library

Making individual reports about poultry or dairy operations

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a3	b1 to b3		d1 to, d5
Practical sessions		b1 to b3	c1 to c3	D1 to d5
Self-Learning activities				D1to d5
Distance Teaching and Learning	a1 to a3	b1 to b3	c1 to c3	d1 to d5

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	Allover the academic year
<b>7.c grads</b>	50	20	20	10

6.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a3	b1 to b3		
Practical exams			c1 to c3	d1 to, d5
Oral exams	a1 to a3	b1 to b3		d1 to d5



Student activities	a1 to a3			d1 to d5
--------------------	----------	--	--	----------

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Essential Books

- Fundamentals of Animal Nutrition 1st ed. 2021 Edition (***Subodh Kumar Saha , Nitya Nand Pathak*** )
- *Pet Nutrition Guide: The Nature of Animal Feeding,2021*(***Gregory Lisa H.***)
- Nutrient Requirements of Domestic Animals published by ***National Research Council (NRC).***
- Applied Nutrition (*Livestock, Poultry, Human, Pet, Rabbit and Laboratory Animal Nutrition*),2001,(***Reddy***)

### 8-2: Recmonded books:

- Basic animal nutrition and feeding, 5<sup>th</sup> edition,2004, (Wilson G. Pond, David B. Church, Kevin R. Pond, Patricia A. Schoknecht )

### 8.4.Periodicals, Web sites,..... etc

- Animal feed science journal
- Journal of American Veterinary Medical Association.
- Nutritional Abstract and Review
- Veterinary Bulletin.
- Archives of Animal Nutrition.

### Scientific websites

- -Animal feed - Nutrition, additives supplements, processing (feednavigator.com)
- Animal Nutrition (keaipublishing.com)
- -Cargill Animal Nutrition | Livestock Feed & Fish Feed | Cargill

**Course Coordinator**

**Head of Department**

**Dr. Eldoky Elsaïd Nassef**

**Prof. Dr Abdelnasser Abdellatif  
baker**



**Course Matrix for achievement of Intended Learning Outcomes**

Topics	Hours	Knowledge & Understanding			Intellectual Skills			Practical & Professional Skills			General & Transferable Skills				
		1	2	3	1	2	3	1	2	3	1	2	3	4	5
Lab animal nutrition	30	✓			✓					✓	✓	✓	✓	✓	✓
Dog nutrition	30		✓			✓				✓	✓	✓	✓	✓	✓
Cat nutrition	30		✓			✓				✓	✓	✓	✓	✓	✓
Nutritional deficiency diseases	30			✓			✓				✓	✓	✓	✓	✓
Feedstuffs	24				✓	✓		✓	✓		✓	✓	✓	✓	✓



## COURSE SPECIFICATION (2021 / 2022)

### 1 - Basic Information:

Code number: ... 158/1

Course title: : Feed Additives

Field animal nutrition. Academic Year: : master degree in veterinary medical science

Total teaching hours: 144 h

Lectures: 48 hrs

Practical: 96hrs

### 2 - OVERALL AIMS OF THE COURSE:

To provide graduate with basic knowledge concerning Feed Additives (definition, classification, functions, mode of action, economic importance, dose for safe use)

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-a: KNOWLEDGE and UNDERSTANDING:

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

- a1- Know the general functions of feed additives
- a2- Classify the feed additives
- a3- Determine the mode of action and dose of feed additives

#### 3-b: INTELLECTUAL SKILLS:

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

- b1. Compose the purpose of feed additives
- b2. Interpret the fitness of feed additives
- b3. Plan to maximize animal production

#### 3-c: PRACTICAL AND PROFESSIONAL SKILLS:

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

- c1. Show the economic benefit of feed additives
- c2. Use feed additives with correct dose
- c3. Achieve the required purpose of feed additives

#### 3-d: GENERAL SKILLS:

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

- D1. Work in a team
- D2 . Use computers, software and CDs for educational purposes
- D3. Communicate with others
- D4. Conduct a search in digital library
- D5. Presentation skills: capacity to make oral presentations

### 4 - COURSE CONTENTS:

Topic	No. of hours		
	Lectures	Practical	Total





Feed additives classification	10	20	30
Feed efficiency	10	20	30
Economic benefits of feed additives	10	20	30
Mode of action and dose of feed additives	10	20	30
Uses of feed additives	8	16	24
Total	48	96	144

### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a3	b1 to b3		d1, d5
Practical sessions		b1 to b3	c1 to c3	d2, d5
Self-Learning activities				d2, d3, d5
Distance Teaching and Learning	a1 to a3	b1 to b3	c1 to c3	d1 to d5

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	Allover the academic year
<b>7.c grads</b>	50	20	20	10

6.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a3	b1 to b3		d5
Practical exams			c1 to c3	d2, d5



Oral exams	a1 to a3	b1 to b3		d1
Student activities	a1 to a3			d1 to d5

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8.1: Essential books:

- Animal nutrition, 7<sup>th</sup> edition, 2014, (P. McDonald R. A. Edwards J. F. D. Greenhalgh)
- Animal feed additives, 2015, ( Singh, Pankaj )
- Fundamentals of Animal Nutrition 1st ed. 2021 Edition (Subodh Kumar Saha , Nitya Nand Pathak )

### 8.2: Recommended books:

Basic animal nutrition and feeding, 5<sup>th</sup> edition, 2004, (Wilson G. Pond, David B. Church, Kevin R. Pond, Patricia A. Schoknecht )

### 8.3. Periodicals, Web sites,..... etc

#### Scientific journals

- Animal feed science journal
- Journal of American Veterinary Medical Association.
- Nutritional Abstract and Review
- Veterinary Bulletin.
- Archives of Animal Nutrition.

#### Web sites

- Animal feed - Nutrition, additives supplements, processing (feednavigator.com)
  - Animal Nutrition (keapublishing.com)
- Cargill Animal Nutrition | Livestock Feed & Fish Feed | Cargill

**Course Coordinator**

**Dr. Eldoky Elsaid Nassef**

**Head of Department**

**Prof. Dr Abdelnasser Abdellatif  
baker**



**Course Matrix for achievement of Intended Learning Outcomes**

Topics	Hours	Knowledge & Understanding			Intellectual Skills			Practical & Professional Skills			General & Transferable Skills				
		1	2	3	1	2	3	1	2	3	1	2	3	4	5
Feed additives classification	30		✓								✓	✓	✓	✓	✓
Feed efficiency	30			✓		✓				✓	✓	✓	✓		✓
Economic benefits of feed additives	30	✓			✓			✓			✓	✓	✓	✓	✓
Mode of action and dose of feed additives	30			✓	✓			✓			✓	✓	✓	✓	✓
Uses of feed additives	24	✓					✓			✓	✓	✓	✓	✓	✓

**COURSE SPECIFICATION**



(2021 / 2022)

## 1 - Basic Information:

Code number:... 159/1

Course title: : Feedstuffs analyses

Academic Year: : master degree in veterinary medical science

Total teaching hours:192 hr

Lectures: 96 hr

Practical: 96 hr

## 2 - OVERALL AIMS OF THE COURSE:

The course aimed to provide the postgraduate students with the chemical analysis of feedstuffs and their nutritive value.

## 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

### 3-a: KNOWLEDGE and UNDERSTANDING:

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

- a1. Define principles of chemical analysis of feedstuff
- a2. Recognize the chemical composition of feedstuff
- a3. Illustrate the evaluation of feedstuffs after analysis

### 3-b: INTELLECTUAL SKILLS:

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

- b1. Combine the fitness of feedstuffs for animal feeding
- b2. Compose the nutritive value of feeds
- b3. Interpret the chemical composition of feeds

### 3-c: PRACTICAL AND PROFESSIONAL SKILLS:

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

- c1. Manipulate sampling, preparation and preservation of samples
- c2. Show the problems of feed adulteration
- c3. Apply different methods of analysis of feedstuff

### 3-d: GENERAL SKILLS:

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

- d1. Work in a team
- d2. Use computers, software and CDs for educational purposes
- d3. Communicate with others
- d4. Conduct a search in digital library
- d5. Presentation skills: capacity to make oral presentation

## 4 - COURSE CONTENTS:



Topic	No. of hours		
	Lectures	Practical	Total
Principle of feed analysis	6	6	12
Determination of crude protein	15	15	30
Determination of crude fat	15	15	30
Determination of fiber	15	15	30
Determination of minerals	15	15	30
Calculation of NFC	15	15	30
Determination of mycotoxins	15	15	30
<b>Total</b>	<b>96</b>	<b>96</b>	<b>192</b>

## 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures *	a1 to a3	b1 to b3		d1, d4
Practical sessions		b1 to b3	c1 to c3	d2, d5
Self-Learning activities				d2, d3, d5
Distance Teaching and Learning	a1 to a3	b1 to b3	c1 to c3	d1 to d5

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
-------------------------	---------------------	------------------	-----------------------	------------



<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	Allover the academic year
<b>7.c grads</b>	50	20	20	10

6.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a3	b1 to b3		d5
Practical exams			c1 to c3	d2, d3
Oral exams	a1 to a3	b1 to b3		d1
Student activities	a1, a3			d1 to d5

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8.1. Essential Books:

- Animal nutrition, 7<sup>th</sup> edition, 2014, (**P. McDonald R. A. Edwards J. F. D. Greenhalgh**)
- Fundamentals of Animal Nutrition 1st ed. 2021 Edition (**Subodh Kumar Saha , Nitya Nand Pathak** )
- *Animal Nutrition Strategies and Options to Reduce the Use of Antimicrobials in Animal Production, 2021* (**J. F. Patience, D. Li**)
- *Recent Advances in Animal Nutrition and Metabolism Book, 2021* (**Guoyao Wu**)

### 8.2: Recmonded books:

Basic animal nutrition and feeding, 5<sup>th</sup> edition, 2004, (**Wilson G. Pond, David B. Church, Kevin R. Pond, Patricia A. Schoknecht** )

### 8.3. Periodicals, Web sites,..... etc

#### Scientific journals

- Animal feed science journal
- Journal of American Veterinary Medical Association.
- Nutritional Abstract and Review
- Veterinary Bulletin.
- Archives of Animal Nutrition.



**Web sites**

- Animal feed - Nutrition, additives supplements, processing  
([feednavigator.com](http://feednavigator.com))
- Animal Nutrition ([keaipublishing.com](http://keaipublishing.com))
- Cargill Animal Nutrition | Livestock Feed & Fish Feed | Cargill

**Course Coordinator**

**Dr. Eldoky Elsaid Nassef**

**Head of Department**

**Prof. Dr Abdelnasser Abdellatif  
baker**



**Course Matrix for achievement of Intended Learning Outcomes**

Topics	Hours	Knowledge & Understanding			Intellectual Skills			Practical & Professional Skills			General & Transferable Skills				
		1	2	3	1	2	3	1	2	3	1	2	3	4	5
Principle of feed analysis	12	✓	✓		✓						✓	✓	✓	✓	✓
Determination of crude protein	30			✓		✓	✓	✓			✓	✓	✓	✓	✓
Determination of crude fat	30			✓			✓	✓	✓		✓	✓	✓	✓	✓
Determination of fiber	30			✓			✓	✓			✓	✓	✓	✓	✓
Determination of minerals	30			✓		✓	✓			✓	✓	✓	✓	✓	✓
Calculation of NFC	30			✓					✓		✓	✓	✓	✓	✓
Determination of mycotoxins	30			✓		✓				✓	✓	✓	✓	✓	✓





## COURSE SPECIFICATION (2021 / 2022)

### 1 - Basic Information:

Code number: ... 160/1

Course title: : Feeds wholesomeness and Feeds factories

Academic Year: : **master degree in veterinary medical science**

Total teaching hours: 192 h

Lectures: 96 hrs

Practical: 96hrs

### 2 - OVERALL AIMS OF THE COURSE:

To provide students with basic knowledge concerning the feedstuffs wholesomeness, feed factories hygiene evaluation

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-a: KNOWLEDGE and UNDERSTANDING:

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

- a1. Define feed quality
- a2. Recognize the processing of feedstuffs
- a3. Illustrate the proper manufacturing of the feed

#### 3-b: INTELLECTUAL SKILLS:

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

- b1.. Combine the quality of feedstuffs for animal feeding
- b2. Compose the various feeds processing
- b3. Interpret the fitness of feeds for manufacturing

#### 3-c: PRACTICAL AND PROFESSIONAL SKILLS:

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

- c1. Perform and practices the feedstuffs investigation
- c2. Show the problems of deleterious substances
- c3. Evaluate the complete feed manufacturing

#### 3-d: GENERAL SKILLS:

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

- d1. Work in a team
- d2 . Use computers, software and CDs for educational purposes
- d3. Communicate with others
- d4. Conduct a search in digital library
- d5. Presentation skills: capacity to make oral presentations

### 4 - COURSE CONTENTS:

Topic	No. of hours		
	Lectures	Practical	Total



Physical evaluation of feedstuffs	15	15	30
Processing of feedstuffs	15	15	30
Manufacturing of feeds	25	25	50
Rancidity	15	15	30
Mycotoxins	26	26	52
<b>Total</b>	<b>96</b>	<b>96</b>	<b>192</b>

### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a3	b1 to b3		d1, d5
Practical sessions		b1 to b3	c1 to c3	d2, d5
Self-Learning activities				d2, d3, d5
Distance Teaching and Learning	a1 to a3	b1 to b3	c1 to c3	d1 to d5

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	Allover the academic year
<b>7.c grads</b>	50	20	20	10

6.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a3	b1 to b3		d5



Practical exams			c1 to c3	d2, d3
Oral exams	a1 to a3	b1 to b3		d1
Student activities	a1, a3			d1 to d5

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8.1. Essential Books:

- Animal nutrition, 7<sup>th</sup> edition, 2014, (P. McDonald R. A. Edwards J. F. D. Greenhalgh)
- Fundamentals of Animal Nutrition 1st ed. 2021 Edition (Subodh Kumar Saha , Nitya Nand Pathak )
- *Animal Nutrition Strategies and Options to Reduce the Use of Antimicrobials in Animal Production, 2021* (J. F. Patience, D. Li)
- *Recent Advances in Animal Nutrition and Metabolism Book, 2021* (Guoyao Wu)

### 8.2: Recmended books:

Basic animal nutrition and feeding, 5<sup>th</sup> edition, 2004, (Wilson G. Pond, David B. Church, Kevin R. Pond, Patricia A. Schoknecht )

### 8.3. Periodicals, Web sites,..... etc

#### Scientific journals

- Animal feed science journal
- Journal of American Veterinary Medical Association.
- Nutritional Abstract and Review
- Veterinary Bulletin.
- Archives of Animal Nutrition.

#### Web sites

- Animal feed - Nutrition, additives supplements, processing (feednavigator.com)
- Animal Nutrition (keaipublishing.com)

Cargill Animal Nutrition | Livestock Feed & Fish Feed | Cargill

**Course Coordinator**

**Dr. Eldoky Elsaïd Nassef**

**Head of Department**

**Prof. Dr Abdelnasser Abdellatif  
baker**



**Course Matrix for achievement of Intended Learning Outcomes**

Topics	Hours	Knowledge & Understanding			Intellectual Skills			Practical & Professional Skills			General & Transferable Skills				
		1	2	3	1	2	3	1	2	3	1	2	3	4	5
Physical evaluation of feedstuffs	30	✓			✓			✓			✓	✓	✓	✓	✓
Processing of feedstuffs	30		✓			✓					✓	✓	✓	✓	✓
Manufacturing of feeds	50			✓			✓			✓	✓	✓	✓	✓	✓
Rancidity	30	✓			✓				✓		✓	✓	✓	✓	✓
Mycotoxins	52	✓			✓				✓		✓	✓	✓	✓	✓



## COURSE SPECIFICATION (2021 / 2022)

### 1 - Basic Information:

Code number:... 161/1

Course title: Clinical nutrition and nutritional deficiency diseases

Academic Year: : master degree in veterinary medical science

Total teaching hours:192 h

Lectures: 96 hrs

Practical: 96hrs

### 2 - OVERALL AIMS OF THE COURSE:

The course aimed to provide the postgraduate students with the clinical nutritional science of dairy cattle and nutritional deficiency diseases.

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-a: KNOWLEDGE and UNDERSTANDING:

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

- a1. Illustrate the proper nutrition of early dry cows
- a2. Determine the proper nutrition of close up cow
- a3. Define the proper nutrition of lactating cow

#### 3-b: INTELLECTUAL SKILLS:

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

- b1. Combine the fitness of feeds for dairy cow.
- b2. Compose the nutritive value of feedstuff for close up cow
- b3. Plan to prevent the nutritional problems of dairy cow

#### 3- c: PRACTICAL AND PROFESSIONAL SKILLS:

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

- c1. Demonstrate suitable feeds for dairy cow
- c2. Identify and evaluate the total mixed ration used in dairy cows
- c3. Perform the best and reliable method of ration formulation

#### 3- d: GENERAL SKILLS:

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

- d1. Work in a team
- d2 . Use computers, software and CDs for educational purposes
- d3. Communicate with others
- d4. Conduct a search in digital library
- d5. Presentation skills: capacity to make oral presentations



#### 4 - COURSE CONTENTS:

Topic	No. of hours		
	Lectures	Practical	Total
Early dry cow nutrition	30	10	40
Close up cow nutrition	21	15	36
Early lactating cow nutrition	15	5	20
Mid-late lactating cow nutrition	10	5	15
Nutritional deficiency diseases	20	10	30
Feedstuffs	-	51	51
Total	96	96	192

#### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library  
Making individual reports about poultry or dairy operations

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures *	a1 to a3	b1 to b3		d1 to d5
Practical sessions		b1 to b3	c1 to c3	d1 to d5
Self-Learning activities				d1 to d5
Distance Teaching and Learning	a1 to a3	b1 to b3	c1 to c3	d1 to d5

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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



<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	Allover the academic year
<b>7.c grads</b>	50	20	20	10

6.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a3	b1 to b3		
Practical exams			c1 to c3	d1 to d5
Oral exams	a1 to a3	b1 to b3		d1 to d5
Student activities	a1 to, a3			d1 to d5

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8.1.Essential Books:

- Animal nutrition, 7<sup>th</sup> edition, 2014, (**P. McDonald R. A. Edwards J. F. D. Greenhalgh**)
- Fundamentals of Animal Nutrition 1st ed. 2021 Edition (**Subodh Kumar Saha , Nitya Nand Pathak** )
- *Animal Nutrition Strategies and Options to Reduce the Use of Antimicrobials in Animal Production, 2021* (**J. F. Patience, D. Li**)
- *Recent Advances in Animal Nutrition and Metabolism Book, 2021* (**Guoyao Wu**)

### 8.2: Recmonded books:

Basic animal nutrition and feeding, 5<sup>th</sup> edition,2004, (**Wilson G. Pond, David B. Church, Kevin R. Pond, Patricia A. Schoknecht** )

### 8.3.Periodicals, Web sites,..... etc

#### Scientific journals

- Animal feed science journal
- Journal of American Veterinary Medical Association.
- Nutritional Abstract and Review
- Veterinary Bulletin.
- Archives of Animal Nutrition.

#### Web sites



- Animal feed - Nutrition, additives supplements, processing (feednavigator.com)
- Animal Nutrition (keaipublishing.com)
- Cargill Animal Nutrition | Livestock Feed & Fish Feed | Cargill

**Course Coordinator**

**Head of Department**

**Dr. Eldoky Elsaïd Nassef**

**Prof. Dr Abdelnasser Abdellatif  
baker**

**Course Matrix for achievement of Intended Learning Outcomes**

Topics	Hours	Knowledge & Understanding			Intellectual Skills			Practical & Professional Skills			General & Transferable Skills				
		1	2	3	1	2	3	1	2	3	1	2	3	4	5
Early dry cow nutrition	40	✓						✓			✓	✓	✓	✓	✓
Close up cow nutrition	36		✓			✓		✓			✓	✓	✓	✓	✓
Early lactating cow nutrition	20			✓	✓			✓	✓	✓	✓	✓	✓	✓	✓
Mid-late lactating cow nutrition	15			✓	✓			✓			✓	✓	✓	✓	✓
Nutritional problems	30	✓	✓	✓			✓			✓	✓	✓	✓	✓	✓
Feedstuffs	51				✓	✓			✓		✓	✓	✓	✓	✓





## COURSE SPECIFICATION (2021 / 2022)

### 1 - Basic Information:

Code number:... 162/1

Course title: Fish nutrition

Academic Year: Master degree in veterinary medical science

Total teaching hours:192 h

Lectures: 96 hrs

Practical: 96hrs

### 2 - OVERALL AIMS OF THE COURSE:

The course aimed to provide the postgraduate students with the proper nutrition of fish. Also the feedstuffs that are used in fish diets. The course provides students how to increase feed efficiency and profitability.

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-a: KNOWLEDGE and UNDERSTANDING:

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

- a1. Define the nutrient required for fish
- a2. Recognize the metabolism of nutrients in fish
- a3. Describe the proper use of feeds for fish
- a4. Identify feed efficiency

#### 3-b: INTELLECTUAL SKILLS:

*By the end of the course, students should be able*

- b1. Compose the nutritive value of feeds used for fish
- b2. Interpret the fitness of feeds for fish
- b3. Plan to prevent the nutritional problems of fish
- b4. Analyze feed cost and profitability

#### 3- c: PRACTICAL AND PROFESSIONAL SKILLS:

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

- c1. Apply the appropriate method for ration formulation in fish
- c2. Demonstrate the available feedstuff used in fish
- c3. Organize the methods of feed manufacturing
- c4. Show the problems of feed preparation

#### 3- d: GENERAL SKILLS:

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

- d1. Work in a team
- d2 . Use computers, software and CDs for educational purposes
- d3. Communicate with others
- d4. Conduct a search in digital library
- d5. Presentation skills: capacity to make oral presentations



#### 4 - COURSE CONTENTS:

Topic	No. of hours		
	Lectures	Practical	Total
Energy requirements for fish	6	3	9
Carbohydrates nutrition for fish	15	5	20
Protein nutrition for fish	15	10	25
Lipids nutrition for fish	15	10	25
Vitamins nutrition for fish	10	5	15
Minerals nutrition for fish	15	5	20
Nutritional problems of fish	10	5	15
Feedstuffs and feed efficiency	10	5	15
<b>Total</b>	<b>96</b>	<b>48</b>	<b>144</b>

#### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library  
Making individual reports about fish

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
<b>Advanced lectures</b>	a1 to a4	b1 to b4		d1,d2, d5
<b>Practical sessions</b>		b1 to b4	c1 to c4	d2, d3,d4
<b>Self-Learning activities</b>				d2, d4, d5
<b>Distance Teaching</b>	a1 to a4	b1 to b4	c1 to c4	d1 to d5



**and Learning**

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:-**

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	Allover the academic year
<b>7.c grads</b>	50	20	20	10

7.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a4	b1 to b4		d1,d2,d4
Practical exams		b1 to b4	c1 to c4	d2, d3,d5
Oral exams	a1 to a4	b1 to b4		d1
Student activities	a1 to a4			d1 to d5

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

**8. LEARNING AND REFERENCE MATERIALS:**

**8.1:Essential Books**

- Fish nutrition 4<sup>th</sup> edition 2021,( Ronald W. Hardy, Sadasivam J. Kaushik )
- Fish nutrition and feed technology,2018 ( Neera Jain, Priti Mishra )
- Nutrition and feeding of fish and crustaceans, 2001(Jean Guillaume, Robert Metailler)
- Nutrition and feeding of fish, 1998 ( Tom Lovell )
- Nutrient Requirements of fish: 2011

**8.2.Periodicals, Web sites,..... etc**

**Scientific journals:**

- Aquaculture
- Aquaculture Nutrition
- Fish nutrition.



- **Journal of aquaculture feed science and nutrition**
- **Fish and fisheries journal**
- **Journal of fisheries and aquatic science.**

**Web sites:**

- **Animal feed - Nutrition, additives supplements, processing([feednavigator.com](http://feednavigator.com))**
- **Animal Nutrition ([keaipublishing.com](http://keaipublishing.com))**
- **Cargill Animal Nutrition | Livestock Feed & Fish Feed | Cargill**

**Course Coordinator**

**Dr. Eldoky Elsaid Nassef**

**Head of Department**

**Prof. Dr Abdelnasser Abdellatif  
baker**





Kafrelsheikh University  
Faculty of Veterinary Medicine  
Department of Food Control

**Program Specification for Master Degree  
Medicine (2021 - 2022)**

**Program Title:**

**Master of The Veterinary Science  
(Hygienic Control of Meat and Meat products)**



#### **A- Administrative information:**

- 1- **Awarding Body:** Kafrelsheikh University
- 2- **Teaching Body:** Faculty of Veterinary Medicine
- 3- **Department responsible:** Food control
- 4- **Program Title:** Master of Veterinary Medicine (Hygienic control of Meat and Meat products)
- 5- **Final award:** Master Degree
- 6- **Registration period:** 2-4 years
- 7- **Program Coordinator:** Prof. Dr.
- 8- **External evaluator:**
- 9- **Date of revision:**
- 10- **Date of approval:**

#### **B- Professional Information**

##### **1-Educational aims of the program**

- Provides graduates the opportunity to develop communication and teaching skills and the experience of scientific research.
- Develops the ability of graduate to engage critically with recent techniques and diagnostic tools in the field of Meat Hygiene and control.
- Supplies the graduates with the most recent knowledge in science and technological applications in Meat Hygiene and control.
- Demonstrates an awareness of the connections between disciplines and develop the ability to engage critically with scientific literature and to critically review and present their own research data for the protection and promotion of the human health.
- Allows graduates to develop practical research project.
- Enables graduates to achieve competency in modern laboratory technology.

##### **2- Academic standards:**



Academic reference standards (ARS) adopted by the faculty committee No 1 (14-9-2014)

### 3-Graduate attributes:

*Upon successful completion of the program, the graduate has the ability for:*

- 1) Perfect application of scientific research basics and methodologies in Meat Hygiene and control, and using its varied tools.
- 2) Application and use of analytical methods in detection of microorganisms and toxins and identification of food borne diseases.
- 3) Application of gained specialized knowledge and integrating them with the relevant knowledge in meat hygiene and control.
- 4) Awareness with ongoing problems and recent concepts in Meat Hygiene and Control.
- 5) Identification of food borne illness and suggesting suitable and economic methods of meat preservation and processing.
- 6) Mastering the proper scope of a rate specialized professional skills, and using appropriate technological means to serve the diagnosis of meat adulteration, microbial food poisoning, and chemical residues in meat.
- 7) Effective communication with students, colleagues and animal owners, and leading work team.
- 8) Decision making for suggesting the cause of food poisoning or deterioration.
- 9) Employ available resources efficiently including history, PM lesions and laboratory findings.
- 10) Awareness with his role in society development and preservation of a clean environment.
- 11) Reflection of the commitment to act with integrity, credibility and the rules of profession.
- 12) Academic and professional self- development and ability for life-long learning and progress by studying new cases.

#### a) Knowledge and understanding

*By the end of this program the graduate should be able to:*

- a.1. Realize Theories and principles in the field of Meat Hygiene and Meat microbiology and preservation and Technology of meat products and related fields.
- a.2. Recognize the impact of preservatives and toxins on the meat and its products and methods of keeping the meat clean from different sources of





infection.

- a.3. Identify with scientific plan and how write final report in production, processing and analysis of meat and poultry and its products.
- a.4. Identify with the legal and professional ethics in examination of meat and poultry and fish and its products.
- a.5. Realize ideal and safety risk assessments for the Food Hygiene laboratory.
- a.6. Describe principles and ethics of scientific research in the field of Meat Hygiene and Control.

**b) Intellectual skills**

*By the end of this program the graduate should be able to:*

- b.1. Judge information concerning meat microbiology and technology and analog to solve problems in plants.
- b.2. Detect appropriate solutions for problems regarding meat industry and microbiology.
- b.3. Relate between different knowledge and experience to solve hard problems.
- b.4. Write scientific article and notes on a research problem in meat hygiene and control.
- b.5. Evaluate risks in meat and poultry processing plants in addition to application of HACCP and ISO in processing plants
- b.6. Develop of plans to improve performance in laboratory practice with automation.
- b.7. Detect appropriate manner strategy to deal with laboratory diagnosis of bacteria and parasitic infestations.

**c) Professional and practical skills**

*By the end of this program the graduate should be able to:*

- c.1. Apply recent techniques and tools necessary to diagnose and characterize different bacteria, parasitic affections, microbial toxins or chemical preservatives in meat and meat products.
- c.2. Write a summary report about meat, meat products , poultry and fish
- c.3. Plan scientific project in the field of Meat Hygiene and Control.

**d) General and transferable skill**

*By the end of this program, the graduate should be able to:*

- d.1. Communicate effectively with his professors, collages and animal owner(s).
- d.2. Utilize different sources of knowledge and information.
- d.3. Assess himself and identify his personal educational needs.



- d.4. Demonstrate interpersonal skills and team working ability
- d.5. Demonstrate an ability to learn independently for a career of lifelong learning
- d.6. Write information technology to serve the professional practice.
- d.7. Manage time efficiently.
- d.8. Join tools and indicators for assessment of the performance of others

**5- Program structure (duration 2-4 years)**

**a) Premaster courses – at least one academic year**

	Lecture (hours/week)	Practical (hours/week)
Fundamental (core) course	3	4
Research methodology	1	3
2-5 Elective courses (10-12 hours)	Offered by other departments and are selected from the list below according to thesis topic	

**b) MVSc Thesis (at least one academic year)**

- All master degree students should prepare a master thesis.
- The department and the ethical committees must approve the protocol of the research.
- The thesis should include a review part and a research part.
- The thesis is supervised by one or more senior staff members of the department responsible for the program and may include other specialties according to the nature of the research.
- The thesis should be evaluated and approved by a committee of three professors including one of the supervisors and an external professor.

*A number of subsidiary courses are selected from the following list according to the title of the research*

Subject	Code	Course title	No of hours/week	
			Lecture	Practical Lab
Anatomy and embryology	101/1	<b>1- Applied anatomy</b>	2	2
	102/1	<b>2- Anatomical techniques and surface anatomy</b>	2	2
	103/1	<b>3- Osteology and arthrology</b>	2	2
	104/1	<b>4- Comparative digestive system</b>	2	2
	105/1	<b>5- Comparative uro-genital system</b>	2	2
	106/1	<b>6-Comparative respiratory system</b>	2	2
	107/1	<b>7- Comparative cardiovascular system</b>	2	2
	108/1	<b>8- Comparative nervous system and endocrine</b>	2	2



Faculty of Veterinary Medicine Assiut University

	109/1	9- General and special embryology	2	2
	110/1	10- Avian anatomy	1	2
Histology	111/1	11- cytology and cytochemistry	1	2
	112/1	12- general histology	2	2
	113/1	13- Histology and histochemistry of blood, lymph and cardiovascular system.	1	1
	114/1	14- Comparative histology and histochemistry of body muscles, heart and blood vessels	1	1
	115/1	15- Comparative histology and histochemistry of respiratory system	1	1
	116/1	16- Comparative histology and histochemistry of digestive system	2	2
	117/1	17- Comparative histology and histochemistry of uro-genital system	2	2
	118/1	18- Comparative histology and histochemistry of nervous and endocrine systems	2	2
	119/1	19- Histology and histochemistry of special sensors	1	2
	120/1	20- Histology and histochemistry of skin, hooves, claws and nails	2	2
	121/1	21- Avian histology	2	2
122/1	22- Fish histology	1	2	
Physiology	123/1	23- Physiology of mammalian endocrine and reproduction	2	2
	124/1	24- poultry physiology (advanced)	2	2
	125/1	25- physiology of muscle and nerve	1	2
	126/1	26- physiology of ruminants	2	2
	127/1	27- physiology of environment, adaptation and cell	2	2
	128/1	28- physiology of blood	2	2
	129/1	29- physiology of digestion, metabolism and energy	2	2
	130/1	30- Physiology in pollution	1	2
	131/1	31- Radioactive isotopes and biological uses	2	2
	132/1	32- Physiology of heights	1	1
	133/1	33- Fish physiology.	1	2
Animal behavior	144/1	44- Behavior and management of ruminants (	2	3



Faculty of Veterinary Medicine Assiut

and management		specific courses in cattle, buffalo, sheep, camels and goats)		
	145/1	45- Behavior and management of horses	2	3
	146/1	46- Behavior and management of pet animals	1	2
	147/1	47- Behavior and management of laboratory animals	1	2
	148/1	48- Behavior and management of wild animals	2	2
	149/1	49- Behavior and management of poultry	2	2
	150/1	50- Behavior and management of rabbit	1	2
	151/1	51- Behavior of experimental animals	1	2
Nutrition and clinical nutrition	152/1	52- Basics of animal nutrition	2	2
	153/1	53- feedstuff	2	2
	154/1	54- nutrition of farm animals and fish specific courses in ( cattle and buffalo nutrition – sheep and goat nutrition – camel nutrition- equine nutrition – fish nutrition)	2	2
	155/1	55- poultry and rabbit nutrition( advanced)	2	2
	156/1	56- wild animal nutrition	1	2
	157/1	57- laboratory animal nutrition	1	2
	158/1	58- feed additives	1	2
	159/1	59- feedstuff analysis	2	2
	160/1	60- Quality control of feed and feed factories	2	2
	161/1	61- Clinical nutrition and malnutrition	2	2
	162/1	62- Fish nutrition	1	2
Pathology	163/1	63- General pathology and neoplasm( progressive)	2	2
	164/1	64-pathology of microbial and parasitic diseases in animal	2	2
	165/1	65- pathology of bad nutrition	1	2
	166/1	66- pathology of environmental pollution	1	2
	167/1	67- pathology of reproductive diseases	1	2
	168/1	68- Avian pathology	2	2
	169/1	69-Experimental pathology	2	2
	170/1	70- toxins pathology	2	2
	171/1	71- surgical pathology	2	2
	172/1	72- Pathology of experimental animals.		
	173/1	73- Pathology of genetics		
	174/1	74-- Fish pathology	2	2
Clinical pathology	175/1	75- Advanced clinical pathology	2	2
	176/1	76-Organ function tests and body and urine balance	2	2
	177/1	77- Clinical hematology and bone marrow examination	1	2



Faculty of Veterinary Medicine

Bacteriology, immunology and mycology	178/1	78- General bacteriology(advanced)	1	2
	179/1	79-systemic bacteriology	2	3
	182/1	80- Advanced immunology	2	2
	183/2	81- Advanced mycology	1	2
Virology	180/3	82- General virology	1	2
	181/4	83-Systemic virology( specific courses)	2	3
	182/5	84- Advanced immunology	2	2
Mixed courses between Bacteriology and Virology	184/1	85- Microbiology of poultry	2	2
	185/1	86- Microbiology of ??????	1	2
	186/1	87- Microbiology of animal product	2	2
	187/1	88- Fish Microbiology	1	2
Parasitology		81- Advanced immunology	2	2
	188/1	89- Veterinary medical entomology and acarology	2	2
	189/1	90-helminthology	2	2
	190/1	91- protozoology	2	2
	191/4	92- Avian and rabbits parasitology	2	2
	192/1	93Malacology and its vet. Importance	1	2
	193/1	94- parasitic Immunology	1	2
	194/1	95- Clinical parasitology	2	2
	195/1	96-Wild life parasitology	1	2
	196/1	97-Special vet. Parasitology	2	2
	197/1	98- Physiology and biochemistry of parasites	2	2
	198/1	99- Fish parasitology	1	2
	Pharmacology	199/1	100- Aeneral pharmacology ( advanced)	2
200/1		101- pharmacology of autonomic nervous system and autocoid	2	2
201/1		102- pharmacology of central nervous system	2	2
202/1		103 pharmacology of anesthesia	2	2
203/1		104- Systemic pharmacology	2	2
204/1		105- pharmacology of metabolism	2	2
205/1		106- pharmacology of hormones	2	2
206/1		107-Chemotherapy	2	2
207/1	108-Biological evolution of drug	1	1	
Hygiene and control of milk and dairy products	208/1	108- Hygiene and control of milk and dairy products	2	2
	209	109- Microbiology of milk and dairy products	2	2
	210/1	110- Milk technology and preservation	2	2
	211/1	111- Food analysis	2	2
	212/1	112- Food poisoning	1	2
	213/1	113- Specific courses on sources of contamination, disturbances of milk production, milk born diseases, hygiene of table egg, edible	1	1



Faculty of Veterinary Medicine

	214/1	fats and oils 114- The sanitation of dairy plant	2	2
<b>Internal medicine</b>	225/1	125- advanced general medicine	2	2
	226/1	126- disease of ruminants( cattle, buffalo, camels, sheep and goats)	3	3
	227/1	127- diseases of equines	2	2
	228/1	128 diseases of pet animals	2	2
	229/1	129- diseases of wild animals	2	2
	230/1	130- diseases of metabolic disorders	2	2
	231/1	131- nutritional deficiency diseases	2	2
	232/1	132- Skin diseases	1	2
	233/1	133 - diseases of newly born animals	2	2
	234/1	134- Stress diseases during animals transport.		
<b>Infectious diseases</b>	235/1	135- Infectious diseases of cattle	2	2
	236/1	136- Infectious diseases of sheep and goat	2	2
	237/1	137- Infectious diseases camel	2	2
	238/1	138 Infectious diseases of equine	2	2
	239/1	139- Infectious diseases of pet animals	2	2
	240/1	140- Infectious diseases lab animals	1	2
	241/1	141- Infectious diseases of udder and newly born animals	2	2
	242/1	142- Infectious diseases buffaloes	2	1
	243/1	143- Infectious diseases of wild animals.		
<b>Forensic medicine and toxicology</b>	244/1	144- Forensic medicine and veterinary procedures	2	2
	245/1	145- general toxicology	2	2
	246/1	146- environmental toxicology	2	2
	247/1	147- forensic toxicology	2	2
	248/1	148- laboratory diagnostic toxicology	2	2
	249/1	149- Drug toxicology		
<b>Veterinary Surgery</b>	259/1	159- General surgery (advanced)	2	2
	260/1	160- Special surgery( organs)	2	3
	261/1	161- surgery of eye, ear, nose and larynx	2	2
	262/1	162 digestive system surgery	2	2
	263/1	163- surgery of the limbs, hoof and claws	2	2
	264/1	164- experimental surgery	2	2
	265/1	165- anesthesiology	1	1
	266/1	166- radiology and ultrasonography	2	2
<b>Poultry and rabbit diseases</b>	267/1	167- bacterial diseases of poultry	2	2
	268/1	168- viral diseases of poultry	2	2



Faculty of Veterinary Medicine

	269/1	169- fungal diseases of poultry	2	2
	270/1	170 parasitic diseases of poultry	1	2
	271/1	171 - nutritional diseases of poultry	1	2
	272/1	172-diseases of rabbit (advanced)	2	2
	273/1	173-Diseases of wild and migrating birds	2	2
	274/1	174- Preventive vaccines and their evaluation in poultry	2	2
	275/1	175- Laboratory diagnosis of poultry diseases.		
Animal and environmental hygiene	276/1	176- farm animal hygiene ( advanced)	2	2
	277/1	177- poultry hygiene ( advanced)	2	2
	278/1	178- environmental hygiene and pollution	2	2
	279/1	179- control of contagious diseases	2	2
	280/1	180- eradication of rodents and disease vector	2	2
	281/1	181- insecticides and public health	2	2
	282/1	182-hygiene of animal enclosures- specific courses in :- cattle houses – poultry houses – rabbit houses- pet animals house3s – experimental animals houses	2	2
	283/1	183-disinfections and disinfectants	2	2
	284/1	184- veterinary epidemiology – specific courses in animal environment	2	-
Zoonoses	285/1	185- advanced zoonoses ( specific courses in bacterial and Mycotic diseases – viral diseases – parasitic diseases)	2	2
	286/1	186- role of rodents in transmission of zoonoses	2	2
	287/1	187- role of wild animals in transmission of zoonoses	2	2
	288/1	188- role of birds (special courses in: poultry, wild migrating or pets) in transmission of zoonoses		
Genetics and genetic engineering	289/1	189- Genetics of microorganisms .	1	2
	290/1	190- Genetic engineering( advanced)	1	2
	291/1	191- Cytological genetics	1	-
	292/1	192- Genetics of genuses.	2	-
	293/1	193- physiological genetics	2	-
	294/1	194- Chemical and radiological genetics.	1	2
Animal production	295/1	195- Animal breeding and improvement (advanced).	2	-
	296/1	196- Poultry breeding and improvement(advanced).	2	-
	297/1	197- Cattle and buffalo production (advanced).	2	2
	298/1	198- Sheep and goat production (advanced).	2	2



	299/1	199- Poultry production (advanced).	2	2
	300/1	200-Rabbit production (advanced).	2	2
	301/1	201-Improving by artificial insemination in poultry and rabbits.	2	2
<b>Fish diseases and management</b>	302/1	202- Biology of fish.	2	2
	303/1	203-Fish diseases (advanced)	2	2
	304/1	204-Fish farms.	1	2
	305/1	205-Fish breeding .	2	2
<b>Economic and farms management</b>	306/1	206- economics of animals and dairy production	2	-
	307/1	207- economics of poultry farms	2	-
	308/1	208-economics of fish farms	2	-
	309/1	209- feasibility studies	2	-
	310/1	210- farm management	2	-
	311/1	211- economics of beef production	2	-
<b>Biostatistics</b>	312/1	212- Biostatistics (advanced)	2	-
	313/1	213- Experimental design	2	2
	314/1	214- Computer and data processing	2	1

#### 6-Teaching and Learning Methods:

*The program features a variety of teaching approaches for different intended learning objectives including:*

- Lectures to gain knowledge and understanding skills
- Writing a review paper to gain the skills of self-learning and presentation
- Practical and lab sessions to gain practical skills
- Seminars

#### 7- Students assessments:

The program depends on different assessment ways:

##### a. Course assessment:

1- Written examination	For assessment of knowledge, back calling and Intellectual skills
2- Practical examination	For assessment of practical and professional skill
3- Oral examination	For assessment of knowledge and Intellectual skills

##### b. Master Thesis

- Annual reports adopted by the Faculty





Faculty of Veterinary Medicine  
Key

- Finally, the assessment of thesis measure the individual student ability to work independently in the field specialization
- Final evaluation and approval by a judging committee of at least three professors including one or more of the supervisors and an external professor. This assesses the ability to write a review article, perform the needed practical steps and to present the results in tables and graphs. In addition, the skills of analysis of results and discussion with previous findings obtained by other authors are also assessed.

**Assessment of program intended learning outcomes**

Tool or method	ILOs
1- Written	a1,2; b1,2,3,5,6,7
2- Oral	a1,2,5; b2,3,4,6
3- Practical	b1,7; c1-5
4- Thesis	a2-7; b1-7, c1-6, d1-8

**8. Marking scale as follow:-**

<b>Excellent</b>	> 90
<b>Very good</b>	>80
<b>Good</b>	>70
<b>Pass</b>	>60
<b>Fail</b>	<b>Weak</b> 45 to less than 60
	<b>very weak</b> Less than 45

**9. Program evaluation methods**

Evaluator	Tool	Sample
Postgraduate Student	Questioners	<b>20%</b>
	Meeting	<b>1</b>
Postgraduate alumni	Questioners	<b>5</b>
	Meeting	<b>1</b>
Stakeholders (employers)	Questioners	<b>10</b>
	Meeting	<b>1</b>
External evaluator/External examiner	Reports	<b>1</b>

**10. Program Admission Requirements:**

The Applicant must normally satisfy the faculty of veterinary medicine- kafrelsheikh University general entrance and requirement. The normal minimum entrance qualification for registration at the faculty on a master’s program

- 1- Bachelor degree in Veterinary Medical Sciences of one of the Egyptian Universities or hold a degree in Veterinary Medical Sciences equivalent through the Supreme Council of



- Universities with general grade at least “Good” and at least grade “Very Good” in specialization.
- 2- Diploma of general grade at least “Good” and at least grade “Very Good” in specialization. The total number of study hours must be not less than 3 weekly in that specialization.
  - 3- After he has passed the courses studied during premaster he must perform a research work in a subject approved by the faculty council at least for one year. He must submit the results of this work in thesis that should be approved by the discussion committee.

#### 11. Regulations for progression of program

- a) Registration period for the M.V.Sc in veterinary medical science is at least 2 years after the approval date by the faculty council and it should not exceed a period of 4 years, an extension could be approved by the faculty council depending on the supervisor report that approved by the department council and postgraduate and research committee refers to the universities regulation law.
- b) The student should conduct the courses proposed by both department council and approved by postgraduate and research committee and faculty council and include, 2-5 courses of the postgraduate studies stated in article (28) in regulation law list and the student will entitled to apply for the exam only after meeting attendance rate for each courses.
- c) The student should pass written, practical and oral exams successfully in all courses, and the examinations is held two times annually.
- d) The Faculty council should deprive the student from entering the exam if his attendance rate in the course is less than 75%.
- e) Failure or depriving from entering one or more course did not require reexamination of successful passed courses.
- f) The applicant should conduct an innovate research on the subject that has been registered for at least 2 years from the date of registration approved by the faculty council. And the faculty council depending on a request from the supervisor has the right to authorize the student to do scientific experiments at recognized scientific institute.
- g) The applicant should submit the thesis that accepted by the judging committee in an open discussion and the following policies should be met:
- h) Pass all courses.
- i) The applicant should submit 4 copies of his thesis concerned department council to form committee examining the thesis to be presented to the postgraduate studies committee and the faculty council, and in case of thesis approval by the department council, the applicant will submit 6 copies for the faculty library, 1 copy for public university library before introducing the report of examination committee to the post graduate studies committee and the faculty council.
- j) Registration will be during March and September of each year.
- k) The applicant should submit a request enrolment for the dean who forwards bit to the concerned department council to determine the research subject and the study program and then take calendar after complete documentation on the faculty council for approval.
- l) The thesis title should be identified before being submitted at least 2 months and the judging committee has the right to amend the title without prejudice the subject of research.
- m) The Faculty council has the right to suspend the student enrolment for a certain period if he has acceptable excuse preventing him from continuing his study or research, and his period will not counted within the period stated in article 25.



- n) The applicant should submit 5 hard copies and 10 electronic copies (CDs) of the thesis after its validity approved by the judging committee and head of department to be distributed to the committee members and faculty library and the judging committee can decide the exchange of the thesis with other universities or printing at the expense of the university.

**12. Registration will be cancelled in one of the following cases:**

1. If the supervisor's report during the registration period is unsatisfactory (2 reports).
2. If he did not submit his thesis before the end of registration period.
3. If the judging committee rejected the thesis twice.

**13. Examination Regulations**

- a- Time of written exam: 3 hours for each course that has 3 hours or more for lecture / practical /week. **If has less than 3 hours/week, the time of exam, is 2 hours only.**
- b- The final degree of each course which has 3 hours (lecture and practical) per week is **100 and less than 3 hours is 50 degrees and divided into 50% for written exam, and 50% for practical and oral exam.**

**14. Program completion:**

- Successfully completion of the required courses and submission of a thesis.

**Program Co-ordinator**

Prof. Dr. Nader Yehia Moustafa

**Head of Department**

Prof. Dr. Nader Yehia Moustafa



## Matching program ILOs with ARS - Matrix

ARS																								Program ILOs
G.T. (d)								P.P. (c)			I.S. (b)							K&U (a)						
8	7	6	5	4	3	2	1	3	2	1	7	6	5	4	3	2	1	6	5	4	3	2	1	
																		6	5	4	3	2	1	K&U
											7	6	5	4	3	2	1							I.S.
																								P.P.
8	7	6	5	4	3	2	1																	G.T.

Faculty of Veterinary Medicine Assiut University





Kafrelsheikh University

Faculty of Veterinary Medicine



## ARS for Master in Veterinary Medical Sciences (Hygienic control of Meat and Meat products)

### 1) Graduate attributes

*The graduate should have the ability for:*

- 1) Perfect application of scientific research basics and methodologies in Meat Hygiene and control, and using its varied tools.
- 2) Application and use of analytical methods in detection of microorganisms and toxins and identification of food borne diseases.
- 3) Application of gained specialized knowledge and integrating them with the relevant knowledge in meat hygiene and control.
- 4) Awareness with ongoing problems and recent concepts in Meat Hygiene and Control.
- 5) Identification of food borne illness and suggesting suitable and economic methods of meat preservation and processing.
- 6) Mastering the proper scope of a rate specialized professional skills, and using appropriate technological means to serve the diagnosis of meat adulteration, microbial food poisoning, and chemical residues in meat.
- 7) Effective communication with students, colleagues and animal owners, and leading work team.
- 8) Decision making for suggesting the cause of food poisoning or deterioration.
- 9) Employ available resources efficiently including history, PM lesions and laboratory findings.
- 10) Awareness with his role in society development and preservation of a clean environment.
- 11) Reflection of the commitment to act with integrity, credibility and the rules of profession.
- 12) Academic and professional self- development and ability for life-long learning and progress by studying new cases.



## A) Knowledge and understanding

Adopted ARS		NARS (Master)
	<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Concepts and basics in the field of Meat Hygiene and Control and related fields.	Theories and principles in the field of specialization and related fields.
2)	The effect of production of safe meat and its products and prevention of food poisoning on animal and human health.	Mutual effect between professional practice and its impact on environment
3)	Scientific progress in production, processing and analysis of meat and its products.	Scientific progress in the field of specialization
4)	The legal and ethical basics in examination of meat and its products.	Legal and ethical basics in professional practice in the field of specialization
5)	Health and safety risk assessments for the Food Hygiene on world standard	Principles and basics of quality assurance in the area of specialization
6)	Basics and ethics of scientific research in the field of Meat Hygiene and Control	Basics and ethics of scientific research

## B) Intellectual skills

Adopted ARS		NARS (Master)
	<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Analysis and judgment of the information in meat microbiology and technology and analog to solve problems.	Analysis and judgment of information in the field of specialization and analog to solve problems.
2)	Finding clues for manufacturing and microbiological problems in even in scarcity of resources.	Solving professional problems even in scarcity of data.
3)	Relating between different knowledge to solve professional problems.	Relating between different knowledge to solve professional problems.
4)	Preparing research plan in and/ or write scientific article on a research problem in meat hygiene and control.	Preparing research plan in specialization and/ or writing scientific article on a research problem.
5)	Assessment of risks of professional practices in the area of meat industry.	Risk-assessment of professional practices in specialization.
6)	Plan for improvement of professional performance.	Planning for improvement of professional performance.



7)	Using appropriate intellectual strategy to deal with laboratory diagnostic problems.	Taking professional decisions in a variety of professional contexts.
----	--	--

### C) Professional and practical skills

Adopted ARS		NARS (Master)
	<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Mastering basic and recent professional skills in the laboratory of meat hygiene and control of meat byproducts	Mastering basic and recent professional skills in the field of specialization
2)	summarizing results in a conclusive report	Writing and evaluating professional reports.
3)	Planning a research project in the field of hygiene and control of meat and its products with a consideration to the technical, ethical and safety issues and associated costs.	Evaluating existing materials and methods in the area of specialization.

### D) General and transferable skill

Adopted ARS		NARS (Master)
	<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Communicating effectively with teaching staff, colleagues and the community.	Effective communication.
2)	Using information technology in scientific research and publications.	Utilizing information technology to serve development of professional practice.
3)	Demonstrating appropriate attitude towards teaching staff and colleagues.	Self-assessment and determination of personal educational needs.
4)	Identifying and use different sources of information and knowledge.	Using different resources to obtain knowledge and information.
5)	Using appropriate attitude and rules towards teaching staff and colleagues and use evidence based evaluations.	Establishing rules and indicators for assessment of the performance of others.
6)	Respecting the importance of team work.	Team working and leading a team in familiar professional contexts.
7)	Doing good control of timing.	Efficient time management.
8)	Performing continuous self-learning.	Self and continuous learning.



## ثانياً: برامج الماجستير

### ١ - مواصفات الخريج

- خريج برنامج الماجستير في أي تخصص يجب أن يكون قادراً على:
١. إجادة تطبيق أساسيات و منهجيات البحث العلمي واستخدام أدواته المختلفة
  ٢. تطبيق المنهج التحليلي واستخدامه في مجال التخصص
  ٣. تطبيق المعارف المتخصصة و دمجها مع المعارف ذات العلاقة في ممارسته المهنية
  ٤. إظهار وعيا بالمشاكل الجارية و الرؤى الحديثة في مجال التخصص
  ٥. تحديد المشكلات المهنية و إيجاد حلول لها
  ٦. إتقان نطاق مناسب من المهارات المهنية المتخصصة، واستخدام الوسائل التكنولوجية المناسبة بما يخدم ممارسته المهنية
  ٧. التواصل بفاعلية و القدرة على قيادة فرق العمل
  ٨. اتخاذ القرار في سياقات مهنية مختلفة
  ٩. توظيف الموارد المتاحة بما يحقق أعلى استفادة و الحفاظ عليها
  ١٠. إظهار الوعي بدوره في تنمية المجتمع و الحفاظ على البيئة في ضوء المتغيرات العالمية و الإقليمية
  ١١. التصرف بما يعكس الالتزام بالنزاهة و المصداقية و الالتزام بقواعد المهنة
  ١٢. تنمية ذاته أكاديمياً و مهنياً و قادراً على التعلم المستمر

### ١٢ - المعايير القياسية العامة

#### ١ المعرفة و الفهم

- بانتهاج دراسة برنامج الماجستير يجب ان يكون الخريج على فهم و دراية بكل من:
- أ- النظريات و الأساسيات المتعلقة بمجال التعلم وكذا في المجالات ذات العلاقة
  - ب- التأثير المتبادل بين الممارسة المهنية وانعكاسها على البيئة
  - ت- التطورات العلمية في مجال التخصص
  - ث- المبادئ الأخلاقية و القانونية للممارسة المهنية في مجال التخصص
  - ج- مبادئ و أساسيات الجودة في الممارسة المهنية في مجال التخصص
  - ح- أساسيات و أخلاقيات البحث العلمي

#### ٢ المهارات الذهنية

- بانتهاج دراسة برنامج الماجستير يجب ان يكون الخريج قادراً على:
- أ- تحليل و تقييم المعلومات في مجال التخصص و القياس عليها لحل المشاكل

- ب- حل المشاكل المتخصصة مع عدم توافر بعض المعطيات  
ت- الربط بين المعارف المختلفة لحل المشاكل المهنية  
ث- إجراء دراسة بحثية و /أو كتابة دراسة علمية منهجية حول مشكلة بحثية  
ج- تقييم المخاطر في الممارسات المهنية في مجال التخصص  
ح- التخطيط لتطوير الأداء في مجال التخصص  
خ- اتخاذ القرارات المهنية في سياقات مهنية متنوعة

### ٣ المهارات المهنية

بانتهاء دراسة برنامج الماجستير يجب ان يكون الخريج قادرا على:  
أ- إتقان المهارات المهنية الأساسية و الحديثة في مجال التخصص

ب- كتابة و تقييم التقارير المهنية

ت- تقييم الطرق و الأدوات القائمة في مجال التخصص

### ٤ المهارات العامة و المنتقلة

بانتهاء دراسة برنامج الماجستير يجب أن يكون الخريج قادرا على:  
أ- التواصل الفعال بأنواعه المختلفة

ب- استخدام تكنولوجيا المعلومات بما يخدم الممارسة المهنية

ت- التقييم الذاتي وتحديد احتياجاته التعليمية الشخصية

ث- استخدام المصادر المختلفة للحصول على المعلومات و المعارف

ج- وضع قواعد و مؤشرات تقييم أداء الآخرين

ح- العمل في فريق ، وقيادة فرق في سياقات مهنية مختلفة

خ- إدارة الوقت بكفاءة

د- التعلم الذاتي و المستمر



## Course specification (2021 / 2022)

### 1 - Basic Information

Code number: Basic

Course title: Hygienic control of meat and meat products.

Academic Year: Master of Veterinary Medicine Program

Total teaching hours: 336 hrs.

Lectures: 144 hrs. (48 weeks- 3hrs/week)

Practical: 192 hrs. (48 weeks- 4hrs/week)

### 2 - OVERALL AIMS OF THE COURSE:

The aim of the course is to provide the students with the basic knowledge of hygienic production of meat and meat products and to gain the skills to analyze meat samples and meat products and to write a report about the suitability of each sample for human consumption.

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- a1 List the benefits of meat science study
- a2 Recognize on the basis of high quality meat production.
- a3 Define the sanitary condition of meat and poultry carcass
- a4 Describe meat composition (animals, poultry and fish) and discuss factors affecting it.
- a5 Summarize the nutritive values of meat.
- a6 Explain the normal state of meat and interpret the abnormal cases.
- a7 Illustrate meat and fish spoilage and food poisoning
- a8 Identify the dangerous residues in meat.
- a9 Summarize the international organizations dealing with food, and laws and ethical codes relevant to meat.
- a10 Mention the hygienic measures during manufacturing of meat products.

#### 3-B: INTELLECTUAL SKILLS:

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

- b1 assess the quality of meat at abattoirs.
- b2 Evaluate the quality of meat products at the processing plants and markets.
- b3 Design and organize the appropriate quantitative and qualitative methodologies.
- b4 Summarize the important problem from case interaction, utilizing available.

#### 3-C: PRACTICAL AND PROFESSIONAL SKILLS:

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

- b1 Prepare, preserve and transport samples to the laboratory for examination.
- b2 Examine meat samples ( chemically, microbiologically and for residue ).
- b3 Sketch the methods to minimize the risks of contamination and cross infection.
- b4 Differentiate meat of different animal.
- b5 Apply the HACCP system at the abattoirs, Processing plants and methods to confirm its correct application

#### 3-D: GENERAL SKILLS:

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



Faculty of Veterinary

- d.1 Draw the way by which he should be able to work effectively as a member of a team in the delivery of services to community.
- d.2 Prioritize effective communication with the public, colleagues and appropriate authorities.
- d.3 Organize communicating skills, have access to the internet and retrieve information.
- d.4 Write reports in a form that is satisfactory and understandable.
- d.5 Apply primary research techniques and critical evaluation.

**4 - COURSE CONTENTS:**

TOPIC	Total hours	Hours for lecture	Hours for practical
Introduction of meat hygiene.	6	6	-
Meat composition.	28	10	18
Keeping quality of meat	34	12	22
Factors affecting meat composition	34	14	20
Nutritive values of meat	24	10	14
Hygienic handling of meat(application of HACCP system from animal until reach to slaughter plant).	28	14	14
meat spoilage	30	12	18
Abnormal meat	27	10	19
Basis for hygienic production of meat	27	10	19
knowledge about the international organizations dealing with food, and laws and ethical codes relevant to meat	26	12	-
Knowledge about meat -borne pathogens ( Epidemic, Zoonotic diseases and isolation of causative agents) and spoilage organisms.	30	14	16
Sanitary condition of meat carcass	26	10	16
Hygienic measures during production of meat products	26	10	16
Total	336	144	192

**5- TEACHING & LEARNING METHODS:**

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard



Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library

Making individual reports

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
1- advanced lectures*	a1 to a10	b1, b2		D4
2- Practical sessions		b1 –b2,b3	c1 to c5	d1,d2,d4, d5
3- Self learning				d3
4- Distance Teaching and Learning	a1 to a10	b1 to b4	c1 to c5	d1 to d5

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	At the end of the academic year
<b>7.c grads</b>	50	20	20	10

7. Student Assessment				
Intended Learning Outcomes Covered				
7.1. Methods	KU	IS	PPS	GTS
Written exams	a1 to a10	b1 to b5		d4
Practical exams		b1 to b5	c1 to c3	d1,d2, d4,d5
Oral exams	a1 to a10			d2
Student activities				d1. d2.d3,d5

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Essential Books

8.2.a- Brown, M. (2000). HACCP in the meat industry: Elsevier.

8.2.b - Hui, Y. H., Nip, W.-K. and Rogers, R. (2001). Meat science and applications: CRC Press.

8.2.c Handbook of Meat and Meat Processing, Second Edition: Editors: Y. H. Hui Year: 2012

8.2.d Meat biotechnology: Editors: Toldrá, F : Springer Science & Business Media Year: 2012



8.2.e- Meat science: Cabl., Editors: Warriss, P. D. Year: 2001

8.2.f- Handbook of Meat, Poultry and Seafood Quality: Editors: Leo M. L. Nollet Year: 2012

8.2.g- Lawrie's meat science, Seventh Edition (Woodhead Publishing in Food Science, Technology and Nutrition): Editors: R.A. Lawrie year: 2006

### **8-2: Recmended books:**

8.2.a- Hui, Y., Astiasarán, I., Sebranek, J., Talon, R. and Toldrá, F. (2014). Handbook of fermented meat and poultry: John Wiley & Sons

8.2.b- Nollet, L. M. and Toldra, F. (2015). Handbook of Food Analysis, -Two Volume Set: CRC Press.

### **8-3: Egyptian Knowledge Bank:**

- 8.3.a - Meat Inspection and Control in the Slaughterhouse: Original publisher: Wiley, Editors: Thimjos Ninios JanneLundén HannuKorkeala Maria Fredriksson-Ahoomaa, Year: 2015
- 8.3.b - The science of meat quality: Original publisher: Wiley, Editors: Chris R. Kerth, Year: 2013

### **Scientific Journals**

- Journal of dairy science.
- Journal of Animal Science
- Journal of food protection.
- Food and drug analysis journal.
- Journal of Meat science.

### **Scientific websites**

- The Egyptian Knowledge Bank: <https://www.ekb.eg/web/guest/home>
- FAO: <https://www.fao.org/home/en>
- Codex- alimentarius: <https://www.fao.org/fao-who-codexalimentarius/en/>

**Course Coordinator:**

**Prof. Dr. Nader Yehia Moustafa**

**Head of Department:**

**Prof. Dr. Nader Yehia Moustafa**



Faculty of Veterinary Medicine Assiut

**Course Matrix for achievement of Intended Learning Outcomes**

	Topics	Hours	Knowledge & Understanding										Intellectual Skills				Practical & Professional Skills					General & Transferable Skills					
			1	2	3	4	5	6	7	8	9	10	1	2	3	4	1	2	3	4	5	1	2	3	4	5	
1	Introduction of meat hygiene.	6	X	x		x	X		x					x			x			x	x	x	x	x	x	x	x
2	Meat composition.	28	X			x	X			x	x				x	x		x	x				x	x	x	x	x
3	Keeping quality of meat	34		x	x	x	X	x	x	x	x	x	x	x	x	x	x		x		x	x	x	x	x	x	x
4	Factors affecting meat composition	34		x	x	x	X	x	x	x	x	x			x	x		x	x		x	x	x	x	x	x	x
5	Nutritive values of meat	24	x	x	x	x	X	x	x	x	x			x			x		x	x	x	x	x	x	x	x	x
6	Hygienic handling of meat(application of HACCP system from animal until reach to slaughter plant)	28		x	x							x		x			x	x	x	x		x	x	x	x	x	x
7	meat spoilage	30		x	x			x	x			x	x	x	x	x	x	x	x		x	x	x	x	x	x	x
8	Abnormal meat	27		x	x			x	x			x	x	x	x	x	x	x	x		x	x	x	x	x	x	x
9	Basis for hygienic production of meat	27		x	x	x						x	x	x	x	x	x	x	x		x	x	x	x	x	x	x
10	knowledge about the international organizations dealing with food, and laws and ethical codes relevant to meat	26										x	x												x	x	x
11	Knowledge about meat-borne pathogens ( Epidemic, Zoonotic diseases and isolation of causative agents) and spoilage organisms.	30					x	x	x			x		x	x	x	x	x	x		x	x	x	x	x	x	x
12	Sanitary condition of meat carcass	26			x		x	x	x	x		x	x		x	x	x	x		x	x	x	x	x	x	x	x
13	Hygienic measures during production of meat products	26			x	X	x	x	x	x	x	x			x	x	x	x	x		x	x	x	x	x	x	x



Faculty of Veterinary Medicine Kafu

## Course specification (2021 / 2022)

### 1 - Basic Information

Code number: 215 (1)  
 Course title: Slaughter Animal hygiene.  
 Academic Year: Master of Veterinary Medicine Program  
 Total teaching hours: 144 hrs.  
 Lectures: 48 hrs. (48 weeks- 1hr/week)  
 Practical: 96 hrs. (48 weeks- 2hrs/week)

### 2 - OVERALL AIMS OF THE COURSE:

To provide student with basic knowledge and skills concerning of Slaughter animal hygiene and to gain the skills to improve animal health and control diseases

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- a1 Describe the main and accessory compartments of abattoir.
- a2 Distinguish between the different methods for slaughter.
- a3 Explain the sanitary condition of meat and poultry carcass
- a4 Summarize the Sources of Slaughter animal diseases
- a5 Illustrate bacterial, viral, mycotic and parasitic diseases transmitted throughout meat.
- a6 Identify the harmful residues in meat.

#### 3-B: INTELLECTUAL SKILLS:

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

- b1 judge on the quality of meat at abattoirs.
- b2 Summarize the role of Slaughter animal diseases
- b3 Design the appropriate quantitative and qualitative methodologies for diagnosis.
- b4 Weigh the important problem of Slaughter animal

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

- c1 Diagnose, control and prevent Slaughter animal diseases
- c2 Sort food implicated, prepare, preserve and transport samples to the laboratory for examination.
- c3 Examine and judge samples from slaughter animal diseases
- c4 Apply the HACCP system at the abattoirs, and methods to confirm its correct application

#### 3- D: GENERAL SKILLS:

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

- d1 Show how to work effectively as a member of a team in the delivery of services to community.
- d2 Support effective communication with the public, colleagues and appropriate authorities.
- d3 Apply communicating skills, have access to the internet and retrieve information
- d4 Write reports in a form that is satisfactory and understandable.
- d5 point out primary research techniques and critical evaluation.

### 4 - COURSE CONTENTS:

TOPIC	Total hours	Hours for lecture	Hours for practical
Aim and introduction	2	2	-





Kafu



Sources of Slaughter animal diseases	4	4	-
Bacterial diseases transmitted through meat	32	10	22
viral diseases transmitted through meat	22	6	16
Mycotic diseases transmitted through meat	20	6	14
Parasitic diseases transmitted through meat	32	12	20
Harmful residues in meat	12	4	8
Enhancing the hygienic levels of Slaughter animal	10	2	8
Food safety	10	2	8
Total	144	48	96

### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library Making individual reports

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
1- advanced lectures*	a1 to a6	b1, b2		D4
2- Practical sessions	a5, a6	b1, b3, .b4	c1 to c4	d4, .d5
3- Self learning				d3
4- Distance Teaching and Learning	a1 to a6	b1 to b4	c1 to c4	d1 to d5

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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 the academic year	At the end of the academic year	At the end of the academic year	At the end of the academic year
7.c grads	50	20	20	10
7.1. Methods	7. Student Assessment			



	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	b1 to b4			D5
Practical exams			c1 to c3	D1,d2, d4,d5
Oral exams	b1 to b4			d2
Student activities	b3, b4			d1 to d5

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Essential Books

- 8.2.a- Brown, M. (2000). HACCP in the meat industry: Elsevier.
- 8.2.b - Hui, Y. H., Nip, W.-K. and Rogers, R. (2001). Meat science and applications: CRC Press.
- 8.2.c Handbook of Meat and Meat Processing, Second Edition: Editors: Y. H. Hui Year: 2012
- 8.2.d Meat biotechnology: Editors: Toldrá, F : Springer Science & Business Media Year: 2012
- 8.2.e- Meat science: Cabi., Editors: Warriss, P. D. Year: 2001
- 8.2.f- Handbook of Meat, Poultry and Seafood Quality: Editors: Leo M. L. Nollet Year: 2012
- 8.2.g- Lawrie's meat science, Seventh Edition (Woodhead Publishing in Food Science, Technology and Nutrition): Editors: F.A. Lawrie year: 2006

### 8-2: Recommended books:

- 8.2.a- Hui, Y., Astiasaran, J., Sebranek, J., Talon, R. and Toldrá, F. (2014). Handbook of fermented meat and poultry: John Wiley & Sons.
- 8.2.b- Nollet, L. M. and Toldra, F. (2015). Handbook of Food Analysis, -Two Volume Set: CRC Press.

### 8-3: Egyptian Knowledge Bank:

- 8.3.a - Meat Inspection and Control in the Slaughterhouse: Original publisher: Wiley, Editors: Thimjos Niniós JanneLundén HannuKorkeala Maria Fredriksson-Ahomaa, Year: 2015
- 8.3.b - The science of meat quality: Original publisher: Wiley, Editors: Chris R. Kerth, Year: 2013

### Scientific Journals

- Journal of dairy science.
- Journal of Animal Science.
- Journal of food protection.
- Food and drug analysis journal.
- Journal of Meat science.

### Scientific websites

- The Egyptian Knowledge Bank: <https://www.ekb.eg/web/guest/home>
- FAO: <https://www.fao.org/home/en>
- Codex- alimentarius: <https://www.fao.org/fao-who-codexalimentarius/en/>

Course Coordinator:

Prof. Dr. Nader Yehia Moustafa

Head of Department:

Prof. Dr.Nader Yehia Moustafa



### Course Matrix for achievement of Intended Learning Outcomes

	Topics	Hours	Knowledge & Understanding						Intellectual Skills				Practical & Professional Skills				General & Transferable Skills					
			1	2	3	4	5	6	1	2	3	4	1	2	3	4	1	2	3	4	5	
1	Aim and introduction	2	x	X								x			x			x	x	x	x	x
2	Sources of Slaughter animal diseases	4				x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x
3	Bacterial diseases transmitted through meat	32			x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x
4	viral diseases transmitted through meat	22			x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x
5	Mycotic diseases transmitted through meat	20			x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x
6	Parasitic diseases transmitted through meat	32			x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x
7	Harmful residues in meat	12						x			x	x		x	x		x	x	x	x	x	x
8	Enhancing the hygienic levels of Slaughter animal	10	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x
9	Food safety	10	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

Faculty of Veterinary Medicine Assiut University



Kafu  
Faculty  
of  
Veterinary  
Medicine

## Course specification (2021 / 2022)

### 1 - Basic Information

Code number: 216 (1)

Course title: Hygiene and management of abattoirs

Academic Year: Master of Veterinary Medicine Program

Total teaching hours: 192 hrs

Lectures: 96(48 weeks- 2hrs/week)

Practical: 96(48 weeks- 2hrs/week)

### 2 - OVERALL AIMS OF THE COURSE:

To provide student with basic knowledge and skills concerning about construction of abattoirs and gain the skills about the methods of enhancing its level microbiologically and to write a report about the suitability of each abattoir for meat production .

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- a1 List the general requirements for establishment of abattoirs
- a2 Mention the types of abattoirs
- a3 show the main compartments of abattoirs
- a4 outline the methods of enhancing hygienic level of abattoirs
- a5 Describe the methods of hygienic slaughtering
- a6 Summarize the methods for meat inspection
- a7 Discuss slaughtering in non-Islamic countries
- a8 Memorize the pre abattoir handling of animals
- a9 Explain pre slaughter handling of animals
- a10 apply HACCP system in abattoirs

#### 3-B: INTELLECTUAL SKILLS:

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

- b1 Point out the important problem from case interaction, utilizing available.
- b2 Compare the appropriate quantitative and qualitative methodologies.
- b3 Evaluate the HACCP system at the meat and fish plants and methods to confirm its correct application
- b4 Sketch the important problem from case interaction, utilizing available.

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

- c1 Prepare, preserve and transport samples to the laboratory for examination.
- c2 Minimize the risks of contamination and cross infection.
- c3 Examine and judge meat and fish samples and their products microbiologically and apply the sensitivity test to the isolated organisms.

#### 3- D: GENERAL SKILLS:

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

- d1 Show how to work effectively as a member of a team in the delivery of services to community.
- d2 Support effective communication with the public, colleagues and appropriate authorities.
- d3 Apply communicating skills, have access to the internet and retrieve information
- d4 Write reports in a form that is satisfactory and understandable.



d5 point out primary research techniques and critical evaluation.

#### 4 - COURSE CONTENTS:

TOPIC	Total hours	Hours for lecture	Hours for practical
General requirements for establishment of abattoirs	16	8	8
Types of abattoirs	24	12	12
Main compartments of abattoirs	20	10	10
Methods of enhancing hygienic level of abattoirs	24	12	12
Methods of hygienic slaughtering	24	12	12
Correct methods for meat inspection	20	10	10
slaughtering in non Islamic countries	12	6	6
pre abattoir handling of animals	20	10	10
pre slaughter handling of animals	12	6	6
application of HACCP system in abattoirs	20	10	10
Total	192	96	96

#### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library Making individual reports

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
1- advanced lectures*	a1 to a10	b1, b2, b3		d4
2- Practical sessions		b1 –b2,b3	c1 to c3	d1,d2,d4, d5
3- Self learning				d3
4- Distance Teaching and Learning	a1 to a10	b1 to b4	c1 to c3	d1 to d5



\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:-**

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	At the end of the academic year
<b>7.c grads</b>	30	20	20	10

7. Student Assessment				
Intended Learning Outcomes Covered				
7.1. Methods	KU	IS	PPS	GTS
Written exams	a1 to a10	b1, b2		
Practical exams		b3	c1, c2, c3	
Oral exams	a1 to a10			D4
Student activities		b2		d1. d2.d3,d4, d5

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

**8. LEARNING AND REFERENCE MATERIALS:**

**8-1: Essential Books**

- 8.2.a- Brown, M. (2000). HACCP in the meat industry: Elsevier.
- 8.2.b - Hui, Y. H., Nip, W.-K. and Rogers, R. (2001). Meat science and applications: CRC Press.
- 8.2.c Handbook of Meat and Meat Processing, Second Edition: Editors: Y. H. Hui Year: 2012
- 8.2.d Meat biotechnology: Editors: Toldrá, F : Springer Science & Business Media Year: 2012
- 8.2.e- Meat science: Cabi., Editors: Warriss, P. D. Year: 2001
- 8.2.f- Handbook of Meat, Poultry and Seafood Quality: Editors: Leo M. L. Nollet Year: 2012
- 8.2.g- Lawrie's meat science, Seventh Edition (Woodhead Publishing in Food Science, Technology and Nutrition): Editors: R.A. Lawrie year: 2006

**8-2: Recmended books:**

- 8.2.a- Hui, Y., Astiasaran, I., Sebranek, J., Talon, R. and Toldrá, F. (2014). Handbook of fermented meat and poultry: John Wiley & Sons.
- 8.2.b- Nollet, L. M. and Toldra, F. (2015). Handbook of Food Analysis, -Two Volume Set: CRC Press.

**8-3: Egyptian Knowledge Bank:**

- 8.3.a - Meat Inspection and Control in the Slaughterhouse: Original publisher: Wiley, Editors: Thimjos Ninios JanneLundén HannuKorkeala Maria Fredriksson-Ahoomaa, Year: 2015
- 8.3.b - The science of meat quality: Original publisher: Wiley, Editors: Chris R. Kerth, Year: 2013

**Scientific Journals**

- Journal of dairy science.



- Journal of Animal Science.
- Journal of food protection.
- Food and drug analysis journal.
- Journal of Meat science.

#### Scientific websites

- The Egyptian Knowledge Bank: <https://www.ekb.eg/web/guest/home>
- FAO: <https://www.fao.org/home/en>
- Codex- alimentarius: <https://www.fao.org/fao-who-codexalimentarius/en/>

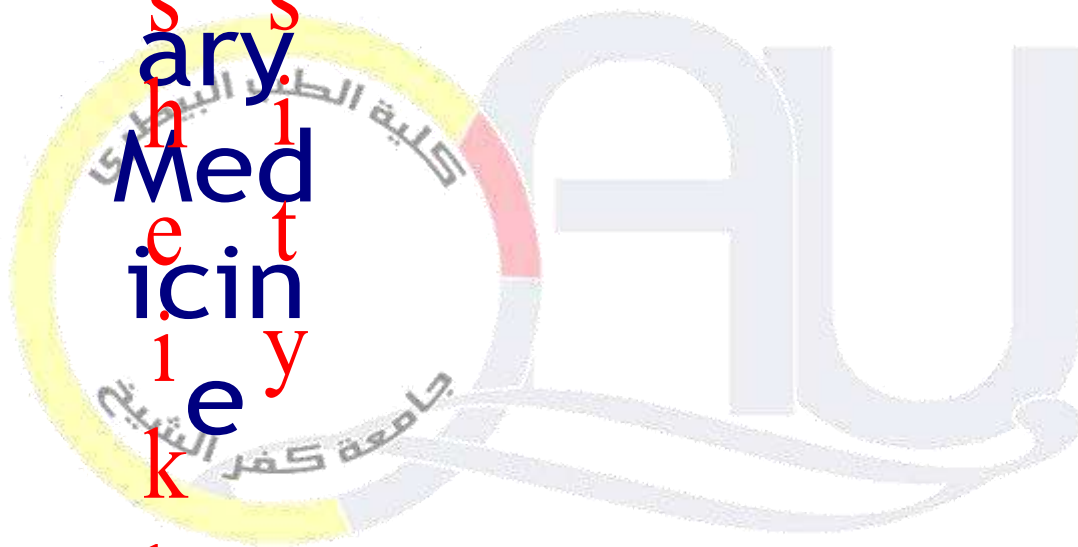
**Course Coordinator:**

Prof. Dr. Nader Yehia Moustafa

**Head of Department:**

Prof. Dr. Nader Yehia Moustafa

Faculty of Veterinary Medicine  
Assiut University





Faculty of Veterinary Medicine, Kafu University

### Course Matrix for achievement of Intended Learning Outcomes

Topics	Hours	Knowledge & Understanding										Intellectual Skills				Practical & Professional Skills			General & Transferable Skills				
		1	2	3	4	5	6	7	8	9	10	1	2	3	4	1	2	3	1	2	3	4	5
1 General requirements for establishment of abattoirs	16	x										x				x			x	X		x	
2 Types of abattoirs	24	x	x									x	x	x	x	x	x	x	x	X	x	x	x
3 Main compartments of abattoirs	20		x	x								x	x	x	x	x	x	x	x	X	x	x	x
4 Methods of enhancing hygienic level of abattoirs	24	x	x		x							x	x	x	x	x	x	x	x	X	x	x	x
5 Methods of hygienic slaughtering	24		x		X	x						x	x	x	x	x	x	x	x	X	x	x	x
6 Correct methods for meat inspection	20		x	x	X	x	x					x	x	x	x	x	x	x	x	X	x	x	x
7 slaughtering in non-Islamic countries	12		x	x			x	x					x	x	x	x			x	X	x	x	x
8 pre abattoir handling of animals	20		x	x			x	x	x			x	x	x	x	x	x	x	x	X	x	x	x
9 pre slaughter handling of animals	12	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	X	x	x	x
10 application of HACCP system in abattoirs	20		x			x	x					x	x	x	x	x	x	x	x	X	x	x	x





Kafu  
Faculty  
of  
Veterinary  
Medicine

## Course specification (2021 / 2022)

### 1 - Basic Information

Code number: 217 (1)

Course title: Hygienic control of meat and meat products (advanced)

Academic Year: Master of Veterinary Medicine Program

Total teaching hours: 192 hrs

Lectures: 96 (48 weeks- 2hrs/week)

Practical: 96(48 weeks- 2hrs/week)

### 2 - OVERALL AIMS OF THE COURSE:

To provide student with basic knowledge and skills concerning of of hygienic production of meat and meat products and to gain the skills to analyze meat samples and meat products and to write a report about the suitability of each sample for human consumption.

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- a1 State about meat hygiene.
- a2 Recognize meat composition.
- a3 Define and discuss the keeping quality of meat
- a4 List the Factors affecting meat composition
- a5 Identify Nutritive values of meat
- a6 Illustrate Hygienic handling of meat ( application of HACCP system from animal until reach to slaughter plant
- a7 Explain meat spoilage
- a8 Describe and interpret the Abnormal meat
- a9 Memorize the Basis for hygienic production of meat
- a10 Show The international organizations dealing with food, and laws and ethical codes relevant to meat

#### 3-B: INTELLECTUAL SKILLS:

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

- b1 Summarize the important problem from case interaction, utilizing available.
- b2 Design and evaluate appropriate quantitative and qualitative methodologies.
- b3 Develop the HACCP system at the meat plants and methods to confirm its correct application

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

- c1 Prepare, preserve and transport samples to the laboratory for examination.
- c2 minimize the risks of contamination and cross infection.
- c3 Examine and judge meat samples and meat products (physically, chemically, microbiologically and for residue).

#### 3- D: GENERAL SKILLS:

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

- d1 Show how to work effectively as a member of a team in the delivery of services to community.
- d2 Support effective communication with the public, colleagues and appropriate authorities.
- d3 Apply communicating skills, have access to the internet and retrieve information



Kafu  
Faculty

d4 Write reports in a form that is satisfactory and understandable.

d5 point out primary research techniques and critical evaluation.

#### 4 - COURSE CONTENTS:

TOPIC	Total hours	Hours for lecture	Hours for practical
Introduction of meat hygiene.	8	8	-
meat composition.	18	10	8
Keeping quality of meat	24	8	16
Factors affecting meat composition	8	8	-
Nutritive values of meat	8	8	-
Hygienic handling of meat ( application of HACCP system from animal until reach to slaughter plant).	34	14	20
meat spoilage	26	8	18
Abnormal meat	25	8	17
Basis for hygienic production of meat	33	18	15
knowledge about the international organizations dealing with food, and laws and ethical codes relevant to meat	8	6	2
<b>Total</b>	<b>192</b>	<b>96</b>	<b>96</b>

#### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library  
Making individual reports

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
1- advanced lectures*	a1 to a10	b1, b2,b3		D4
2- Practical sessions		b1 –b2,b3	c1 to c3	d1,d2,d4, d5



3- Self learning				d3
4- Distance Teaching and Learning	a1 to a10	b1 to b3	c1 to c3	d1 to d5

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	At the end of the academic year
<b>7.c grads</b>	50	20	20	10

7. Student Assessment				
Intended Learning Outcomes Covered				
7.1. Methods	KU	IS	PPS	GTS
Written exams	a1 to a10	b1,b2		
Practical exams		b3	c1 to c3	
Oral exams	a1 to a10	b1,b2,b3		d4
Student activities		b2		d1. d2.d3,d4,d5

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

### 8. LEARNING AND REFERENCE MATERIALS:

#### 8-1: Essential Books

- 8.2.a- Brown, M. (2000). HACCP in the meat industry: Elsevier.
- 8.2.b - Hui, Y. H., Nip, W.-K. and Rogers, R. (2001). Meat science and applications: CRC Press.
- 8.2.c Handbook of Meat and Meat Processing, Second Edition: Editors: Y. H. Hui Year: 2012
- 8.2.d Meat biotechnology: Editors: Toldrá, F : Springer Science & Business Media Year: 2012
- 8.2.e- Meat science: Cabi., Editors: Warriss, P. D. Year: 2001
- 8.2.f- Handbook of Meat, Poultry and Seafood Quality: Editors: Leo M. L. Nollet Year: 2012
- 8.2.g- Lawrie's meat science, Seventh Edition (Woodhead Publishing in Food Science, Technology and Nutrition): Editors: R.A. Lawrie year: 2006

#### 8-2: Recmended books:

- 8.2.a- Hui, Y., Astiasaran, I., Sebranek, J., Talon, R. and Toldrá, F. (2014). Handbook of fermented meat and poultry: John Wiley & Sons.
- 8.2.b- Nollet, L. M. and Toldra, F. (2015). Handbook of Food Analysis, -Two Volume Set: CRC Press.

#### 8-3: Egyptian Knowledge Bank:

- 8.3.a - Meat Inspection and Control in the Slaughterhouse: Original publisher: Wiley, Editors: Thimjos Ninios JanneLundén HannuKorkeala Maria Fredriksson-Ahomaa, Year: 2015



- 8.3.b - The science of meat quality: Original publisher: Wiley, Editors: Chris R. Kerth, Year: 2013

#### Scientific Journals

- Journal of dairy science.
- Journal of Animal Science.
- Journal of food protection.
- Food and drug analysis journal.
- Journal of Meat science.

#### Scientific websites

- The Egyptian Knowledge Bank: <https://www.ekb.eg/web/guest/home>
- FAO: <https://www.fao.org/home/en>
- Codex- alimentarius: <https://www.fao.org/fao-who-codexalimentarius/en/>

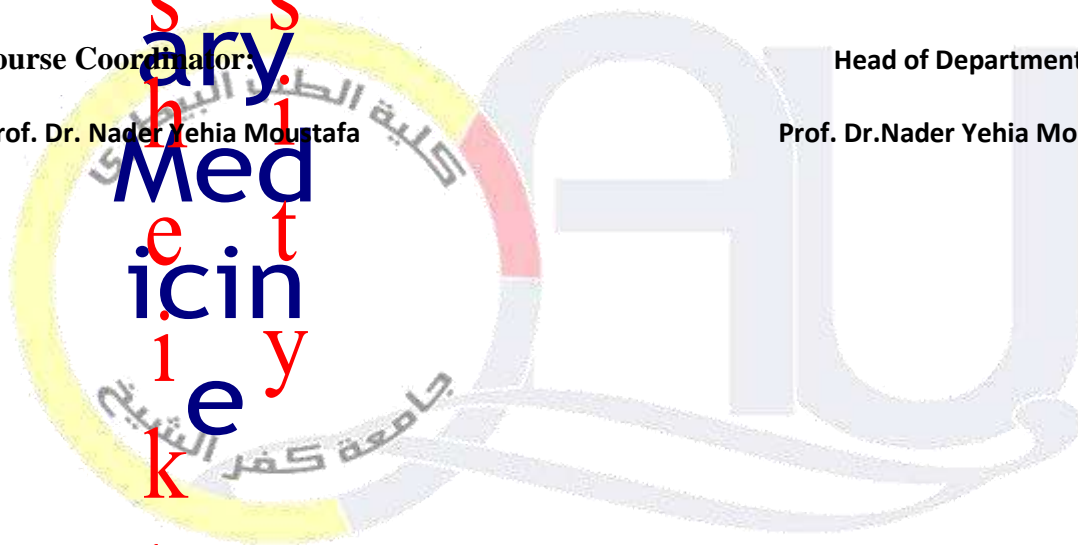
Course Coordinator:

Prof. Dr. Nader Yehia Moustafa

Head of Department:

Prof. Dr. Nader Yehia Moustafa

Faculty  
of  
Veterinary  
Medicine  
Assiut  
University





### Course Matrix for achievement of Intended Learning Outcomes

Topics	Hours	Knowledge & Understanding										Intellectual Skills				Practical & Professional Skills			General & Transferable Skills					
		1	2	3	4	5	6	7	8	9	10	1	2	3	4	1	2	3	1	2	3	4	5	
1 Introduction of meat hygiene.	8	x										x							x	X		x		
2 meat composition.	18	x	x									x	x	x	x	X	x	x	x	X	x	x	x	x
3 Keeping quality of meat	24		x	x								x	x	x	x	X	x	x	x	X	x	x	x	x
4 Factors affecting meat composition	8	x	x		x							x	x	x	x	X	x	x	x	X	x	x	x	x
5 Nutritive values of meat	8		x		X	x						x	x	x	x				x	X	x	x	x	x
6 Hygienic handling of meat ( application of HACCP system from animal until reach to slaughter plant)	34		x	x	X	x	x					x	x	x	x	X	x	x	x	X		x	x	x
7 meat spoilage	26		x	x			x	x					x	x	x	x			x	X		x	x	x
8 Abnormal meat	25		x	x			x	x	x			x	x	x	x	x	x	x	x	X	x	x	x	x
9 Basis for hygienic production of meat	33	x	x	x	X	x	x	x	x	x	x	x	x	x	x	x	x	x	x	X	x	x	x	x
10 knowledge about the international organizations dealing with food, and laws and ethical codes relevant to meat	8		x			x	x					x	x	x	x	x	x	x	x	X	x	x	x	x



## Course specification (2021 / 2022)

### 1 - Basic Information

Code number: 218 (1)

Course title: Poultry and rabbit meat inspection

Academic Year: Master of Veterinary Medicine Program

Total teaching hours: 144 hrs.

Lectures: 48 (48 weeks- 1hr/week)

Practical: 96 (48 weeks- 2hrs/week)

### 2 - OVERALL AIMS OF THE COURSE:

To provide student with basic knowledge and skills concerning about the composition of poultry and rabbit meat inspection to gain the skills to analyze meat of poultry and rabbit physically and chemically and to write a report about the suitability of each sample for human consumption.

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- a1 List Physical character of poultry and rabbit
- a2 Explain Chemical composition of meat and meat products
- a3 Discuss the adulteration of poultry and rabbit meat and meat products
- a4 Illustrate preservation (definition, aim, general and specific tests for detection of preservatives)
- a5 identify Residues in poultry meat.
- a6 write on Methods of inspection of poultry and rabbit meat.

#### 3-B: INTELLECTUAL SKILLS:

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

- b1 Assess the quality of poultry at abattoirs.
- b2 judge on the quality of poultry meat products at the processing plants and markets.
- b3 Design and organize the appropriate quantitative and qualitative methodologies.
- b4 Summarize the important problem from case interaction, utilizing available.

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

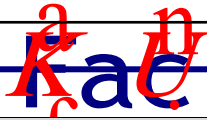
- c1 Prepare, preserve and transport samples to the laboratory for examination.
- c2 Examine poultry meat samples ( chemically, microbiologically and for residue ).
- c3 Sketch the methods to minimize the risks of contamination and cross infection.
- c4 Apply the HACCP system at the abattoirs, Processing plants and methods to confirm its correct application

#### 3- D: GENERAL SKILLS:

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

- d1 Show how to work effectively as a member of a team in the delivery of services to community.
- d2 Support effective communication with the public, colleagues and appropriate authorities.
- d3 Apply communicating skills, have access to the internet and retrieve information
- d4 Write reports in a form that is satisfactory and understandable.
- d5 point out primary research techniques and critical evaluation.

### 4 - COURSE CONTENTS:



TOPIC	Total hours	Hours for lecture	Hours for practical
Physical character of meat of poultry and rabbit	12	4	8
Chemical composition of meat of poultry and rabbit	24	8	16
Adulteration of meat of poultry and rabbit	24	8	16
Preservation (definition, aim, general and specific tests for detection of preservatives)	36	12	24
knowledge about residues in meat of poultry and rabbit	18	6	12
Methods of inspection of poultry and rabbit meat	30	10	20
Total	144	48	96

### 5- TEACHING & LEARNING METHODS:

- \* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard Discussion and brain storming
- \* **Practical sessions:**
- \* **Self-Learning activities:** Mini reviews from the web and the library Making individual reports
- \* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
1- advanced lectures*	a1 to a6	b1, b2		D4
2- Practical sessions		b1 –b2,b3	c1 to c4	d1,d2,d4, d5
3- Self learning				d3
4- Distance Teaching and Learning	a1 to a6	b1 to b4	c1 to c4	d1 to d5

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
-------------------------	---------------------	------------------	-----------------------	------------



Kafu  
Faculty

<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	At the end of the academic year
<b>7.c grads</b>	20	20	20	10

7. Student Assessment				
Intended Learning Outcomes Covered				
7.1. Methods	KU	IS	PPS	GTS
Written exams	a1 to a6	b1, b2, b4	C4	D5
Practical exams	a5, a5, a6	b1, b2, b4	c1 to c4	d4,d5
Oral exams	a1 to a6	b1 to b4		D5
Student activities		B3,b4		d1. d2.d3, d4,d5

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Essential Books

- 8.2.a- Brown, M. (2000). HACCP in the meat industry: Elsevier.
- 8.2.b - Hui, Y. H., Nip, W. K. and Rogers, R. (2001). Meat science and applications: CRC Press.
- 8.2.c Handbook of Meat and Meat Processing, Second Edition: Editors: Y. H. Hui Year: 2012
- 8.2.d Meat biotechnology: Editors: Toldrá, F : Springer Science & Business Media Year: 2012
- 8.2.e- Meat science. Cabi. Editors: Warriss, P. D. Year: 2001
- 8.2.f- Handbook of Meat, Poultry and Seafood Quality: Editors: Leo M. L. Nollet Year: 2012
- 8.2.g- Lawrie's meat science, Seventh Edition (Woodhead Publishing in Food Science, Technology and Nutrition): Editors: R.A. Lawrie year: 2006

### 8-2: Recommended books

- 8.2.a- Hui, Y., Astiasaran, I., Sebranek, J., Talon, R. and Toldrá, F. (2014). Handbook of fermented meat and poultry: John Wiley & Sons.
- 8.2.b- Nollet, L. M. and Toldra, F. (2015). Handbook of Food Analysis, -Two Volume Set: CRC Press.

### 8-3: Egyptian Knowledge Bank:

- 8.3.a - Meat Inspection and Control in the Slaughterhouse: Original publisher: Wiley, Editors: Thimjos Ninios JanneLundén HannuKorkeala Maria Fredriksson-Ahomaa, Year: 2015
- 8.3.b - The science of meat quality: Original publisher: Wiley, Editors: Chris R. Kerth, Year: 2013

### Scientific Journals

- Journal of dairy science.
- Journal of Animal Science.
- Journal of food protection.
- Food and drug analysis journal.
- Journal of Meat science.

### Scientific websites

- The Egyptian Knowledge Bank: <https://www.ekb.eg/web/guest/home>
- FAO: <https://www.fao.org/home/en>
- Codex- alimentarius: <https://www.fao.org/fao-who-codexalimentarius/en/>

Course Coordinator:

Prof. Dr. Nader Yehia Moustafa

Head of Department:

Prof. Dr.Nader Yehia Moustafa





### Course Matrix for achievement of Intended Learning Outcomes

	Topics	Hours	Knowledge & Understanding						Intellectual Skills				Practical & Professional Skills				General & Transferable Skills					
			1	2	3	4	5	6	1	2	3	4	1	2	3	4	1	2	3	4	5	
1	Physical character of meat of poultry and rabbit	12	x					x	x									x	x	x	x	x
2	Chemical composition of meat of poultry and rabbit	24		X		x		x	x	x			x	x				x	x	x	x	x
3	Adulteration of meat of poultry and rabbit	24			x	x			x	x	x	x	x	x				x	x	x	x	x
4	Preservation (definition, aim, general and specific tests for detection of preservatives)	36	x	X	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
5	knowledge about residues in meat of poultry and rabbit	18					x	x	x	x	x	x	x		x	x		x	x	x	x	x
6	Methods of inspection of poultry and rabbit meat	30						x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

Faculty of Veterinary Medicine Assiut University



Kafu  
Faculty  
of  
Veterinary  
Medicine

## Course specification (2021 / 2022)

### 1 - Basic Information

Code number: 219 (1)

Course title: Meat technology.

Academic Year: Master of Veterinary Medicine Program

Total teaching hours: 144 hrs

Lectures: 48 (48 weeks- 1hr/week)

Practical: 96 (48 weeks- 2hrs/week)

### 2 - OVERALL AIMS OF THE COURSE:

To provide student with basic knowledge and skills concerning of meat, poultry fish technology and to gain the skills to improve the quality of meat products.

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

A1 Write on Aim and introduction to meat technology

A2 Summarize meat additives

A3 Describe the Assessment of plant hygiene (Monitoring and evaluation of parameters e.g. microbiology, chemical and physical for product safety)

A4 List Main steps in manufacture of meat products (sausage, pasterma, luncheon, minced meat, beef burger) .....

A5 Discuss Spoilage and defects of meat products

A6 Illustrate meat preservation (Technologies used to render food safe, keep contaminants below dangerous levels and that prevent recontamination during or after manufacture))

A7 Explain Application of HACCP system on manufacture of each meat products

A8 Enhance the hygienic levels of meat products

A9 Write on Processing faults occur during manufacture of some products.

#### 3-B: INTELLECTUAL SKILLS:

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

B1 Compare the important problem of meat, poultry fish technology

B2 Summarize the role of meat, poultry fish technology

B3 Plan the appropriate quantitative and qualitative methodologies for diagnosis.

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

C.1 Solve, control problem of meat, poultry fish technology

C.2 Sort food implicated, prepare, preserve and transport samples to the laboratory for examination.

C.3 Examine and judge samples from of meat, poultry fish products

#### 3- D: GENERAL SKILLS:

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

D1 Show how to work effectively as a member of a team in the delivery of services to community.

D2 Support effective communication with the public, colleagues and appropriate authorities.

D3 Apply communicating skills, have access to the internet and retrieve information

D4 Write reports in a form that is satisfactory and understandable.

D5 point out primary research techniques and critical evaluation.



Kafu  
University

#### 4 - COURSE CONTENTS:

TOPIC	Total hours	Hours for lecture	Hours for practical
Aim and introduction to meat technology	4	4	-
meat additives	6	6	-
Assessment of plant hygiene (Monitoring and evaluation of parameters e.g. microbiology, chemical and physical for product safety)	20	4	16
Main steps in manufacture of meat products (sausage, pasterma, luncheon, minced meat, beef burger)	20	6	14
Spoilage and defects of meat products	22	6	16
Meat preservation (Technologies used to render food safe, keep contaminants below dangerous levels and that prevent recontamination during or after manufacture)	20	6	12
Application of HACCP system on manufacture of each meat products	18	4	14
Enhancing the hygienic levels of meat products	18	6	12
Processing faults occur during manufacture of some products.	18	6	12
Total	144	48	96

#### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library  
Making individual reports

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
1- advanced lectures*	a1 to a9	b1, b2		D4
2- Practical sessions		b1 –b2,b3	c1 to c3	d1,d2,d4, d5
3- Self learning				d3
4- Distance Teaching and Learning	a1 to a9	b1 to b3	c1 to c3	d1 to d5

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	At the end of the academic year
<b>7.c grads</b>	50	20	20	10

7. Student Assessment				
Intended Learning Outcomes Covered				
7.1. Methods	KU	IS	PPS	GTS
Written exams	a1 to a9	b1, b2		D4
Practical exams		b3	c1 to c3	
Oral exams	a1 to a9	b1,b2,b3		d4
Student activities		b2		d1. d2.d3, d4d5

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Essential Books

- 8.2.a- Brown, M. (2000). HACCP in the meat industry: Elsevier.
- 8.2.b - Hui, Y. H., Nip, W.-K. and Rogers, R. (2001). Meat science and applications: CRC Press.
- 8.2.c Handbook of Meat and Meat Processing, Second Edition: Editors: Y. H. Hui Year: 2012
- 8.2.d Meat biotechnology: Editors: Toldrá, F : Springer Science & Business Media Year: 2012
- 8.2.e- Meat science: Cabi., Editors: Warriss, P. D. Year: 2001
- 8.2.f- Handbook of Meat, Poultry and Seafood Quality: Editors: Leo M. L. Nollet Year: 2012
- 8.2.g- Lawrie's meat science, Seventh Edition (Woodhead Publishing in Food Science, Technology and Nutrition): Editors: R.A. Lawrie year: 2006

### 8-2: Recmended books:

- 8.2.a- Hui, Y., Astiasaran, I., Sebranek, J., Talon, R. and Toldrá, F. (2014). Handbook of fermented meat and poultry: John Wiley & Sons.
- 8.2.b- Nollet, L. M. and Toldra, F. (2015). Handbook of Food Analysis, -Two Volume Set: CRC Press.

### 8-3: Egyptian Knowledge Bank:

- 8.3.a - Meat Inspection and Control in the Slaughterhouse: Original publisher: Wiley, Editors: Thimjos Ninios JanneLundén HannuKorkeala Maria Fredriksson-Ahomaa, Year: 2015
- 8.3.b - The science of meat quality: Original publisher: Wiley, Editors: Chris R. Kerth, Year: 2013

### Scientific Journals

- Journal of dairy science.
- Journal of Animal Science.
- Journal of food protection.



Faculty of  
Veterinary  
Medicine

- Food and drug analysis journal.
- Journal of Meat science.

Scientific websites

- The Egyptian Knowledge Bank: <https://www.ekb.eg/web/guest/home>
- FAO: <https://www.fao.org/home/en>
- Codex- alimentarius: <https://www.fao.org/fao-who-codexalimentarius/en/>

Course Coordinator:

Prof. Dr. Nader Yehia Moustafa

Head of Department:

Prof. Dr. Nader Yehia Moustafa





Faculty  
 of  
 Veterinary  
 Medicine  
 Assiut

**Course Matrix for achievement of Intended Learning Outcomes**

	Topics	Hours	Knowledge & Understanding									Intellectual Skills			Practical & Professional Skills			General & Transferable Skills						
			1	2	3	4	5	6	7	8	9	1	2	3	1	2	3	1	2	3	4	5		
1	Aim and introduction to meat technology	4	X											x						x	X		x	
2	meat additives	6	x	x										x	x	x				x	X	x	x	x
3	Assessment of plant hygiene (Monitoring and evaluation of parameters e.g. microbiology, chemical and physical for product safety)	20		x	x									x	x	x	x	X	x	x	X	x	x	x
4	Main steps in manufacture of meat products (sausage, pastirma, luncheon, minced meat, beef burger)	20	x	x		x								x	x	x	x	X	x	x	X	x	x	x
5	Spoilage and defects of meat products	22		x		x	x							x	x	x	x	X	x	x	X	x	x	x
6	Meat preservation (Technologies used to render food safe, keep contaminants below dangerous levels and that prevent recontamination during or after manufacture)	20		x	x	x	x	x						x	x	x	x	x	x	x	X		x	x
7	Application of HACCP system on manufacture of each meat products	18		x	x			x	x						x	x	x			x	X		x	x
8	Enhancing the hygienic levels of meat products	18		x	x			x	x	x				x	x	x	x	x	x	x	X	x	x	x
9	Processing faults occur during manufacture of some products.	18					x	x	x		x			x	x	x	x	x	x	x	X	x	x	x

h



Kafu  
Faculty  
of  
Veterinary  
Medicine  
Kafu

## Course specification (2021 / 2022)

### 1 - Basic Information

Code number: 220 (1)

Course title: Hygienic control of meat and meat products.

Academic Year: Master of Veterinary Medicine Program

Total teaching hours: 192 hrs (48 weeks- 4hrs/week)

Lectures: 96hrs (48 weeks- 2hrs/week)

Practical/small group sessions: 96 (48 weeks- 2hrs/week)

### 2 - OVERALL AIMS OF THE COURSE:

To provide student with basic knowledge and skills concerning of microbiology of meat and fish products and to gain the skills to analyze meat and fish samples and meat products microbiologically and to write a report about the suitability of each sample for human consumption.

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- a.1 Identify the sources of meat and fish products contamination
- a.2 List the factors affecting microbial growth.
- a.3 Explain the microbiology of meat
- a.4 Define The microbiology of fish
- a.5 Recognize the Microbiology of minced meat and luncheon
- a.6 Explain the Microbiology of sausage and pastirma
- a.7 Illustrate the Microbiology of Microbiology of frankfurters and beef burger
- a.8 Describe the Microbiology of smoked fish
- a.9 Show on the Microbiology of salted fish
- a.10 Explain the Microbiology of canned fish
- a.11 Illustrate Meat and fish-borne pathogens and spoilage organisms
- a.12 Identify the indicator organisms
- a.13 Summarize the Microbial defects in meat and meat products

#### 3-B: INTELLECTUAL SKILLS:

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

- b1. Summarize the important problem from case interaction, utilizing available.
- b2. Plan the appropriate quantitative and qualitative methodologies.
- b3. Construct the HACCP system at the meat and fish plants and methods to confirm its correct application

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

- c.1 Preserve and transport samples to the laboratory for examination.
- c.2 Show how to minimize the risks of contamination and cross infection.
- c.3 Examine and judge meat and fish samples and their products microbiologically and apply the sensitivity test to the isolated organisms.

#### 3- D: GENERAL SKILLS:

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

- d1 Show how to work effectively as a member of a team in the delivery of services to community.
- d2 Support effective communication with the public, colleagues and appropriate authorities.
- d3 Apply communicating skills, have access to the internet and retrieve information
- d4 Write reports in a form that is satisfactory and understandable.
- d5 Point out primary research techniques and critical evaluation.



#### 4 - COURSE CONTENTS:

TOPIC	Total hours	Hours for lecture	Hours for practical
Sources of meat and fish products contamination	4	4	-
Factors affecting microbial growth.	4	4	-
knowledge about the microbiology of meat	4	4	-
knowledge about the the microbiology of fish	4	4	-
Microbiology of minced meat and luncheon	14	6	8
Microbiology of of sausage and pasterma	14	6	8
Microbiology of of frankfurters and beef burger	14	6	8
Microbiology of smoked fish	14	6	8
Microbiology of salted fish	14	6	8
Microbiology of of canned fish	14	6	8
Knowledge about meat and fish-borne pathogens and spoilage organisms	34	16	18
Food poisoning	20	10	10
Microbial defects in meat and meat products	18	8	10
indicator organisms	20	10	10
Total	192	96	96

#### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library  
Making individual reports

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
1- advanced lectures*	a1 to a13	b1, b2		d5
2- Practical sessions		b1 -b2,b3	c1 to c3	d1,d2,d4, d5





3- Self learning				d3
4- Distance Teaching and Learning	a1 to a13	b1 to b3	c1 to c3	d1 to d5

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	At the end of the academic year
<b>7.c grads</b>	50	20	20	10

7. Student Assessment				
Intended Learning Outcomes Covered				
7.1. Methods	KU	IS	PPS	GTS
Written exams	a1 to a13	b1 to b3		D5
Practical exams		b1 to b3	c1 to c3	D1,d2, d4,d5
Oral exams	a1 to a13			d2
Student activities				d1. d2.d3,d5

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Essential Books

- 8.2.a- Brown, M. (2000). HACCP in the meat industry: Elsevier.
- 8.2.b - Hui, Y. H., Nip, W.-K. and Rogers, R. (2001). Meat science and applications: CRC Press.
- 8.2.c Handbook of Meat and Meat Processing, Second Edition: Editors: Y. H. Hui Year: 2012
- 8.2.d Meat biotechnology: Editors: Toldrá, F : Springer Science & Business Media Year: 2012
- 8.2.e- Meat science: Cabi., Editors: Warriss, P. D. Year: 2001
- 8.2.f- Handbook of Meat, Poultry and Seafood Quality: Editors: Leo M. L. Nollet Year: 2012
- 8.2.g- Lawrie's meat science, Seventh Edition (Woodhead Publishing in Food Science, Technology and Nutrition): Editors: R.A. Lawrie year: 2006

### 8-2: Recmended books:

- 8.2.a- Hui, Y., Astiasaran, I., Sebranek, J., Talon, R. and Toldrá, F. (2014). Handbook of fermented meat and poultry: John Wiley & Sons.
- 8.2.b- Nollet, L. M. and Toldra, F. (2015). Handbook of Food Analysis, -Two Volume Set: CRC Press.

### 8-3: Egyptian Knowledge Bank:

- 8.3.a - Meat Inspection and Control in the Slaughterhouse: Original publisher: Wiley, Editors: Thimjos Ninios JanneLundén HannuKorkeala Maria Fredriksson-Ahomaa, Year: 2015



- 8.3.b - The science of meat quality: Original publisher: Wiley, Editors: Chris R. Kerth, Year: 2013

#### Scientific Journals

- Journal of dairy science.
- Journal of Animal Science.
- Journal of food protection.
- Food and drug analysis journal.
- Journal of Meat science.

#### Scientific websites

- The Egyptian Knowledge Bank: <https://www.ekb.eg/web/guest/home>
- FAO: <https://www.fao.org/home/en>
- Codex- alimentarius: <https://www.fao.org/fao-who-codexalimentarius/en/>

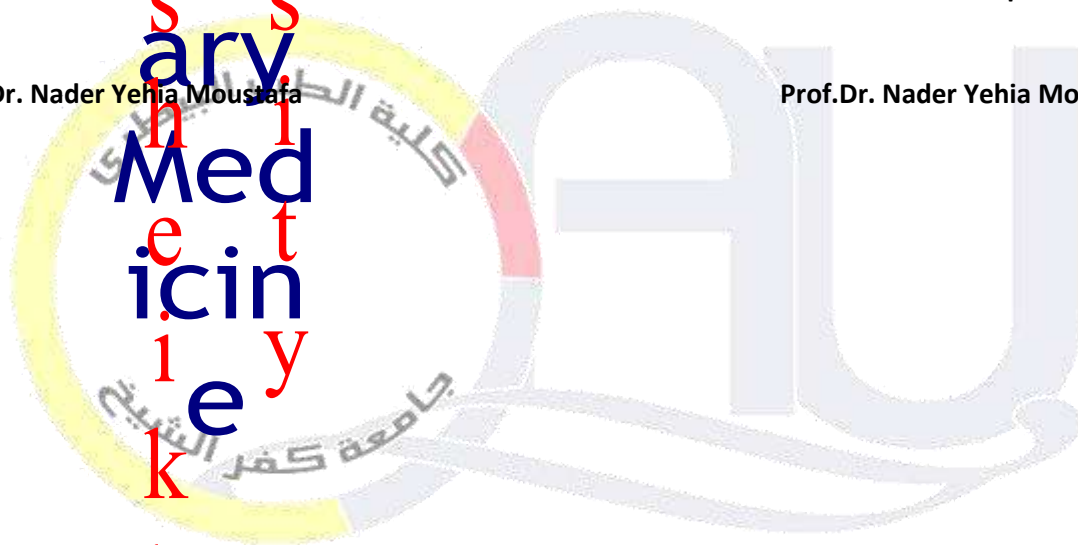
Course Coordinator:

Head of Department:

Prof. Dr. Nader Yehia Moustafa

Prof. Dr. Nader Yehia Moustafa

Faculty  
of  
Veterinary  
Medicine  
Assiut  
University





Course Matrix for achievement of Intended Learning Outcomes

Topics	Hours	Knowledge & Understanding													Intellectual Skills			Practical & Professional Skills			General & Transferable Skills					
		1	2	3	4	5	6	7	8	9	10	11	12	13	1	2	3	1	2	3	1	2	3	4	5	
1 Sources of meat and fish products contamination	4	x													x			x			x	x			x	
2 Factors affecting microbial growth.	4	x	x												x	x	x	x	x	x	x	x	x	x	x	x
3 knowledge about the microbiology of meat	4		x	x											x	x	x	x	x	x	x	x	x	x	x	x
4 knowledge about the microbiology of fish	4	x	x		x										x	x	x	x	x	x	x	x	x	x	x	x
5 Microbiology of minced meat and luncheon	14		x		x	x									x					x	x	x			x	x
6 Microbiology of of sausage and pasterma	14		x	x	x	x	x								x	x	x	x	x	x	x	x			x	x
7 Microbiology of of frankfurters and beef burger	14		x	x			x	x							x	x	x	x	x	x	x	x			x	x
8 Microbiology of smoked fish	14		x	x			x	x		x	x	x			x	x	x	x	x	x	x	x	x	x	x	x
9 Microbiology of salted fish	14	x	x	x	x	x	x	x		x	x	x			x	x	x	x	x	x	x	x	x	x	x	
10 Microbiology of of canned fish	14		x			x	x														x	x	x	x		





## Course specification (2021 / 2022)

### 1 - Basic Information

Code number: 221 (1)

Course title: Meat by products advanced

Academic Year: Master of Veterinary Medicine Program

Total teaching hours: 192 hrs (48 weeks- 4hrs/week)

Lectures: 96hrs (48 weeks- 2hrs/week)

Practical/small group sessions: 96 (48 weeks- 2hrs/week)

### 2 - OVERALL AIMS OF THE COURSE:

#### OVERALL AIMS OF THE COURSE:

To provide students with basic knowledge and skills concerning of meat by products and to gain the skills to, the useful uses of by products and to write a report about the values of each by products for economically use.

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- a1 List the Sources of meat by products
- a2 Define the Sources of poultry by products
- a3 Describe the Sources of fish by products
- a4 Recognized the Sources of ostriches by products
- a5 identify the uses of meat by products
- a6 Illustrate the uses of poultry and ostriches by products
- a7 Mention the uses of fish by products
- a8 Ssummarize the Economic values of meat by products
- a9 Show up he Economic values of poultry and ostriches by products
- a10 Explain the Economic values of fish by products
- a11 EnumerateThe methods of meat by products treatments
- a12 Converse The methods of poultry and ostriches by products treatments
- a13 Discuss The methods of fish by products treatments

#### 3-B: INTELLECTUAL SKILLS:

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

- b1 Weigh the important problem from case interaction, utilizing available.
- b2 Design the appropriate quantitative and qualitative methodologies.
- b3 Evaluate the HACCP system at the byproducts plants and methods to confirm its correct application

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

- c1 Prepare, preserve and transport samples to the laboratory for examination.
- c2 Point out how to minimize the risks of contamination and cross infection.
- c3 Examine and judge of meat , poultry and ostriches and fish by products

#### 3- D: GENERAL SKILLS:

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

- d1 Show how to work effectively as a member of a team in the delivery of services to community.
- d2 Support effective communication with the public, colleagues and appropriate authorities.
- d3 Apply communicating skills, have access to the internet and retrieve information
- d4 Write reports in a form that is satisfactory and understandable.
- d5 Point out primary research techniques and critical evaluation.



Kafu  
University

#### 4 - COURSE CONTENTS:

TOPIC	Total hours	Hours for lecture	Hours for practical
Sources of poultry by products	8	8	-
Sources of fish by products	6	6	-
Sources of meat by products	24	8	16
Economic values of meat by products	16	8	8
Sources of ostriches by products	8	8	-
uses of meat by products	24	8	16
uses of poultry and ostriches by products	16	8	8
uses of fish by products	22	8	14
Economic values of fish by products	16	8	8
Economic values of poultry and ostriches by products	10	8	2
knowledge about the methods of fish by products treatments	20	6	14
knowledge about the methods of poultry and ostriches by products treatments	4	2	2
knowledge about the methods of meat by products treatments	10	5	5
advanced technique for detection of different meat species	8	5	3
Total	192	96	96

#### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library  
Making individual reports

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
1- advanced lectures*	a1 to a13	b1, b2		D4
2- Practical sessions		b1 –b2,b3	c1 to c3	d1,d2,d4, d5



3- Self learning				d3
4- Distance Teaching and Learning	a1 to a13	b1 to b3	c1 to c3	d1 to d5

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	At the end of the academic year
<b>7.c grads</b>	50	20	20	10

7. Student Assessment				
Intended Learning Outcomes Covered				
7.1. Methods	KU	IS	PPS	GTS
Written exams	a1 to a13	b1 to b3		D4
Practical exams		b1 to b3	c1 to c3	D1,d2, d4,d5
Oral exams	a1 to a13			d2
Student activities				d1. d2.d3,d5

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Essential Books

- 8.2.a- Brown, M. (2000). HACCP in the meat industry: Elsevier.
- 8.2.b - Hui, Y. H., Nip, W.-K. and Rogers, R. (2001). Meat science and applications: CRC Press.
- 8.2.c Handbook of Meat and Meat Processing, Second Edition: Editors: Y. H. Hui Year: 2012
- 8.2.d Meat biotechnology: Editors: Toldrá, F : Springer Science & Business Media Year: 2012
- 8.2.e- Meat science: Cabi., Editors: Warriss, P. D. Year: 2001
- 8.2.f- Handbook of Meat, Poultry and Seafood Quality: Editors: Leo M. L. Nollet Year: 2012
- 8.2.g- Lawrie's meat science, Seventh Edition (Woodhead Publishing in Food Science, Technology and Nutrition): Editors: R.A. Lawrie year: 2006

### 8-2: Recmended books:

- 8.2.a- Hui, Y., Astiasaran, I., Sebranek, J., Talon, R. and Toldrá, F. (2014). Handbook of fermented meat and poultry: John Wiley & Sons.
- 8.2.b- Nollet, L. M. and Toldra, F. (2015). Handbook of Food Analysis, -Two Volume Set: CRC Press.

### 8-3: Egyptian Knowledge Bank:

- 8.3.a - Meat Inspection and Control in the Slaughterhouse: Original publisher: Wiley, Editors: Thimjos Ninios JanneLundén HannuKorkeala Maria Fredriksson-Ahomaa, Year: 2015



- 8.3.b - The science of meat quality: Original publisher: Wiley, Editors: Chris R. Kerth, Year: 2013

#### Scientific Journals

- Journal of dairy science.
- Journal of Animal Science.
- Journal of food protection.
- Food and drug analysis journal.
- Journal of Meat science.

#### Scientific websites

- The Egyptian Knowledge Bank: <https://www.ekb.eg/web/guest/home>
- FAO: <https://www.fao.org/home/en>
- Codex- alimentarius: <https://www.fao.org/fao-who-codexalimentarius/en/>

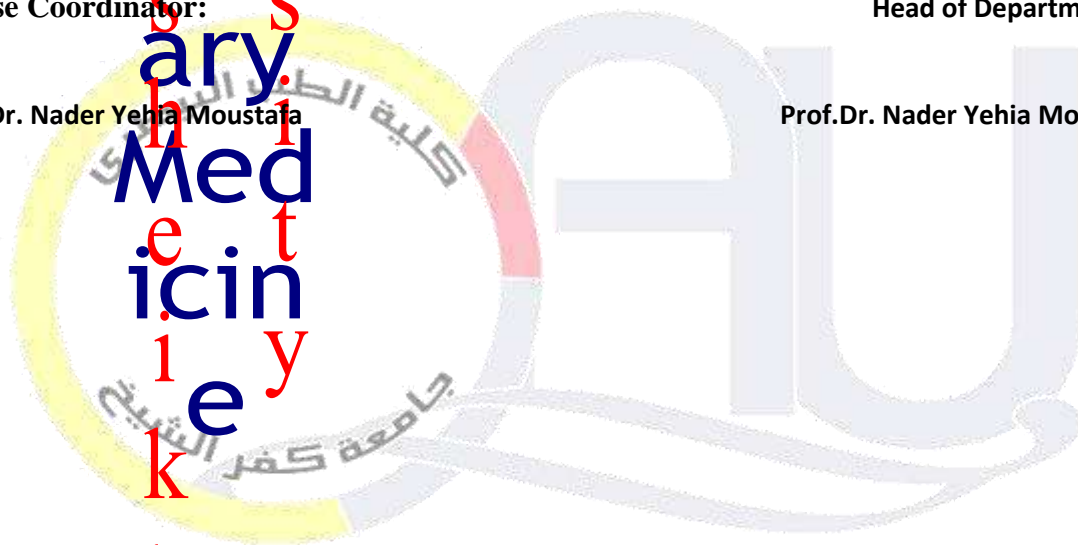
Course Coordinator:

Prof. Dr. Nader Yehia Moustafa

Head of Department:

Prof. Dr. Nader Yehia Moustafa

Faculty  
of  
Veterinary  
Medicine  
Assiut  
University







Course Matrix for achievement of Intended Learning Outcomes

Topics	Hours	Knowledge & Understanding													Intellectual Skills			Practical & Professional Skills			General & Transferable Skills					
		1	2	3	4	5	6	7	8	9	10	11	12	13	1	2	3	1	2	3	1	2	3	4	5	
1 Sources of poultry by products	8	x													x			x			x	x			x	
2 Sources of fish by products	6	x	x												x	x	x	x	x	x	x	x	x		x	x
3 Sources of meat by products	24		x	x											x	x	x			x	x	x	x		x	
4 Economic values of meat by products	16	x	x		x										x	x	x	x	x		x	x	x		x	
5 Sources of ostriches by products	8		x		x	x									x	x	x	x	x	x	x	x			x	x
6 uses of meat by products	24		x	x	x	x	x								x	x	x	x	x	x	x	x			x	x
7 uses of poultry and ostriches by products	16		x	x			x	x								x	x	x			x	x			x	
8 uses of fish by products	22		x	x			x	x	x						x	x	x	x	x	x	x	x	x		x	x
9 Economic values of fish by products	16	x	x	x	X	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x	x
10 Economic values of poultry and ostriches by products	10		x			x	x								x	x	x	x	x	x	x	x	x		x	x
11 knowledge about the methods of fish by products treatments	20	x	x	x	X	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			x	x
12 knowledge about the methods of poultry and ostriches by products treatments	4	x	x	x	X	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			x	
13 knowledge about the methods of meat by products treatments	10	x	x	x	X	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			x	



Faculty of Veterinary Medicine Kafu

## Course specification (2021 / 2022)

### 1 - Basic Information

Code number: 222 (1)  
 Course title: Food analysis, meat and meat products.  
 Academic Year: Master of Veterinary Medicine Program  
 Total teaching hours: 192 hrs (48 weeks- 4hrs/week)  
 Lectures: 96hrs (48 weeks- 2hrs/week)  
 Practical/small group sessions: 96 (48 weeks- 2hrs/week)

### 2 - OVERALL AIMS OF THE COURSE:

To provide student with basic knowledge and skills concerning about the composition of meat and meat products to gain the skills to analyze meat physically and chemically and to write a report about the suitability of each sample for human consumption.

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- a1 Illustrate the physical character of meat and met products
- a2 Discuss the chemical composition of meat and meat products
- a3 Explain the adulteration of meat and meat products
- a4 Discuss the Preservation (definition, aim, general and specific tests for detection of preservatives)
- a5 list and identify the Residues in meat
- a6 Mention the Edible fats and oils
- a7 Write on meat chemistry
- a8 Describe the Composition of meat

#### 3-B: INTELLECTUAL SKILLS:

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

- b1 Design and organize the appropriate quantitative and qualitative methodologies.
- b2 Summarize the important problem from case interaction, utilizing available.

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

- c1 Prepare, preserve and transport samples to the laboratory for examination.
- c2 Point out how to minimize the risks of contamination and cross infection.
- c3 Examine meat samples, meat products, physically and chemically.
- c4 Judge meat samples, meat products, for the presence of inhibitory substances.

#### 3- D: GENERAL SKILLS:

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

- D1 Show how to work effectively as a member of a team in the delivery of services to community.
- D2 Support effective communication with the public, colleagues and appropriate authorities.
- D3 Apply communicating skills, have access to the internet and retrieve information
- D4 Write reports in a form that is satisfactory and understandable.
- D5 point out primary research techniques and critical evaluation.

### 4 - COURSE CONTENTS:

TOPIC	Total hours	Hours for lecture	Hours for practical
-------	-------------	-------------------	---------------------



Kafu



Physical character of meat and meat products	28	14	14
Chemical composition of meat and meat products	28	14	14
Adulteration of meat and meat products	20	10	10
Preservation (definition, aim, general and specific tests for detection of preservatives)	32	16	16
knowledge about residues in meat	20	10	10
Meat spoilage	24	12	12
meat chemistry	20	10	10
Composition of meat	20	10	10
Total	192	96	96

## 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library Making individual reports

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
1- advanced lectures*	a1 to a8	b1, b2		D4
2- Practical sessions		b1 –b2	c1 to c4	d1,d2,d4, d5
3- Self learning				d3
4- Distance Teaching and Learning	a1 to a8	b1 -b2	c1 to c4	d1 to d5

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:-

<u>7.a Used methods</u>	Written examination	Oral examination	Practical examination	Activities
<u>7.b time</u>	At the end of the academic	At the end of the academic year	At the end of the academic year	At the end of the academic year



7.c grads	year	20	20	10
-----------	------	----	----	----

7. Student Assessment				
Intended Learning Outcomes Covered				
7.1. Methods	KU	IS	PPS	GTS
Written exams	a1 to a8	b1 to b2		D4
Practical exams		b1 to b2	c1 to c4	D1,d2, d4,d5
Oral exams				d2
Student activities				d1. d2.d3,d5

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Essential Books

- 8.2.a- Brown, M. (2000). HACCP in the meat industry: Elsevier.
- 8.2.b - Hui, Y. H., Ng, W.-K. and Rogers, R. (2001). Meat science and applications: CRC Press.
- 8.2.c Handbook of Meat and Meat Processing, Second Edition: Editors: Y. H. Hui Year: 2012
- 8.2.d Meat biotechnology: Editors: Toldrá, F: Springer Science & Business Media Year: 2012
- 8.2.e- Meat science, Cairo, Editors: Warriss, P. D. Year: 2001
- 8.2.f- Handbook of Meat, Poultry and Seafood Quality: Editors: Leo M. L. Nollet Year: 2012
- 8.2.g- Lawrie's meat science, Seventh Edition (Woodhead Publishing in Food Science, Technology and Nutrition): Editors F.A. Lawrie year: 2006

### 8-2: Recommended books:

- 8.2.a- Hui, Y., Astiasaran, I., Sebranek, J., Talon, R. and Toldrá, F. (2014). Handbook of fermented meat and poultry: John Wiley & Sons.
- 8.2.b- Nollet, L. M. and Toldra, F. (2015). Handbook of Food Analysis, -Two Volume Set: CRC Press.

### 8-3: Egyptian Knowledge Bank:

- 8.3.a - Meat Inspection and Control in the Slaughterhouse: Original publisher: Wiley, Editors: Thimjos Ninios JanneLundén HannuKorkeala Maria Fredriksson-Ahomaa, Year: 2015
- 8.3.b - The science of meat quality: Original publisher: Wiley, Editors: Chris R. Kerth, Year: 2013

### Scientific Journals

- Journal of dairy science.
- Journal of Animal Science.
- Journal of food protection.
- Food and drug analysis journal.
- Journal of Meat science.

### Scientific websites

- The Egyptian Knowledge Bank: <https://www.ekb.eg/web/guest/home>
- FAO: <https://www.fao.org/home/en>
- Codex- alimentarius: <https://www.fao.org/fao-who-codexalimentarius/en/>

Course Coordinator:

Head of Department:

Prof. Dr. Nader Yehia Moustafa

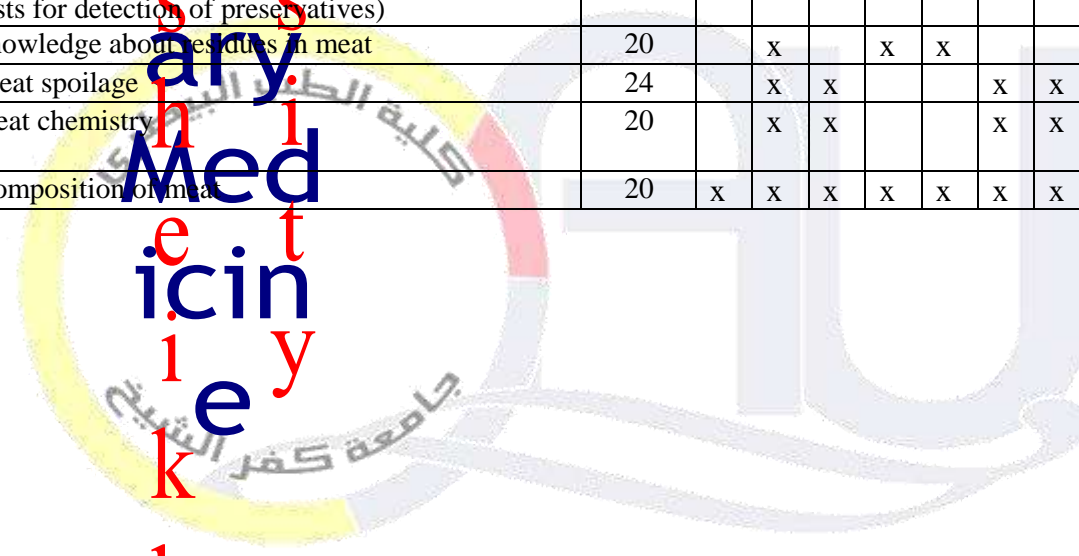
Prof.Dr. Nader Yehia Moustafa



Course Matrix for achievement of Intended Learning Outcomes

	Topics	Hours	Knowledge & Understanding										Intellectual Skills			Practical & Professional Skills				General & Transferable Skills								
			1	2	3	4	5	6	7	8			1	2		1	2	3	4		1	2	3	4	5			
1	Physical character of meat and meat products	28	X												X				X	X	X	X		X	X		X	
2	Chemical composition of meat and meat products	28	X	x											X	X			X	X	X	X		X	X	X	X	X
3	Adulteration of meat and meat products	20		x	x										X	X			X	X	X	X		X	X	X	X	X
4	Preservation (definition, aim, general and specific tests for detection of preservatives)	32	X	x		x									X	X			X	X	X	X		X	X	X	X	X
5	knowledge about residues in meat	20		x		x	x								X				X	X	X	X		X	X		X	X
6	Meat spoilage	24		x	x			x	x							x			X					X	X		X	X
7	meat chemistry	20		x	x			x	x	x					X	X			X	X	X	X		X	X	X	X	X
8	Composition of meat	20	x	x	x	x	x	x	x	x					X	X			X	X	X	X		X	X	X	X	X

Faculty of Veterinary Medicine Assiut University





Faculty of Veterinary Medicine Assiut University

## Course specification (2021 / 2022)

### 1 - Basic Information

Code number: 223 (1)

Course title: Preservation of meat and fish.

Academic Year: Master of Veterinary Medicine Program

Total teaching hours: 192 hrs (48 weeks- 4hrs/week)

Lectures: 96hrs (48 weeks- 2hrs/week)

Practical/small group sessions: 96 (48 weeks- 2hrs/week)

### 2 - OVERALL AIMS OF THE COURSE:

To provide student with basic knowledge and skills concerning of meat and fish preservation and to gain the skills to improve the quality of preserved meat

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- a1 Discuss cold storage of meat and fish
- a2 list drying of meat
- a 3 Recognized smoking of meat ,and fish
- a4 Describe salting of meat ,and fish
- a5 illustrate pickling of meat and fish
- a6 Mention canning of meat and fish
- a7 Write on meat irradiation
- a8 Explain how to enhance the hygienic levels of preserved meat using advanced technique
- a9 Show up Food safety

#### 3-B: INTELLECTUAL SKILLS:

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

- b1 Summarize the important problem of meat, and fish preservation
- b2 Weigh the role of meat and fish preservation
- b3 construct appropriate quantitative and qualitative methodologies for diagnosis.

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

- c1 Solve, control problem of meat and fish preservation
- c2 Sort food implicated, prepare, preserve and transport samples to the laboratory for examination.
- c3 Examine and judge samples from of meat, and fish products

#### 3- D: GENERAL SKILLS:

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

- d1 Show how to work effectively as a member of a team in the delivery of services to community.
- d2 Support effective communication with the public, colleagues and appropriate authorities.
- d3 Apply communicating skills, have access to the internet and retrieve information
- d4 Write reports in a form that is satisfactory and understandable.
- d5 point out primary research techniques and critical evaluation.

### 4 - COURSE CONTENTS:



Kafu



TOPIC	Total hours	Hours for lecture	Hours for practical
Cold storage of meat and fish	24	12	12
Drying of meat	24	12	12
Smoking of meat ,and fish	24	12	12
Salting of meat ,and fish	24	12	12
Pickling of meat and fish	20	10	10
Canning of meat and fish	24	12	12
Meat irradiation	12	6	6
Enhancing the hygienic levels of meat products	20	10	10
Food safety	20	10	10
Total	192	96	96

**5- TEACHING & LEARNING METHODS:**

- \* **Advanced lectures:** Power Point presentations including videos, and whiteboard Discussion and brain storming
- \* **Practical sessions:**
- \* **Self-Learning activities:** Mini reviews from the web and the library Making individual reports
- \* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
1- advanced lectures*	a1 to a9	b1, b2		D4
2- Practical sessions		b1 –b2,b3	c1 to c3	d1,d2,d4, d5
3- Self learning				d3
4- Distance Teaching and Learning	a1 to a9	b1 to b4	c1 to c3	d1 to d5

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:-**

<u>7.a Used methods</u>	Written examination	Oral examination	Practical examination	Activities
<u>7.b time</u>	At the end of the academic	At the end of the academic year	At the end of the academic year	At the end of the academic year



7.c grads	50	20	20	10
-----------	----	----	----	----

7. Student Assessment				
Intended Learning Outcomes Covered				
7.1. Methods	KU	IS	PPS	GTS
Written exams	a1 to a9	b1 to b3		D4
Practical exams		b1 to b3	c1 to c3	D1,d2, d4,d5
Oral exams				d2
Student activities				d1. d2.d3,d5

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Essential Books

- 8.2.a- Brown, M. (2000). HACCP in the meat industry: Elsevier.
- 8.2.b - Hui, Y. H., Nip, W.-K. and Rogers, R. (2001). Meat science and applications: CRC Press.
- 8.2.c Handbook of Meat and Meat Processing, Second Edition: Editors: Y. H. Hui Year: 2012
- 8.2.d Meat biotechnology: Editors: Toldrá, F: Springer Science & Business Media Year: 2012
- 8.2.e- Meat science. Cabi., Editors: Warriss, P. D. Year: 2001
- 8.2.f- Handbook of Meat, Poultry and Seafood Quality: Editors: Leo M. L. Nollet Year: 2012
- 8.2.g- Lawrie's meat science, Seventh Edition (Woodhead Publishing in Food Science, Technology and Nutrition): Editors: B.A. Lawrie year: 2006

### 8-2: Recmoned books:

- 8.2.a- Hui, Y., Astiasarán, I., Sebranek, J., Talon, R. and Toldrá, F. (2014). Handbook of fermented meat and poultry: John Wiley & Sons.
- 8.2.b- Nollet, L. M and Toldra, F. (2015). Handbook of Food Analysis, -Two Volume Set: CRC Press.

### 8-3: Egyptian Knowledge Bank:

- 8.3.a - Meat Inspection and Control in the Slaughterhouse: Original publisher: Wiley, Editors: Thimjos Ninios JanneLundén HannuKorkeala Maria Fredriksson-Ahomaa, Year: 2015
- 8.3.b - The science of meat quality: Original publisher: Wiley, Editors: Chris R. Kerth, Year: 2013

### Scientific Journals

- Journal of dairy science.
- Journal of Animal Science.
- Journal of food protection.
- Food and drug analysis journal.
- Journal of Meat science.

### Scientific websites

- The Egyptian Knowledge Bank: <https://www.ekb.eg/web/guest/home>
- FAO: <https://www.fao.org/home/en>
- Codex- alimentarius: <https://www.fao.org/fao-who-codexalimentarius/en/>

Course Coordinator:

Head of Department:

Prof. Dr. Nader Yehia Moustafa

Prof.Dr. Nader Yehia Moustafa

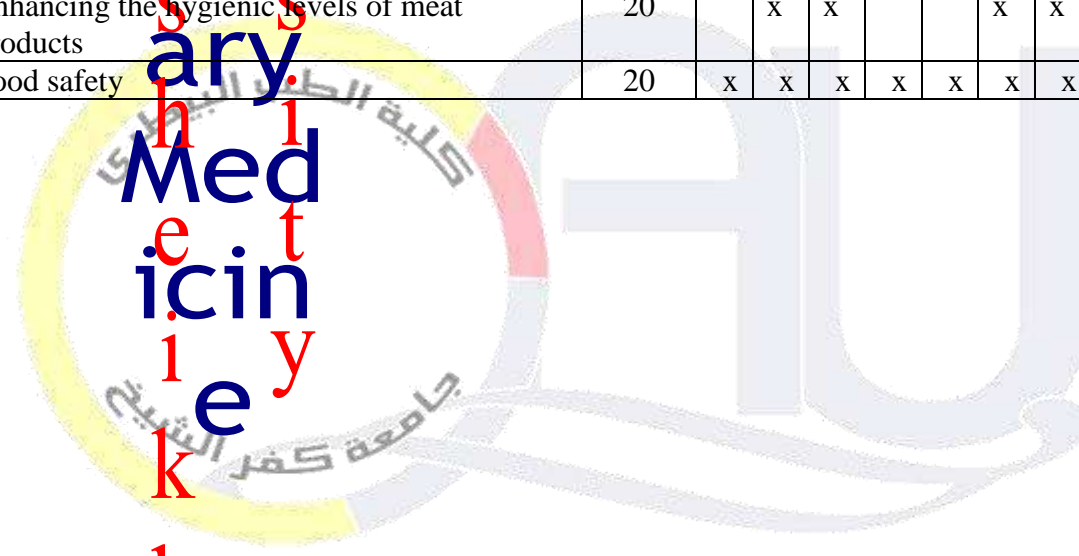




Course Matrix for achievement of Intended Learning Outcomes

	Topics	Hours	Knowledge & Understanding									Intellectual Skills				Practical & Professional Skills				General & Transferable Skills					
			1	2	3	4	5	6	7	8	9	1	2	3	4	1	2	3	4	5					
1	Cold storage of meat and fish	24	x												x						x	x		x	
2	Drying of meat	24	x	x											x	x	x				x	x	x	x	x
3	Smoking of meat and fish	24		x	x										x	x	x				x	x	x	x	x
4	Salting of meat and fish	24	x	x		x									x	x	x				x	x	x	x	x
5	Pickling of meat and fish	20		x		x	x								x	x	x				x	x		x	x
6	Canning of meat and fish	24		x	x	x	x	x							x	x	x				x	x		x	x
7	Meat irradiation	12		x	x			x	x							x	x				x	x		x	x
8	Enhancing the hygienic levels of meat products	20		x	x			x	x	x					x	x	x				x	x	x	x	x
9	Food safety	20	x	x	x	x	x	x	x	x	x				x	x	x				x	x	x	x	x

Faculty of Veterinary Medicine Assiut University





Faculty of Veterinary Medicine Kafu

## Course specification (2021 / 2022)

### 1 - Basic Information

Code number: 224 (1)  
 Course title: Hygienic criteria in meat and fish plant  
 Academic Year: Master of Veterinary Medicine Program  
 Total teaching hours: 192 hrs. (48 weeks- 4hrs/week)  
 Lectures: 96hrs (48 weeks- 2hrs/week)  
 Practical/small group sessions: 96 (48 weeks- 2hrs/week)

### 2 - OVERALL AIMS OF THE COURSE:

To provide student with basic knowledge and skills concerning about the Hygienic criteria in meat and fish plant and to gain the skills to analyze meat and fish products and to write a report about the suitability of each sample for human consumption and the hygiene of the plant.

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- a1 Locate the standard used to establish the industry.
- a2 Identify the hygienic measures adopted inside and outside the industry.
- a3 Discuss the application of HACCP system in meat and fish plants
- a4 Write on the detergent and chemical sanitizer.
- a5 Summarize the cleaning procedures.
- a6 Draw on the designing of clean in place system (CIP)
- a7 Explain the verification of cleaning
- a8 Recognize on the methods of detection of efficiency of sanitization.
- a9 Illustrate the criteria for evaluation of meat and fish products.

#### 3-B: INTELLECTUAL SKILLS:

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

- b1 Weigh the important problem from case interaction, utilizing available.
- b2 Design the appropriate quantitative and qualitative methodologies.
- b3 Evaluate the HACCP system at the meat and fish plants and methods to confirm its correct application

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

- c1 Apply criteria for evaluation of meat and fish products.
- c2 Understand how to minimize the risks of contamination and cross infection.
- c3 Examine and judge efficiency of cleaning and sanitization of meat and fish equipments.

#### 3- D: GENERAL SKILLS:

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

- d1 Show how to work effectively as a member of a team in the delivery of services to community.
- d2 Support effective communication with the public, colleagues and appropriate authorities.
- d3 Apply communicating skills, have access to the internet and retrieve information
- d4 Write reports in a form that is satisfactory and understandable.
- d5 point out primary research techniques and critical evaluation.

### 4 - COURSE CONTENTS:

TOPIC	Total hours	Hours for lecture	Hours for practical
-------	-------------	-------------------	---------------------



Kafu



knowledge about standard used to establish the industry..	20	10	10
Hygienic measures adopted inside and outside the industry.	24	12	12
Application of HACCP system in meat and fish plants	20	10	10
Knowledge about detergent and chemical sanitizer	24	12	12
Cleaning procedures.	24	12	12
Designing of clean in place system (CIP)	24	12	12
Verification of cleaning	12	6	6
Detection of efficiency of sanitization.	20	10	10
Criteria for evaluation of meat and fish products.	24	12	12
Total	192	96	96

### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library Making individual reports

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
1- advanced lectures*	a1 to a9	b1, b2		D4
2- Practical sessions		b1 –b2,b3	c1 to c3	d1,d2,d4, d5
3- Self learning				d3
4- Distance Teaching and Learning	a1 to a9	b1 to b3	c1 to c3	d1 to d5

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:-

<b>7.a Used methods</b>	Written	Oral examination	Practical examination	Activities
-------------------------	---------	------------------	-----------------------	------------



	examination			
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	At the end of the academic year
<b>7.c grads</b>	50	20	20	10

7. Student Assessment				
Intended Learning Outcomes Covered				
7.1. Methods	KU	IS	PPS	GTS
Written exams	a1 to a5	b1 to b3		D4
Practical exams		b1 to b3	c1 to c3	D1,d2, d4,d5
Oral exams	a1 to a5			d2
Student activities				d1. d2.d3,d5

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Essential Books

- 8.2.a- Brown, M. (2000). HACCP in the meat industry: Elsevier.
- 8.2.b - Hui, Y. H., Ng, W-K, and Rogers, R. (2001). Meat science and applications: CRC Press.
- 8.2.c Handbook of Meat and Meat Processing, Second Edition: Editors: Y. H. Hui Year: 2012
- 8.2.d Meat biotechnology: Editors: Toldrá, F : Springer Science & Business Media Year: 2012
- 8.2.e- Meat science: Cabi. Editors: Warriss, P. D. Year: 2001
- 8.2.f- Handbook of Meat, Poultry and Seafood Quality: Editors: Leo M. L. Nollet Year: 2012
- 8.2.g- Lawrie's meat science, Seventh Edition (Woodhead Publishing in Food Science, Technology and Nutrition): Editors: R.A. Lawrie year: 2006

### 8-2: Recmended books:

- 8.2.a- Hui, Y., Astiasaran, I., Sebranek, J., Talon, R. and Toldrá, F. (2014). Handbook of fermented meat and poultry: John Wiley & Sons.
- 8.2.b- Nollet, L. M. and Toldra, F. (2015). Handbook of Food Analysis, -Two Volume Set: CRC Press.

### 8-3: Egyptian Knowledge Bank:

- 8.3.a - Meat Inspection and Control in the Slaughterhouse: Original publisher: Wiley, Editors: Thimjos Ninios JanneLundén HannuKorkeala Maria Fredriksson-Ahomaa, Year: 2015
- 8.3.b - The science of meat quality: Original publisher: Wiley, Editors: Chris R. Kerth, Year: 2013

### Scientific Journals

- Journal of dairy science.
- Journal of Animal Science.
- Journal of food protection.
- Food and drug analysis journal.
- Journal of Meat science.

### Scientific websites

- The Egyptian Knowledge Bank: <https://www.ekb.eg/web/guest/home>
- FAO: <https://www.fao.org/home/en>
- Codex- alimentarius: <https://www.fao.org/fao-who-codexalimentarius/en/>

### Course Coordinator:

Prof. Dr. Nader Yehia Moustafa

### Head of Department:

Prof.Dr. Nader Yehia Moustafa

### Course Matrix for achievement of Intended Learning Outcomes

	Topics	Hours	Knowledge & Understanding										Intellectual Skills				Practical & Professional Skills				General & Transferable Skills										
			1	2	3	4	5	6	7	8	9			1	2	3						1	2	3	4	5					
1	knowledge about standard used to establish the industry..	20	x												x						x					x	x		x		
2	Hygienic measures adopted inside and outside the industry.	24	x	x											x	x	x				x	x	x				x	x	x	x	x
3	Application of HACCP system in meat and fish plants	20		x	x										x	x	x				x	x	x				x	x	x	x	x
4	Knowledge about detergent and chemical sanitizer	24	x	x		x									x	x	x				x	x	x				x	x	x	x	x
5	Cleaning procedures.	24		x		x	x								x	x	x				x	x	x				x	x		x	x
6	Designing of clean in place system (CIP)	24		x	x	x	x	x							x	x	x				x	x	x				x	x		x	x
7	Verification of cleaning	12		x	x			x	x							x	x				x						x	x		x	x
8	Detection of efficiency of sanitization.	20		x	x			x	x	x					x	x	x				x	x	x				x	x	x	x	x
9	Criteria for evaluation of meat and fish products.	24	x	x	x	x	x	x	x	x	x				x	x	x				x	x	x				x	x	x	x	x



**Kafrelsheikh University**  
Faculty of Veterinary Medicine



**Kafrelsheikh University**

**Faculty of Veterinary Medicine**

**Department of Bacteriology, Mycology  
and Immunology**

# **Program Specification for Master Degree (2021-2022)**

**Program Title:**

**Master of The Veterinary Medicine  
(Bacteriology, Mycology and Immunology)**



### **A- Administrative information:**

- 1- **Awarding Body:** Kafrelsheikh University
- 2- **Teaching Body:** Faculty of Veterinary Medicine
- 3- **Department responsible:** Bacteriology, Mycology and Immunology
- 4- **Program Title:** Master Degree in Veterinary Medicine (Bacteriology, Mycology and Immunology)
- 5- **Final award:** Master Degree
- 6- **Registration period:** 2-4 years
- 7- **Program Coordinator:** Prof. Dr.
- 8- **External evaluator:**
- 9- **Date of revision:**
- 10- **Date of approval:**

### **B- Professional information:**

#### **1-Educational aims of the program**

- Provides graduates the opportunity to develop communication and teaching skills and the experience of scientific research.
- Develops the ability of graduate to engage critically with recent techniques and diagnostic tools in the field of (Bacteriology, Mycology and Immunology).
- Supplies the graduates with the most recent knowledge in science and technological applications in (Bacteriology, Mycology and Immunology).
- Demonstrates an awareness of the connections between disciplines and develop the ability to engage critically with scientific literature and to critically review and present their own research data for the protection and promotion of the animal health.
- Allows graduates to develop practical research project.
- Enables graduates to achieve competency in modern laboratory technology

#### **2- Academic standards:**

**Academic reference standards (ARS) adopted by the faculty committee No (1) 14-9-2014)**

#### **3-Graduate attributes:**

*At the end of the program, graduate must be able to:*

- 1) Perfect application of scientific research basics and methodologies in Bacteriology, Mycology and Immunology, and using its varied tools.
- 2) Application and use of analytical methods in isolation and identification of various Bacteriology and Mycology and evaluate the cellular and humoral immune response.
- 3) Application of gained specialized knowledge and integrating them with the relevant knowledge in Bacteriology, Mycology and Immunology.
- 4) Awareness with ongoing most common bacteriological causes of diseases Bacteriological and mycological causes recent concepts of action of poisons at the cellular level.
- 5) Identification of bacteriological problems and suggesting suitable and economic methods of



treatment and control.

- 6) Mastering the proper scope of a range specialized professional skills, and using appropriate technological means to serve the isolation and proper identification of diseases animals.
- 7) Effective communication with students, bacteriologists and animal owners and leading work team.
- 8) Decision making for suggesting the most common bacteriological causes of death and measuring the time passed since death.
- 9) Employ available resources efficiently including history, clinical signs, PM lesions and laboratory findings.
- 10) Awareness with his role in society development and fighting bacteriological pollution for preservation of a clean environment.
- 11) Reflection of the commitment to act with integrity, credibility and the rules of profession.
- 12) Academic and professional self- development and ability for life-long learning and progress by studying new means of isolation and identification of bacteriological causes of animal diseases in addition to introducing new molecular means of isolation and identification.

#### **4-Programme outcomes [intended learning outcomes (ILOs)]**

##### **a. Knowledge and understanding:**

*On successful completion of this program, postgraduate will be able to:*

- a.1. Recognize basic principles of in the field of Basic Bacteriology, Mycology, and Immunology and related fields.
- a.2. Realize the direct and indirect causes of Bacteriological infection of animal and especially that of high economic impact.
- a.3. Identify mutual effect between bacterial pathogens and immunology practice and its impact on community for preservation of clean environment.
- a.4. Recognize scientific progress in the field of Bacteriology, Mycology and Immunology especially the new molecular techniques such as PCR.
- a.5. Realize the principles and basics of quality assurance in the area of specialization.
- a.6. Apply the basics of control of infection and decontamination.
- a.7. Realize the legal and ethical basics in the field of Bacteriology, Mycology and Immunology specially keeping animals intended for meat production and their byproducts free from bacteria and fungus especially virulent strains.

##### **b. Intellectual skills:**

*At the end of the program, graduate must be able to:*

- b.1. Analyze most common causes of microbiological diseases (bacterial and mycological) and the evaluation of both cellular and humoral immune response of such diseased animals by using various means including the molecular means.
- b.2. Find clues for problems in diagnosing the cause of infection even in scarcity of resources via contact with professional experts.
- b.3. Relate the microscopic findings, cultural characters, biochemical tests and other molecular means of isolation and identification for solving a problem
- b.4. Participate in preparing research plan in Bacteriology, Mycology and Immunology and/ or write scientific article on a research problem.
- b.5. Assess virulence factors associated with bacterial and mycotic infections and antibiotic resistance using various methods.
- b.6. Plan a systematic approach for advanced diagnostics for improvement of professional





performance.

**b.7.** Make professional decisions in dealing with laboratory diagnostic problems.

**c. Practical and professional skills:**

*At the end of the programme, graduate must be able to:*

- c.1.** Perform basic and recent principal and professional skills in isolation and identification of bacteria and fungi in addition to serological tests and antibiotic sensitivity test results.
- c.2.** Write a professional and conclusive report about the microorganism (bacteria or fungus) of concern.
- c.3.** Evaluate available methodology in the veterinary Bacteriology, Mycology and Immunology as the most suitable antibiotic for such microbial infections.

**d. General and transferable skills:**

*At the end of the programme, graduate must be able to:*

- d.1.** Communicate effectively with his professors, collages, and animal owner(s).
- d.2.** Utilize different sources of knowledge and information.
- d.3.** Assess himself and identify his personal educational needs.
- d.4.** Demonstrate interpersonal skills and team working ability
- d.5.** Demonstrate an ability to learn independently for a career of lifelong learning.
- d.6.** Use information technology to serve the professional practice.
- d.7.** Manage time efficiently.
- d.8.** Set tools and indicators for assessment of the performance of others.

**5-Program structure:**

a. Program duration (years):

Master degree from 2-4 years

b) Premaster courses – at least one academic year

Course	Lecture (hours/week)	Practical (hours/week)
Fundamental (core) course	3	4
Research methodology	1	3
2-5 Elective Courses Offered by other departments and are selected from the list below according to thesis topic (10-12 hours)	5-6	5-6

c) M.V.Sc Thesis (at least one academic year)

- All master-degree students should prepare a master thesis.
- The department and the ethical committees must approve the protocol of the research.
- The thesis should include a review part and a research part.
- The thesis is supervised by one or more senior staff members of the department responsible for the program and may include other specialties according to the nature of the research.



- The thesis should be evaluated and approved by a committee of three professors including one of the supervisors and an external professor.

A number of subsidiary courses are selected from the following list according to the title of the research work:

Subject	Code	Course title	No of hours/week	
			Lecture	Practical Lab
<b>Anatomy and embryology</b>	101/1	<b>1- Applied anatomy</b>	2	2
	102/1	<b>2- Anatomical techniques and surface anatomy</b>	2	2
	103/1	<b>3- Osteology and arthrology</b>	2	2
	104/1	<b>4- Comparative digestive system</b>	2	2
	105/1	<b>5- Comparative uro-genital system</b>	2	2
	106/1	<b>6-Comparative respiratory system</b>	2	2
	107/1	<b>7- Comparative cardiovascular system</b>	2	2
	108/1	<b>8- Comparative nervous system and endocrine glands</b>	2	2
	109/1	<b>9- General and special embryology</b>	2	2
	110/1	<b>10- Avian anatomy</b>	1	2
<b>Histology</b>	111/1	<b>11- cytology and cytochemistry</b>	1	2
	112/1	<b>12- general histology</b>	2	2
	113/1	<b>13- Histology and histochemistry of blood, lymph and cardiovascular system.</b>	1	1
	114/1	<b>14- Comparative histology and histochemistry of body muscles, heart and blood vessels</b>	1	1
	115/1	<b>15- Comparative histology and histochemistry of respiratory system</b>	1	1
	116/1	<b>16-Comparative histology and histochemistry of digestive system</b>	2	2
	117/1	<b>17- Comparative histology and histochemistry of uro-genital system</b>	2	2
	118/1	<b>18- Comparative histology and histochemistry of nervous and endocrine systems</b>	2	2
	119/1	<b>19- Histology and histochemistry of special sensors</b>	1	2
	120/1	<b>20-Histology and histochemistry of skin, hooves, claws and Nails</b>	2	2
	121/1	<b>21- Avian histology</b>	2	2
	122/1	<b>22- Fish histology</b>	1	2



<b>Physiology</b>	123/1	<b>23- Physiology of mammalian endocrine and reproduction</b>	2	2
	124/1	<b>24- poultry physiology (advanced)</b>	2	2
	125/1	<b>25- physiology of muscle and nerve</b>	1	2
	126/1	<b>26- physiology of ruminants</b>	2	2
	127/1	<b>27- physiology of environment, adaptation and cell</b>	2	2
	128/1	<b>28- physiology of blood</b>	2	2
	129/1	<b>29- physiology of digestion, metabolism and energy</b>	2	2
	130/1	<b>30- Physiology in pollution</b>	1	2
	131/1	<b>31- Radioactive isotopes and biological uses</b>	2	2
	132/1	<b>32- Physiology of heights</b>	1	1
	133/1	<b>33-Fish physiology.</b>	1	2
<b>Biochemistry</b>	134/1	<b>34- Basics of biochemistry</b>	2	3
	135/1	<b>35- Metabolism</b>	2	2
	136/1	<b>36- Biochemistry of tissue and body fluids .</b>	2	2
	137/1	<b>37- Biochemistry of hormones and reproduction</b>	2	2
	138/1	<b>38- Feeding biochemistry</b>	2	2
	139/1	<b>39- Clinical biochemistry</b>	2	2
	140/1	<b>40- Avian biochemistry</b>	2	2
	141/1	<b>41- Microbial biochemistry</b>	2	2
	142/1	<b>42- Biochemistry of radiation</b>	1	2
143/1	<b>43- Fish biochemistry</b>			
<b>Animal behavior and management</b>	144/1	<b>44- Behavior and management of ruminants ( specific courses in cattle, buffalo, sheep, camels and goats)</b>	2	3
	145/1	<b>45- Behavior and management of horses</b>	2	3
	146/1	<b>46- Behavior and management of pet animals</b>	1	2
	147/1	<b>47- Behavior and management of laboratory animals</b>	1	2
	148/1	<b>48- Behavior and management of wild animals</b>	2	2
	149/1	<b>49- Behavior and management of poultry</b>	2	2
	150/1	<b>50- Behavior and management of rabbit</b>	1	2
	151/1	<b>51- Behavior of experimental animals</b>	1	2
<b>Nutrition and clinical nutrition</b>	152/1	<b>52- Basics of animal nutrition</b>	2	2
	153/1	<b>53- feedstuff</b>	2	2
	154/1	<b>54- nutrition of farm animals and fish specific courses in ( cattle and buffalo nutrition – sheep and goat nutrition – camel nutrition- equine nutrition – fish nutrition)</b>	2	2
	155/1	<b>55- poultry and rabbit nutrition( advanced)</b>	2	2
	156/1	<b>56- wild animal nutrition</b>	1	2
	157/1	<b>57- laboratory animal nutrition</b>	1	2



	158/1	<b>58- feed additives</b>	1	2
	159/1	<b>59- feedstuff analysis</b>	2	2
	160/1	<b>60- Quality control of feed and feed factories</b>	2	2
	161/1	<b>61- Clinical nutrition and malnutrition</b>	2	2
	162/1	<b>62- Fish nutrition</b>	1	2
<b>Pathology</b>	163/1	<b>63- General pathology and neoplasm( progressive)</b>	2	2
	164/1	<b>64-pathology of microbial and parasitic diseases in animal</b>	2	2
	165/1	<b>65- pathology of bad nutrition</b>	1	2
	166/1	<b>66- pathology of environmental pollution</b>	1	2
	167/1	<b>67- pathology of reproductive diseases</b>	1	2
	168/1	<b>68- Avian pathology</b>	2	2
	169/1	<b>69-Experimental pathology</b>	2	2
	170/1	<b>70- toxins pathology</b>	2	2
	171/1	<b>71- surgical pathology</b>	2	2
	172/1	<b>72- Pathology of experimental animals.</b>		
	173/1	<b>73- Pathology of genetics</b>		
	174/1	<b>74-- Fish pathology</b>	2	2
<b>Clinical pathology</b>	175/1	<b>75- Advanced clinical pathology</b>	2	2
	176/1	<b>76-Organ function tests and body and urine balance</b>	2	2
	177/1	<b>77- Clinical hematology and bone marrow examination</b>	1	2
<b>Virology</b>	180/3	<b>82- General virology</b>	1	2
	181/4	<b>83-Systemic virology( specific courses)</b>	2	3
	182/5	<b>84- Advanced immunology</b>	2	2
<b>Mixed courses between Bacteriology and Virology</b>	184/1	<b>85- Microbiology of poultry</b>	2	2
	185/1	<b>86- Microbiology of ??????</b>	1	2
	186/1	<b>87- Microbiology of animal product</b>	2	2
	187/1	<b>88- Fish Microbiology</b>	1	2
		<b>81- Advanced immunology</b>	2	2
<b>Parasitology</b>	188/1	<b>89- Veterinary medical entomology and acarology</b>	2	2
	189/1	<b>90-helminthology</b>	2	2
	190/1	<b>91- protozoology</b>	2	2
	191/1	<b>92- Avian and rabbits parasitology</b>	2	2
	192/1	<b>93Malacology and its vet. Importance</b>	1	2
	193/1	<b>94- parasitic Immunology</b>	1	2
	194/1	<b>95- Clinical parasitology</b>	2	2
	195/1	<b>96-Wild life parasitology</b>	1	2
	196/1	<b>97-Special vet. Parasitology</b>	2	2
	197/1	<b>98- Physiology and biochemistry of parasites</b>	2	2
	198/1	<b>99- Fish parasitology</b>	1	2



<b>Pharmacology</b>	199/1	<b>100- Aeneral pharmacology ( advanced)</b>	2	2
	200/1	<b>101- pharmacology of autonomic nervous system and autocoid</b>	2	2
	201/1	<b>102- pharmacology of central nervous system</b>	2	2
	202/1	<b>103 pharmacology of anesthesia</b>	2	2
	203/1	<b>104- Systemic pharmacology</b>	2	2
	204/1	<b>105- pharmacology of metabolism</b>	2	2
	205/1	<b>106- pharmacology of hormones</b>	2	2
	206/1	<b>107-Chemotherapy</b>	2	2
	207/1	<b>108-Biological evolution of drug</b>	1	1
<b>Hygiene and control of milk and dairy products</b>	208/1	<b>108- Hygiene and control of milk and dairy products</b>	2	2
	209	<b>109- Microbiology of milk and dairy products</b>	2	2
	210/1	<b>110- Milk technology and preservation</b>	2	2
	211/1	<b>111- Food analysis</b>	2	2
	212/1	<b>112- Food poisoning</b>	1	2
	213/1	<b>113- Specific courses on sources of contamination, disturbances of milk production, milk born diseases, hygiene of table egg, edible fats and oils</b>	1	1
		214/1	<b>114- The sanitation of dairy plant</b>	2
<b>Control of meat hygiene and their products</b>	215/1	<b>115- Slaughter animal Hygiene</b>	1	2
	216/1	<b>116- Abattoir management and hygiene</b>	2	2
	217/1	<b>117- Hygienic control of meat and their product</b>	2	2
	218/1	<b>118 inspection of poultry meat.</b>	1	2
	219/1	<b>119- Food technology</b>	1	2
	220/1	<b>120- Microbiology of meat and fish meats and their product</b>	2	1
	221/1	<b>121- Chilled meal microbiology</b>	1	2
	222/1	<b>122- Analysis of meat and fish and their product</b>	1	2
	223/1	<b>123- Preservation of meat, poultry, fish and their products</b>	1	2
		224/1	<b>124- Sanitation affairs of meat and fish plants.</b>	2
<b>Internal medicine</b>	225/1	<b>125- advanced general medicine</b>	2	2
	226/1	<b>126- disease of ruminants( cattle, buffalo, camels, sheep and goats)</b>	3	3
	227/1	<b>127- diseases of equines</b>	2	2
	228/1	<b>128 diseases of pet animals</b>	2	2
	229/1	<b>129- diseases of wild animals</b>	2	2
	230/1	<b>130- diseases of metabolic disorders</b>	2	2
	231/1	<b>131- nutritional deficiency diseases</b>	2	2
		232/1	<b>132- Skin diseases</b>	1



	233/1	<b>133 - diseases of newly born animals</b>	2	2
	234/ 1	<b>134- Stress diseases during animals transport.</b>		
<b>Infectious diseases</b>	235/ 1	<b>135- Infectious diseases of cattle</b>	2	2
	236/ 1	<b>136- Infectious diseases of sheep and goat</b>	2	2
	237/ 1	<b>137- Infectious diseases camel</b>	2	2
	238/ 1	<b>138 Infectious diseases of equine</b>	2	2
	239/ 1	<b>139- Infectious diseases of pet animals</b>	2	2
	240/ 1	<b>140- Infectious diseases lab animals</b>	1	2
	241/ 1	<b>141- Infectious diseases of udder and newly born animals</b>	2	2
	242/ 1	<b>142- Infectious diseases buffaloes</b>	2	1
	243/1	<b>143- Infectious diseases of wild animals.</b>		
<b>Forensic medicine and toxicology</b>	244/1	<b>144- Forensic medicine and veterinary procedures</b>	2	2
	245/1	<b>145- general toxicology</b>	2	2
	246/1	<b>146- environmental toxicology</b>	2	2
	247/1	<b>147- forensic toxicology</b>	2	2
	248/1	<b>148- laboratory diagnostic toxicology</b>	2	2
	249/1	<b>149- Drug toxicology</b>		
<b>Veterinary Surgery</b>	259/1	<b>159- General surgery (advanced)</b>	2	2
	260/1	<b>160- Special surgery( organs)</b>	2	3
	261/1	<b>161- surgery of eye, ear, nose and larynx</b>	2	2
	262/1	<b>162 digestive system surgery</b>	2	2
	263/1	<b>163- surgery of the limbs, hoof and claws</b>	2	2
	264/1	<b>164- experimental surgery</b>	2	2
	265/1	<b>165- anesthesiology</b>	1	1
	266/1	<b>166- radiology and ultrasonography</b>	2	2
<b>Poultry and rabbit diseases</b>	267/1	<b>167- bacterial diseases of poultry</b>	2	2
	268/1	<b>168- viral diseases of poultry</b>	2	2
	269/1	<b>169- fungal diseases of poultry</b>	2	2
	270/1	<b>170 parasitic diseases of poultry</b>	1	2
	271/1	<b>171 - nutritional diseases of poultry</b>	1	2
	272/1	<b>172-diseases of rabbit (advanced)</b>	2	2
	273/1	<b>173-Diseases of wild and migrating birds</b>	2	2
	274/1	<b>174- Preventive vaccines and their evaluation in polutry</b>	2	2
	275/1	<b>175- Laboratory diagnosis of poultry diseases.</b>		
<b>Animal and environmental hygiene</b>	276/1	<b>176- farm animal hygiene ( advanced)</b>	2	2
	277/1	<b>177- poultry hygiene ( advanced)</b>	2	2
	278/1	<b>178- environmental hygiene and pollution</b>	2	2
	279/1	<b>179- control of contagious diseases</b>	2	2
	280/1	<b>180- eradication of rodents and disease vector</b>	2	2



	281/1	<b>181- insecticides and public health</b>	2	2
	282/1	<b>182-hygiene of animal enclosures- specific courses in :- cattle houses – poultry houses – rabbit houses- pet animals house3s – experimental animals houses</b>	2	2
	283/1	<b>183-disinfections and disinfectants</b>	2	2
	284/1	<b>184- veterinary epidemiology – specific courses in animal environment</b>	2	-
<b>Zoonoses</b>	285/1	<b>185- advanced zoonoses ( specific courses in bacterial and Mycotic diseases – viral diseases – parasitic diseases)</b>	2	2
	286/1	<b>186- role of rodents in transmission of zoonoses</b>	2	2
	287/1	<b>187- role of wild animals in transmission of zoonoses</b>	2	2
	288/1	<b>188- role of birds (special courses in: poultry, wild migrating or pets) in transmission of zoonoses</b>		
<b>Genetics and genetic engineering</b>	289/1	<b>189- Genetics of microorganisms .</b>	1	2
	290/1	<b>190- Genetic engineering( advanced)</b>	1	2
	291/1	<b>191- Cytological genetics</b>	1	-
	292/1	<b>192- Genetics of genuses.</b>	2	-
	293/1	<b>193- physiological genetics</b>	2	-
	294/1	<b>194- Chemical and radiological genetics.</b>	1	2
<b>Animal production</b>	295/1	<b>195- Animal breeding and improvement (advanced).</b>	2	-
	296/1	<b>196- Poultry breeding and improvement(advanced).</b>	2	-
	297/1	<b>197- Cattle and buffalo production (advanced).</b>	2	2
	298/1	<b>198- Sheep and goat production (advanced).</b>	2	2
	299/1	<b>199- Poultry production (advanced).</b>	2	2
	300	<b>200-Rabbit production (advanced).</b>	2	2
	301	<b>201-Improving by artificial insemination in poultry and rabbits.</b>	2	2
<b>Fish diseases and management</b>	302/1	<b>202- Biology of fish.</b>	2	2
	303/1	<b>203-Fish diseases (advanced)</b>	2	2
	304/1	<b>204-Fish farms.</b>	1	2
	305/1	<b>205-Fish breeding .</b>	2	2
<b>Economic and farms management</b>	306/1	<b>206- economics of animals and dairy production</b>	2	-
	307/1	<b>207- economics of poultry farms</b>	2	-
	308/1	<b>208-economics of fish farms</b>	2	-
	309/1	<b>209- feasibility studies</b>	2	-
	310/1	<b>210- farm management</b>	2	-



	311/1	211- economics of beef production	2	-
Biostatistics	312/1	212- Biostatistics (advanced)	2	-
	313/1	213- Experimental design	2	2
	314/1	214- Computer and data processing	2	1

### 6-Teaching and Learning Methods:

*The program features a variety of teaching approaches for different intended learning objectives including:*

- Lectures to gain knowledge and understanding skills
- Writing a review paper to gain the skills of self-learning and presentation
- Practical and lab sessions to gain practical skills
- Seminars

### 7- Students assessments:

The program depends on different assessment ways:

#### a. Course assessment:

1- Written examination	For assessment of knowledge, back calling and Intellectual skills
2- Practical examination	For assessment of practical and professional skill
3- Oral examination	For assessment of knowledge and Intellectual skills

#### b. Master Thesis

- Annual reports adopted by the Faculty
- Finally, the assessment of thesis measure the individual student ability to work independently in the field specialization
- Final evaluation and approval by a judging committee of at least three professors including one or more of the supervisors and an external professor. This assesses the ability to write a review article, perform the needed practical steps and to present the results in tables and graphs. In addition, the skills of analysis of results and discussion with previous findings obtained by other authors are also assessed.

#### Assessment of program intended learning outcomes

	Tool or method	ILOs
1-	Written	a1,2,3,4,5,7; b1,2,3,5,6,7
2-	Oral	a1,2,5; b2,3,4,6
3-	Practical	b1,7; c1-3
4-	Thesis	a5-7; b1-7, c1-3, d1-8





### 8. Marking scale as follow:-

<b>Excellent</b>		> 90
<b>Very good</b>		>80
<b>Good</b>		>70
<b>Pass</b>		>60
<b>Fail</b>	<b>Weak</b>	45 to less than 60
	<b>very weak</b>	Less than 45

### 9. Program evaluation methods

<b>Evaluator</b>	<b>Tool</b>	<b>Sample</b>
Postgraduate Student	Questioners	<b>20%</b>
	meeting	<b>1</b>
Postgraduate alumni	Questioners	<b>5</b>
Stakeholders (employers)	Questioners	<b>10</b>
	Meeting	<b>1</b>
External evaluator/External examiner	Reports	<b>1</b>

### 10. Program Admission Requirements:

The Applicant must normally satisfy the faculty of veterinary medicine- kafrelsheikh University general entrance and requirement. The normal minimum entrance qualification for registration at the faculty on a master's program

- 1- Bachelor degree in Veterinary Medical Sciences of one of the Egyptian Universities or hold a degree in Veterinary Medical Sciences equivalent through the Supreme Council of Universities with general grade at least "Good" and at least grade "Very Good" in specialization.
- 2- Diploma of general grade at least "Good" and at least grade "Very Good" in specialization. The total number of study hours must be not less than 3 weekly in that specialization.
- 3- After he has passed the courses studied during premaster he must perform a research work in a subject approved by the faculty council at least for one year. He must submit the results of this work in thesis that should be approved by the discussion committee.

### 11. Regulations for progression of program

- a) Registration period for the M.V.Sc in veterinary medical science is at least 2 years after the approval date by the faculty council and it should not exceed a period of 4 years, an extension could be approved by the faculty council depending on the supervisor report that approved by the department council and postgraduate and research committee refers to the universities regulation law.
- b) The student should conduct the courses proposed by both department council and approved by postgraduate and research committee and faculty council and include, 2-5 courses of the postgraduates stated in article (28) in regulation law list and the student will entitled to apply for the exam only after meeting attendance rate for each courses.



- c) The student should pass written, practical and oral exams successfully in all courses, and the examination is held two times annually.
- d) The Faculty council should deprive the student from entering the exam if his attendance rate in the course is less than 75%.
- e) Failure or depriving from entering one or more course did not require reexamination of successful passed courses.
- f) The applicant should conduct an innovate research on the subject that has been registered for at least 2 years from the date of registration approved by the faculty council. And the faculty council depending on a request from the supervisor has the right to authorize the student to do scientific experiments at recognized scientific institute.
- g) The applicant should submit the thesis that accepted by the judging committee in an open discussion and the following policies should be met:
- h) Pass all courses.
- i) The applicant should submit 4 copies of his thesis concerned department council to form committee examining the thesis to be presented to the postgraduate studies committee and the faculty council, and in case of thesis approval by the department council, the applicant will submit 6 copies for the faculty library, 1 copy for public university library before introducing the report of examination committee to the post graduate studies committee and the faculty council.
- j) Registration will be during March and September of each year.
- k) The applicant should submit a request enrolment for the dean who forwards bit to the concerned department council to determine the research subject and the study program and then take calendar after complete documentation on the faculty council for approval.
- l) The thesis title should be identified before being submitted at least 2 months and the judging committee has the right to amend the title without prejudice the subject of research.
- m) The Faculty council has the right to suspend the student enrolment for a certain period if he has acceptable excuse preventing him from continuing his study or research, and his period will not counted within the period stated in article 25.
- n) The applicant should submit 5 hard copies and 10 electronic copies (CDs) of the thesis after its validity approved by the judging committee and head of department to be distributed to the committee members and faculty library and the judging committee can decide the exchange of the thesis with other universities or printing at the expense of the university.

#### **12. Registration will be cancelled in one of the following cases:**

1. If the supervisors report during the registration period is unsatisfactory (2 reports).
2. If he did not submit his thesis before the end of registration period.
3. If the judging committee rejected the thesis twice.

#### **13. Examination Regulations**

- a- Time of written exam, 3 hours for each course that has 3 hours or more for lecture / practical /week. **If has less than 3 hours/week, the time of exam, is 2 hours only.**



**b- The final degree of each course which has 3 hours (lecture and practical) per week is 100 and less than 3 hours is 50 degrees and divided into 50% for written exam, and 50% for practical and oral exam.**

**14. Program completion:**

- Successfully completion of the required courses and submission of a thesis.

**Program Co-ordinator:**

**Head of Department:**

Prof. Dr.

Prof. Dr.

**Matching program ILOs with ARS - Matrix**

Program ILOs	ARS																								
	K&U (a)						I.S. (b)							P.P. (c)				G.T. (d)							
	1	2	3	4	5	6	1	2	3	4	5	6	7	1	2	3	4	1	2	3	4	5	6	7	8
<b>K&amp;U</b>	1	2	3	4	5	6	7																		
<b>I.S.</b>								1	2	3	4	5	6	7											
<b>P.P.</b>																		1	2	3					
<b>G.T.</b>																									







**Kafrelsheikh University**  
**Faculty of Veterinary Medicine**  
**Department of Bacteriology, Mycology and Immunology**



## **ARS for Master in Veterinary Medical Medicine (Bacteriology, Mycology and Immunology)**

### **1) Graduate attributes**

*The graduate should have the ability for:*

- (1) Perfect application of scientific research basics and methodologies, and using its various tools.
- (2) Application and use of analytical methods in Bacteriology, Mycology and Immunology.
- (3) Application of gained specialized knowledge and integrating them with the relevant knowledge in Bacteriology, Mycology and Immunology.
- (4) Awareness with ongoing problems and recent visions in field of Bacteriology, Mycology and Immunology.
- (5) Identification of professional problems and suggesting solutions.
- (6) Mastering the proper scope of a rate specialized professional skills, and using appropriate technological means to serve the professional practice.
- (7) Effective communication and leading work team.
- (8) Decision making under different professional situations.
- (9) Employ available resources efficiently.
- (10) Awareness with his role in society development and community preservation in the light of global and regional variations.
- (11) Reflection of the commitment to act with integrity, credibility and the rules of profession.
- (12) Academic and professional self- development and ability for life-long learning and progress.

### **A) Knowledge and understanding**

<b>Adopted ARS</b>		<b>NARS (Master)</b>	
	<i>By the end of this program the graduate should understand and accommodate the following:</i>		<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Theories and basics in the field of Bacteriology, Mycology and Immunology and related fields.		Theories and principles in the field of specialization and related fields.
2)	The host pathogen relationship and microbial pathogenesis and their impact on environment		Mutual effect between professional practice and its impact on environment
3)	The immune system, its detailed components,		Scientific progress in the field of



	function of each, its beneficial role, its deficiency conditions, as well as its detrimental role in hypersensitivity and autoimmunity. Recognize the advanced concepts in Mycology and bacteriology	specialization
4)	Applying knowledge and understanding of molecular structure of bacteria and fungi to the critical analysis and discussion of the scientific literature.	Legal and ethical basics in professional practice in the field of specialization
5)	The most important methods of decontamination, sterilization and principles of infection control.	Principles and basics of quality assurance in the area of specialization
6)	Principles and ethics of scientific research.	Basics and ethics of scientific research

### B) Intellectual skills

Adopted ARS		NARS (Master)
	<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Evaluation and judgment of data concerning different microbial pathogens	Analysis and judgment of information in the field of specialization and analog to solve problems.
2)	Interpreting results of microbiological, serological and molecular tests.	Solving professional problems even in scarcity of data.
3)	Development of creative approaches to solve technical problems or issues associated with running and researches project.	Relating between different knowledge to solve professional problems.
4)	Identification, summarizing and evaluating prior researches finding in Bacteriology, Mycology and Immunology.	Preparing research plan in specialization and/ or writing scientific article on a research problem.
5)	Comprehending areas where further researches are necessary	Risk-assessment of professional practices in specialization.
6)	Formulate a systematic approach for laboratory diagnosis of the infectious clinical conditions and select the most appropriate and cost-effective tool leading to the identification of the causative organism.	Planning for improvement of professional performance.
7)	Using appropriate intellectual strategy to deal with diagnostic problems	Taking professional decisions in a variety of professional contexts.

### C) Professional and practical skills

Adopted ARS		NARS (Master)
	<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and accommodate the following:</i>

1)	Investigating using recent techniques and tools necessary to diagnose and characterize bacteria, fungi and immune diseases of veterinary importance.	Mastering basic and recent professional skills in the field of specialization
2)	Evaluating and presenting data	Writing and evaluating professional reports.
3)	Assessment of available methodology in the field of veterinary Bacteriology, Mycology and Immunology	Evaluating existing materials and methods in the area of specialization.

#### D) General and transferable skill

Adopted ARS		NARS (Master)
	<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Communicating effectively with teaching staff, colleagues and the community.	Effective communication.
2)	Using information technology in scientific research and publications.	Utilizing information technology to serve development of professional practice.
3)	Demonstrating appropriate attitude towards teaching staff and colleagues.	Self-assessment and determination of personal educational needs.
4)	Identifying and use different sources of information and knowledge.	Using different resources to obtain knowledge and information.
5)	Using appropriate attitude and rules towards teaching staff and colleagues and use evidence based evaluations.	Establishing rules and indicators for assessment of the performance of others.
6)	Respecting the importance of team work.	Team working and leading a team in familiar professional contexts.
7)	Doing good control of timing.	Efficient time management.
8)	Performing continuous self-learning.	Self and continuous learning.

### ثانياً: برامج الماجستير

#### ١- مواصفات الخريج

- خريج برنامج الماجستير في أي تخصص يجب أن يكون قادراً على:
١. إجادة تطبيق أساسيات و منهجيات البحث العلمي واستخدام أدواته المختلفة
  ٢. تطبيق المنهج التحليلي واستخدامه في مجال التخصص
  ٣. تطبيق المعارف المتخصصة و دمجها مع المعارف ذات العلاقة في ممارسته المهنية
  ٤. إظهار وعيا بالمشاكل الجارية و الرؤى الحديثة في مجال التخصص



٥. تحديد المشكلات المهنية و إيجاد حلولاً لها
٦. إتقان نطاق مناسب من المهارات المهنية المتخصصة، واستخدام الوسائل التكنولوجية المناسبة بما يخدم ممارسته المهنية
٧. التواصل بفاعلية و القدرة على قيادة فرق العمل
٨. اتخاذ القرار في سياقات مهنية مختلفة
٩. توظيف الموارد المتاحة بما يحقق أعلى استفادة و الحفاظ عليها
١٠. إظهار الوعي بدوره في تنمية المجتمع و الحفاظ على البيئة في ضوء المتغيرات العالمية و الإقليمية
١١. التصرف بما يعكس الالتزام بالنزاهة و المصداقية و الالتزام بقواعد المهنة
١٢. تنمية ذاته أكاديمياً و مهنياً و قادراً على التعلم المستمر

## ١٢ - المعايير القياسية العامة

### ١ المعرفة و الفهم

- بانتهاء دراسة برنامج الماجستير يجب ان يكون الخريج على فهم و دراية بكل من:
- أ- النظريات و الأساسيات المتعلقة بمجال التعلم وكذا في المجالات ذات العلاقة
  - ب- التأثير المتبادل بين الممارسة المهنية وانعكاسها على البيئة
  - ت- التطورات العلمية في مجال التخصص
  - ث- المبادئ الأخلاقية و القانونية للممارسة المهنية في مجال التخصص
  - ج- مبادئ و أساسيات الجودة في الممارسة المهنية في مجال التخصص
  - ح- أساسيات و أخلاقيات البحث العلمي

### ٢ المهارات الذهنية

- بانتهاء دراسة برنامج الماجستير يجب ان يكون الخريج قادراً على:
- أ- تحليل و تقييم المعلومات في مجال التخصص و القياس عليها لحل المشاكل
  - ب- حل المشاكل المتخصصة مع عدم توافر بعض المعطيات
  - ت- الربط بين المعارف المختلفة لحل المشاكل المهنية
  - ث- إجراء دراسة بحثية و /أو كتابة دراسة علمية منهجية حول مشكلة بحثية
  - ج- تقييم المخاطر في الممارسات المهنية في مجال التخصص
  - ح- التخطيط لتطوير الأداء في مجال التخصص
  - خ- اتخاذ القرارات المهنية في سياقات مهنية متنوعة

### ٣ المهارات المهنية

بانتهاء دراسة برنامج الماجستير يجب ان يكون الخريج قادرا على:  
أ - إتقان المهارات المهنية الأساسية و الحديثة في مجال التخصص  
ب - كتابة و تقييم التقارير المهنية  
ت - تقييم الطرق و الأدوات القائمة في مجال التخصص  
د المهارات العامة و المنتقلة

بانتهاء دراسة برنامج الماجستير يجب أن يكون الخريج قادرا على:  
أ - التواصل الفعال بأنواعه المختلفة  
ب - استخدام تكنولوجيا المعلومات بما يخدم الممارسة المهنية  
ت - التقييم الذاتي وتحديد احتياجاته التعليمية الشخصية  
ث - استخدام المصادر المختلفة للحصول على المعلومات و المعارف  
ج - وضع قواعد و مؤشرات تقييم أداء الآخرين  
ح - العمل في فريق ، وقيادة فرق في سياقات مهنية مختلفة  
خ - إدارة الوقت بكفاءة  
د - التعلم الذاتي و المستمر



## COURSE SPECIFICATION

(2021 / 2022)

### 1 - Basic Information:

Code number:.....

Course title: **Bacteriology, Mycology and Immunology (basic)**  
(بكتيريا وفطريات ومناعة-أساسي)

Academic Year: **Master of Veterinary Medicine Program**

Total teaching hours: 336hrs

Lectures: 144hrs (48 weeks- 3hrs/week)

Practical: 192 hrs. (48 weeks- 4hrs/week)

### 2 - OVERALL AIMS OF THE COURSE:

*By the end of this course, the student should acquire the concepts, principles and skills related to the basic features of general and systematic bacteriology, immunology and mycology, the basics of applied and molecular immunology, relevant to the susceptibility and response of the host to microorganisms, with special emphasis on the host-pathogen relationship at the cellular and molecular level.*

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- a1- Illustrate general bacterial morphology, physiology and genetics.
- a2- Describe the host parasite relation and microbial pathogenesis.
- a3- Recognizes the basic feature of general bacteriology.
- a4- Define the culture, antigenic structure and virulence factor of microorganisms of detrimental role in hypersensitivity.
- a5- Explain the most important infectious clinical conditions and outline the diagnosis of bacteria that cause such diseases.

#### 3-B: INTELLECTUAL SKILLS:

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

- b1- Interpret the results of microbiological, serological and molecular tests.
- b 2- Identify a microorganism as bacteria and fungi according to standard taxonomy.
- b3- Compare according evidence the causal relationship of microbes and diseases.
- b4- Interpret the results of serological and molecular tests.
- b5- Carry out a systematic approach for serum analysis

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

- c1- Evaluate medically important bacteria based on microscopic examination of stained preparations.
- c2- Apply culture media and biochemical tests commonly used for bacterial and fungal identification.
- c3- Apply serological Tests: slide agglutination, tube agglutination, precipitation test, complement fixation test, toxin-antitoxin neutralization.
- c4- Use serological tests and other immunological test used for identification of bacteria and fungi.

#### 3- D: GENERAL SKILLS:

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

- d.1. Communicate effectively with his professors, and colleagues.
- d.2. Utilize different sources of knowledge and information
- d.3. Use information technology to serve the professional practice.



d.4. Manage time efficiently.

#### 4 - COURSE CONTENTS:

Topic	No. of hours		
	Lectures	Practical	Total
1- General Bacteriology	36	48	84
2- General Mycology	3	4	7
3- Immunology	36	48	84
4- Bacterial Taxonomy	2	-	2
5-Gram-positive Bacteria	26	36	62
6- Gram-negative Bacteria	29	40	69
7- Systematic Mycology	12	16	28
<b>Total</b>	<b>144</b>	<b>192</b>	<b>336</b>

#### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library

Making individual reports about bacteriology, immunology and mycology

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures *	a1 to a5	b1 to b5		d1, d4
Practical sessions		b1 to b5	c1 to c4	d2, d4
Self-Learning activities				d2, d3, d4
Distance Teaching and Learning	a1 to a5	b1 to b5	c1 to c4	d1 to d4

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	Allover the academic year
<b>7.c grads</b>	50	20	20	10



7. Student Assessment				
Intended Learning Outcomes Covered				
6.1. Methods	KU	IS	PPS	GTS
Written exams	a1 to a5	b1 to b5		d4
Practical exams			c1 to c4	d2, d3
Oral exams	a1 to a5	b1 to b5		d1
Student activities	a1, a5,			d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: ESSENTIAL BOOKS:

- Sastry, Apurba Sankar, and Sandhya Bhat. Essentials of medical microbiology. JP Medical Ltd, 2018.
- Mahon, C.R., Lehman, D.C. and Manuselis, G., 2018. Textbook of diagnostic microbiology-e-book. Elsevier Health Sciences, 2018.
- Presterl, Elisabeth, Magda Diab-El Schahawi, and Jacqui S. Reilly, eds. Basic microbiology and infection control for midwives. Springer International Publishing, 2019.

### 8-2: RECOMMENDED BOOKS:

- Goering, Richard, et al. Mims' Medical Microbiology E-Book. Elsevier Health Sciences, 2018.
- Barer, Michael R., and William L. Irving. Medical Microbiology E-Book: A Guide to Microbial Infections. Elsevier Health Sciences, 2018.
- Murray, Patrick R., Ken S. Rosenthal, and Michael A. Pfaller. Medical microbiology E-book. Elsevier Health Sciences, 2020.

### Scientific Journals

- Journal of Applied Microbiology
- Applied and Environmental Microbiology.
- Infection and Immunity.
- Journal of Bacteriology.
- Journal of Clinical Microbiology.

### Scientific websites

- The Egyptian Knowledge Bank: <https://www.ekb.eg/web/guest/home>
- <https://www.wikipedia.org/>
- <https://www.fao.org/home/en/>
- <https://www.who.com>

### Course Coordinator:

Prof. Amgad Ahmed Moawad

### Head of Department:

Prof. Ashraf Mohamed Ahmed

### Course Matrix for achievement of Intended Learning Outcomes

Topics	Hours	Knowledge & Understanding					1	Intellectual Skills					Practical & Professional Skills				General & Transferable Skills			
		1	2	3	4	5		2	3	4	5	1	2	3	4	1	2	3	4	
1- General Bacteriology	84			✓			✓	✓	✓	✓	✓	✓				✓	✓	✓	✓	
2- General Mycology	7	✓	✓	✓			✓	✓	✓	✓	✓					✓	✓	✓	✓	
3- Immunology	84	✓					✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	
4- Bacterial Taxonomy	2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				✓	✓	✓	✓	
5-Gram-positive Bacteria	62		✓	✓	✓		✓	✓				✓	✓			✓	✓	✓	✓	
6- Gram-negative Bacteria	69						✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	
7- Systematic Mycology	28								✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	



## COURSE SPECIFICATION (2021 / 2022)

### 1 - Basic Information:

**Course title:** Advanced General Bacteriology (بكتيريا عام منقدم)

**Code:** 178 /1

**Academic Year:** Master of Veterinary Medicine Program

**Total teaching hours:** 144hrs

**Lectures:** 48hrs

**Practical:** 96 hrs.

### 2 - OVERALL AIMS OF THE COURSE:

*By the end of this course, the student should acquire the concepts, principles and skills related to general bacteriology and basic laboratory technology.*

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- a.8. Recognize the general morphology of bacteria.
- a.9. Describe the virulence factors responsible for pathogenicity.
- a.10. Realize the culture, antigenic structure of microorganisms of detrimental role in hypersensitivity.
- a.11. Explain the genetic basis for bacterial pathogenicity and virulence.
- a.12. Recognize the most important bacterial products (enzymes, toxins, and pigments) and their potential role in bacterial virulence.

#### 3-B: INTELLECTUAL SKILLS:

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

- b.1. Interpret the results of microbiological, serological and molecular tests.
- b.2. Identify a microorganism as bacteria according to their general morphological characters.
- b.3. Compare according evidence the causal relationship of microbes and diseases.

#### 3-C: PRACTICAL AND PROFESSIONAL SKILLS:

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

- c.4. Diagnose medically important bacteria based on microscopic examination of stained preparations.
- c.5. Write a scientific identification scheme for pathogens.
- c.6. Apply culture media and biochemical tests commonly used for bacterial identification.
- c.7. Use the different serological and technological tests for identification of different microorganisms as bacteria and fungi.

#### 3-D: GENERAL SKILLS:

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

- d.1. Communicate effectively with his professors, and collages.
- d.2. Utilize different sources of knowledge and information
- d.3. Use information technology to serve the professional practice.
- d.4. Manage time efficiently.

### 4 - COURSE CONTENTS:

Topic	No. of hours		
	Lectures	Practical	Total
1- Structure of Bacterial Cell	8	16	24



2- Growth and Reproduction	8	24	32
3- Bacterial Virulence	8	-	8
4- Bacterial Genetics	10	20	30
5- PCR	6	20	26
6- Antimicrobial Resistance	8	16	24
Total	48	96	144

### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library

Making individual reports about general bacteriology

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a5	b1 to b3		d1, d4
Practical sessions		b1 to b3	c1 to c4	d2, d4
Self-Learning activities				d2, d3, d4
Distance Teaching and Learning	a1 to a5	b1 to b3	c1 to c4	d1 to d4

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	All over the academic year
<b>7.c grads</b>	50	20	20	10

6.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a5	b1 to b3		d4
Practical exams			c1 to c4	d2, d3
Oral exams	a1 to a5	b1 to b3		d1
Student activities	a1, a5,			d1 to d4





KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## **8. LEARNING AND REFERENCE MATERIALS:**

### **8-1: ESSENTIAL BOOKS:**

- Sastry, Apurba Sankar, and Sandhya Bhat. Essentials of medical microbiology. JP Medical Ltd, 2018.
- Mahon, C.R., Lehman, D.C. and Manuselis, G., 2018. Textbook of diagnostic microbiology-e-book. Elsevier Health Sciences, 2018.
- Presterl, Elisabeth, Magda Diab-El Schahawi, and Jacqui S. Reilly, eds. Basic microbiology and infection control for midwives. Springer International Publishing, 2019.

### **8-2: RECOMMENDED BOOKS:**

- Goering, Richard, et al. Mims' Medical Microbiology E-Book. Elsevier Health Sciences, 2018.
- Barer, Michael R., and William L. Irving. Medical Microbiology E-Book: A Guide to Microbial Infections. Elsevier Health Sciences, 2018.
- Murray, Patrick R., Ken S. Rosenthal, and Michael A. Pfaller. Medical microbiology E-book. Elsevier Health Sciences, 2020.

### **Scientific Journals**

- Journal of Applied Microbiology
- Applied and Environmental Microbiology.
- Infection and Immunity.
- Journal of Bacteriology.
- Journal of Clinical Microbiology.

### **Scientific websites**

- The Egyptian Knowledge Bank: <https://www.ekb.eg/web/guest/home>
- <https://www.wikipedia.org/>
- <https://www.fao.org/home/en/>
- <https://www.who.com>

### **Course Coordinator:**

Prof. Amgad Ahmed Moawad

### **Head of Department:**

Prof. Ashraf Mohamed Ahmed

### Course Matrix for achievement of Intended Learning Outcomes

Topics	Hours	Knowledge & Understanding					Intellectual Skills			Practical & Professional Skills				General & Transferable Skills			
		1	2	3	4	5	1	2	3	1	2	3	4	1	2	3	4
1- Structure of Bacterial Cell	24	✓					✓			✓				✓	✓	✓	✓
2- Growth and Reproduction	32	✓					✓			✓	✓			✓	✓	✓	✓
3- Bacterial Virulence	8		✓					✓	✓		✓			✓	✓	✓	✓
4- Bacterial Genetics	30			✓	✓			✓	✓			✓	✓	✓	✓	✓	✓
5- PCR	26			✓	✓			✓	✓			✓	✓	✓	✓	✓	✓
6- Antimicrobial Resistance	24					✓		✓	✓			✓	✓	✓	✓	✓	✓

## COURSE SPECIFICATION (2021 / 2022)

### 1 - Basic Information:

Course title: Advanced Specific Bacteriology (بكتيريا خاص منقدم)

Code: 179 /1

Academic Year: Master of Veterinary Medicine Program

Total teaching hours: 240 hrs.

Lectures: 96 hrs.

Practical: 144 hrs.

### 2 - OVERALL AIMS OF THE COURSE:

*By the end of this course, the student should acquire the concepts, principles and skills related to the basic, applied and molecular character of each bacteria with relevant to the susceptibility and response of the host to microorganisms, with special emphasis on the host-pathogen relationship at the cellular and molecular level.*

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- a.1. Realize the basics of morphology and the antigenic structure of every bacterial species.
- a.2. Be aware with the growth characteristics for different bacteria.
- a.3. List the different bacterial products.
- a.4. Describe the pathogenesis and host immune response of different bacteria.
- a.5. Recognize methods of isolation and identification of bacterial infections including modern techniques and PCR.

#### 3-B: INTELLECTUAL SKILLS:

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

- b1- achieve results of Bacteriological, serological and molecular tests.
- b2- Interpret Bacteriological, immunological and molecular reports.
- b3- Evaluate according to evidence the causal relationship of Bacteria and diseases.
- b4- Categorize a Bacteria according to standard taxonomy.

#### 3-C: Practical and professional skills:

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

- c1- Detect medically important bacteria based on microscopical examination of stained preparation.
- c2- Perform culture media and biochemical tests commonly used for Bacterial identification.
- c3- Apply Serotyping of bacteria using different serological tests.

#### 3-D: GENERAL SKILLS:

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

- d.1. Communicate effectively with his professors, and collages.
- d.2. Utilize different sources of knowledge and information
- d.3. Use information technology to serve the professional practice.
- d.4. Manage time efficiently.

### 4 - COURSE CONTENTS:

Topic	No. of hours		
	Lectures	Practical	Total
1- Bacterial Taxonomy	4	-	4
2- Gram-positive Cocci	16	26	42



3- Gram-positive Bacilli	30	42	72
4- Gram-negative bacilli	30	42	72
5- Gram-negative coccobacilli	12	26	38
6- <i>Mycoplasma</i>	4	8	12
<b>Total</b>	<b>96</b>	<b>144</b>	<b>240</b>

### 5- TEACHING & LEARNING METHODS:

- \* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard Discussion and brain storming
- \* **Practical sessions:**
- \* **Self-Learning activities:** Mini reviews from the web and the library  
Making individual reports about general bacteriology
- \* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a5	b1 to b4		d1, d4
Practical sessions		b1 to b4	c1 to c3	d2, d4
Self-Learning activities				d2, d3, d4
Distance Teaching and Learning	a1 to a5	b1 to b4	c1 to c3	d1 to d4

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	All over the academic year
<b>7.c grads</b>	50	20	20	10

6.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a5	b1 to b4		d4
Practical exams			c1 to c3	d2, d3
Oral exams	a1 to a5	b1 to b4		d1
Student activities	a1, a5,			d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills;



GTS, general and transferable skills.

## **8. LEARNING AND REFERENCE MATERIALS:**

### **8-1: ESSENTIAL BOOKS:**

- Sastry, Apurba Sankar, and Sandhya Bhat. Essentials of medical microbiology. JP Medical Ltd, 2018.
- Mahon, C.R., Lehman, D.C. and Manuselis, G., 2018. Textbook of diagnostic microbiology-e-book. Elsevier Health Sciences, 2018.
- Presterl, Elisabeth, Magda Diab-El Schahawi, and Jacqui S. Reilly, eds. Basic microbiology and infection control for midwives. Springer International Publishing, 2019.

### **8-2: RECOMMENDED BOOKS:**

- Goering, Richard, et al. Mims' Medical Microbiology E-Book. Elsevier Health Sciences, 2018.
- Barer, Michael R., and William L. Irving. Medical Microbiology E-Book: A Guide to Microbial Infections. Elsevier Health Sciences, 2018.
- Murray, Patrick R., Ken S. Rosenthal, and Michael A. Pfaller. Medical microbiology E-book. Elsevier Health Sciences, 2020.

### **Scientific Journals**

- Journal of Applied Microbiology
- Applied and Environmental Microbiology.
- Infection and Immunity.
- Journal of Bacteriology.
- Journal of Clinical Microbiology.

### **Scientific websites**

- The Egyptian Knowledge Bank: <https://www.ekb.eg/web/guest/home>
- <https://www.wikipedia.org/>
- <https://www.fao.org/home/en/>
- <https://www.who.com>

### **Course Coordinator:**

Prof. Amgad Ahmed Moawad

### **Head of Department:**

Prof. Ashraf Mohamed Ahmed



## COURSE SPECIFICATION (2021 / 2022)

### 1 - Basic Information:

Code: 182 /1

Course title: Advanced Immunolog

Academic Year: Master of Veterinary Medicine Program

Total teaching hours: 192 hrs.

Lectures: 96 hrs.

Practical: 96 hrs

### 2 - OVERALL AIMS OF THE COURSE:

*By the end of this course, the student should acquire the concepts, principles and skills related to the basic, pplied and molecular immunology, relevant to the susceptibility and response of the host to microorganisms, with special emphasis on the host-pathogen relationship at the cellular and molecular level.*

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

a1- Illustrate general structure of the immune system as well as host parasite immunological interaction.

a2- Recognize the basic features of basic, applied and molecular immunology.

a3- Describe the structure and functions of the immune system, its beneficial role as well as its detrimental role in hypersensitivity and autoimmunity.

#### 3-B: INTELLECTUAL SKILLS:

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

b1- Interpret results of serological and molecular tests.

b2- Construct a systematic approach for laboratory diagnosis.

b3- Discover according to evidence the causal relationship of microbes and diseases.

#### 3-C: Practical and professional skills:

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

c1- Detect medically important bacteria based on serological examination of serum.

c2- Perform serological Tests: slide agglutination, tube agglutination, precipitation test, complement fixation test, toxin-antitoxin neutralization.

c3- Apply Serological identification (serotyping) of bacteria using different serological tests.

#### 3-D: GENERAL SKILLS:

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

d.1. Communicate effectively with his professors, and collages.

d.2. Utilize different sources of knowledge and information

d.3. Use information technology to serve the professional practice.

d.4. Manage time efficiently.

### 4 - COURSE CONTENTS:

Topic	No. of hours		
	Lectures	Practical	Total
1. Innate Immunity	20	-	20

2. Immune System	20	-	20
3. Antigens	16	48	64
4. Antibodies	20	48	68
5. Cell-mediated Immunity	20	-	20
<b>Total</b>	<b>96</b>	<b>96</b>	<b>192</b>

### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library

Making individual reports about general bacteriology

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a3	b1 to b3		d1, d4
Practical sessions		b1 to b3	c1 to c3	d2, d4
Self-Learning activities				d2, d3, d4
Distance Teaching and Learning	a1 to a3	b1 to b3	c1 to c3	d1 to d4

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	Allover the academic year
<b>7.c grads</b>	50	20	20	10

6.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a3	b1 to b3		d4
Practical exams			c1 to c3	d2, d3
Oral exams	a1 to a3	b1 to b3		d1





Student activities	a1, a3,			d1 to d4
--------------------	---------	--	--	----------

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: ESSENTIAL BOOKS:

- Sastry, Apurba Sankar, and Sandhya Bhat. Essentials of medical microbiology. JP Medical Ltd, 2018.
- Mahon, C.R., Lehman, D.C. and Manuselis, G., 2018. Textbook of diagnostic microbiology-e-book. Elsevier Health Sciences, 2018.
- Presterl, Elisabeth, Magda Diab-El Schahawi, and Jacqui S. Reilly, eds. Basic microbiology and infection control for midwives. Springer International Publishing, 2019.

### 8-2: RECOMMENDED BOOKS:

- Goering, Richard, et al. Mims' Medical Microbiology E-Book. Elsevier Health Sciences, 2018.
- Barer, Michael R., and William L. Irving. Medical Microbiology E-Book: A Guide to Microbial Infections. Elsevier Health Sciences, 2018.
- Murray, Patrick R., Ken S. Rosenthal, and Michael A. Pfaller. Medical microbiology E-book. Elsevier Health Sciences, 2020.

### Scientific Journals

- Journal of Applied Microbiology
- Applied and Environmental Microbiology.
- Infection and Immunity.
- Journal of Bacteriology.
- Journal of Clinical Microbiology.

### Scientific websites

- The Egyptian Knowledge Bank: <https://www.ekb.eg/web/guest/home>
- <https://www.wikipedia.org/>
- <https://www.fao.org/home/en/>
- <https://www.who.com>

### Course Coordinator:

Prof. Amgad Ahmed Moawad

### Head of Department:

Prof. Ashraf Mohamed Ahmed

### Course Matrix for achievement of Intended Learning Outcomes

Topics	Hours	Knowledge & Understanding			Intellectual Skills			Practical & Professional Skills			General & Transferable Skills			
		1	2	3	1	2	3	1	2	3	1	2	3	4
1. Innate Immunity	20	✓	✓	✓		✓	✓						✓	✓
2. Immune System	20	✓	✓	✓		✓	✓						✓	✓
3. Antigens	64	✓	✓	✓		✓	✓						✓	✓
4. Antibodies	68				✓			✓	✓	✓	✓	✓		
5. Cell-mediated Immunity	20				✓			✓	✓	✓	✓	✓		



## DEPARTMENT OF BACTERIOLOGY, MYCOLOGY AND IMMUNOLOGY

### Course specification

(2021/2022)

#### 1 - Basic Information:

**Course title:** Advanced Mycology

**Code:** 183 /1

**Academic Year:** Master of Veterinary Medicine Program

**Total teaching hours:** 144 hrs

Lectures: 48 hrs.

Practical: 96 hrs.

#### 2 - OVERALL AIMS OF THE COURSE:

To educate students about the basic feature of general and systematic mycology, with basic principles of serological diagnosis of fungal infections. To familiarize the students with basic principles of molecular biology and biotechnology

#### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

##### 3-A: KNOWLEDGE and UNDERSTANDING:

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

**A1-Illustrate** general fungal morphology, physiology and genetics.

**A2-Describe** the host parasite relation and microbial pathogenesis.

**A3-Refine** the basic feature of general and systematic mycology.

**A4-know** the culture, antigenic structure and virulence factor of microorganisms of detrimental role in hypersensitivity.

**A5-Recognize** the most important infectious clinical conditions and outline the diagnosis of fungi that cause such diseases.

**A6 - detect** basic principles of serological diagnosis of fungal infections.

**A7 -categorize** the most important methods of decontamination and principles of infection control.

##### 3-B: INTELLECTUAL SKILLS:

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

**B1-** Create the ability to interpret results of microbiological, serological and molecular tests.

**B2-** Discover a microorganism as a fungus according to standard taxonomy.

**B3-**classify evidence the causal relationship of microbes and diseases.

**B4-**Construct a concise scientific activity according to standard scientific thinking and integrity.

##### 3-C: PRACTICAL AND PROFESSIONAL SKILLS:

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

**C1-** Detect medically important fungi based on microscopic examination of stained preparations.

**C2-** Perform culture media and biochemical tests commonly used for fungal identification.

**C3-** Apply Serological identifications (serotyping) of fungi using different serological tests.

### **3-D: GENERAL SKILLS:**

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

**D1-** Coach and work in groups.

**D2-** Classify different duties.

**D3-** Utilize computer and internet skills.

**D4-** Develop the ethical behavior between students and staff members as well as among the students themselves.

### **4 - COURSE CONTENTS:**

Topic	No. of hours		
	Lectures	Practical	Total
1. General Mycology	14	16	30
2. Mould	14	32	46
3. Yeasts	10	32	42
4. Dimorphic Fungi	10	16	26
<b>Total</b>	<b>48</b>	<b>96</b>	<b>144</b>

TOPIC	Total hours	Hours for lecture	Hours for practical
General Mycology, Classification of fungi, Yeasts, Dermatophytes Aspergillus, Penicillium, Fusarium, Zygomycetes	28	28	-
Mycotoxins ,Dimorphic fungi, Fungi of fish, Dematiaceous fungi	20	20	-
laboratory diagnosis of mycotic infections, Direct microscopic of moulds ,Staining of moulds, Staining of yeast	50	-	50
Culture characters of yeast, moulds, Biochemical identification of fungi	46	-	46
<b>Total</b>	<b>192</b>	<b>48</b>	<b>96</b>

### **5- TEACHING & LEARNING METHODS:**

**\* Advanced Lectures**

( using data show, white board, overhead projector and brain storming)

**\*Practical sessions:**

Practical demonstrations, practice of skills, and discussions, ( practical training)

**\* Self learning activities:**

- (Computer researches and faculty library visits to prepare essays, reports, review articles, and presentations)
- Library researches.

- Internet researches.
- Discussion in the researches.

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a7	B3		D4, d3
Practical sessions		b1 to b2	c1 to c3	d2, d1
Self-Learning activities				d2, d3, d4, d1
Distance Teaching and Learning	a1 to a7	b1 to b4	c1 to c7	d1 to d4

\*Lectures and some practical topics may be offered face to face or via distance teaching and learning.

### 6. METHODS FOR STUDENTS With limited capabilities:-

- Discussion with them during practical session.
- Theoretical and practical teaching suitable for people with limited capacity.
- Simplify and re-explain the information theoretically and practically wherever needed .
- Using of illustrated cases.

### 7. STUDENT ASSESSMENT:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end the academic year	At the end of the academic year	All over the academic year
<b>7.c grads</b>	50	20	20	10

TOOLS	I.L.O.S Evaluation				Marks allocated
	Knowledge	Intellectual	Practical	General	
Written examination	A1-A7	B2-B3-B1		-D3	50
Oral examination	A1-A7	B3,b4-B1-B2		D4	20
practical exam		B3	C1-C2-C3-C4	D2, d1	20
Activities				D1 to d4	10

### 8. LEARNING AND REFERENCE MATERIALS:

#### 8-1: ESSENTIAL BOOKS:

- Sastry, Apurba Sankar, and Sandhya Bhat. Essentials of medical microbiology. JP Medical Ltd, 2018.
- Mahon, C.R., Lehman, D.C. and Manuselis, G., 2018. Textbook of diagnostic microbiology-e-book. Elsevier Health Sciences, 2018.
- Presterl, Elisabeth, Magda Diab-El Schahawi, and Jacqui S. Reilly, eds. Basic microbiology and infection control for midwives. Springer International Publishing, 2019.

### **8-2: RECOMMENDED BOOKS:**

- Goering, Richard, et al. Mims' Medical Microbiology E-Book. Elsevier Health Sciences, 2018.
- Barer, Michael R., and William L. Irving. *Medical Microbiology E-Book: A Guide to Microbial Infections*. Elsevier Health Sciences, 2018.
- Murray, Patrick R., Ken S. Rosenthal, and Michael A. Pfaller. Medical microbiology E-book. Elsevier Health Sciences, 2020.

### **8.4: web sites and jouranls .....and so on**

- Egyptian knowledge bank (<https://www.ekb.eg/>)
- <https://www.wikipedia.org/>
- <https://www.fao.org/home/en/>
- <https://www.who.com/>
- Journal of Applied Microbiology
- Applied and Environmental Microbiology.
- Infection and Immunity.
- Journal of Bacteriology.
- Journal of Clinical Microbiology.



**Course Coordinator:**  
Prof. Amgad Ahmed Moawad

**Head of Department:**  
Prof. Ashraf Mohamed Ahmed

**Course Matrix for achievement of Intended Learning Outcomes**

Topics	Hours	Knowledge & Understanding							Intellectual Skills				Practical & Professional Skills					General & Transferable Skills			
		1	2	3	4	5	6	7	1	2	3	4	1	2	3	4	5	1	2	3	4
1. General Mycology	30	✓	✓	✓	✓	✓					✓	✓								✓	✓
2. Mould	46	✓				✓		✓			✓	✓								✓	✓
3. Yeasts	42								✓	✓			✓	✓	✓			✓	✓		
4. Dimorphic Fungi	26								✓	✓			✓	✓	✓			✓	✓		



## DEPARTMENT OF BACTERIOLOGY, MYCOLOGY AND IMMUNOLOGY

### Course specification (2021/2022)

#### 1 - Basic Information:

**Course title:** Microbiology of Poultry and Rabbits

**Code:** 184 /1

**Academic Year:** Master of Veterinary Medicine Program

**Total teaching hours:** 192 hrs.

**Lectures:** 96 hrs.

**Practical:** 96 hrs.

#### 2 - OVERALL AIMS OF THE COURSE:

- 1-Educate students about the basic features of general and systematic bacteriology and mycology, Immunology of poultry and rabbits.
- 2-To familiarize students with the structure of bacterial cell.
- 3-To enable the students to be aware with bacterial growth and factors affecting on it.
- 4-Provide students with an understanding of bacterial pathogenicity.
- 5-To familiarize the students with basic principles of bacterial genetics.
- 6-To familiarize the students with basic principles of bacterial resistance to the antimicrobial agents.

#### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

##### 3-A: KNOWLEDGE and UNDERSTANDING:

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

**A1-Illustrate** general bacterial morphology, physiology and genetics.

**A2-Describe** the host parasite relation and microbial pathogenesis.

**A3-Recognizes** the basic feature of general bacteriology.

**A4-Define** the culture, antigenic structure and virulence factor of microorganisms of detrimental role in hypersensitivity.

**A5-know** the most important infectious clinical conditions and outline the diagnosis of bacteria that cause such diseases.

##### 3- B: INTELECTUAL SKILLS:

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

**B1-** Create the ability to interpret results of microbiological, serological and molecular tests.

**B2-** Discover a microorganism as a fungus according to standard taxonomy.

**B3-** Detect according evidence the causal relationship of microbes and diseases.

**B4-** Construct a concise scientific activity according to standard scientific thinking and integrity.

##### 3- C: PRACTICAL AND PROFEESINOL SKILLS:

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

**C1-** Detect medically important micro-organism based on microscopic examination of stained preparations.



**C2-** Perform culture media and biochemical tests commonly used for bacteriological identification.

**C3-** Apply Serological identifications (serotyping) of bacteria using different serological tests.

### **3- D: GENERAL SKILLS:**

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

**D1-** Coach and work in groups.

**D2-** Classify different duties.

**D3-** Utilize computer and internet skills.

**D4-** Develop the ethical behavior between students and staff members as well as among the students themselves

### **4 - COURSE CONTENTS:**

Topic	No. of hours		
	Lectures	Practical	Total
1. Bacteria causing diseases in poultry and rabbits	64	64	128
2. Fungi causing diseases in poultry and rabbits	32	32	66
Total	<b>96</b>	<b>96</b>	<b>192</b>

### **5- TEACHING & LEARNING METHODS:**

**\* Advanced Lectures**

( using data show, white board, overhead projector and brain storming)

**\*Practical sessions:**

Practical demonstrations, practice of skills, and discussions, ( practical training)

**\* Self learning activities:**

- (Computer researches and faculty library visits to prepare essays, reports, review articles, and presentations)
- Library researches.
- Internet researches.
- Discussion in the researches.

**\* Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a5	B3		D4, d3
Practical sessions		b1 to b2	c1 to c3	d2, d1
Self-Learning activities				d2, d3, d4,d1
Distance Teaching and Learning	a1 to a5	b1 to b4	c1 to c5	d1 to d4

\*Lectures and some practical topics may be offered face to face or via distance teaching and learning.

## 6. METHODS FOR STUDENTS With limited capabilities:-

- Discussion with them during practical session.
- Theoretical and practical teaching suitable for people with limited capacity.
- Simplify and re-explain the information theoretically and practically wherever needed .
- Using of illustrated cases.

## 7. STUDENT ASSESSMENT:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end the academic year	At the end of the academic year	All over the academic year
<b>7.c grads</b>	50	20	20	10

TOOLS	I.L.O.S Evaluation				Marks allocated
	Knowledge	Intellectual	Practical	General	
Written examination	A1-A5	B2-B3		-D3	50
Oral examination	A1-A5	-B3,b4		D4	20
practical exam		B1-b2	C1-C2-C3	D2, d1	20
Activities				D1 to d4	10

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: ESSENTIAL BOOKS:

- Sastry, Apurba Sankar, and Sandhya Bhat. Essentials of medical microbiology. JP Medical Ltd, 2018.
- Mahon, C.R., Lehman, D.C. and Manuselis, G., 2018. Textbook of diagnostic microbiology-e-book. Elsevier Health Sciences, 2018.
- Presterl, Elisabeth, Magda Diab-El Schahawi, and Jacqui S. Reilly, eds. Basic microbiology and infection control for midwives. Springer International Publishing, 2019.

### 8-2: RECOMMENDED BOOKS:

- Goering, Richard, et al. Mims' Medical Microbiology E-Book. Elsevier Health Sciences, 2018.





**Kafrelsheikh University**  
Faculty of Veterinary Medicine



**Kafrelsheikh University**

**Faculty of Veterinary Medicine**

**Department of Food Control**

## **Program Specification for Master Degree**

**(2021 - 2022)**

**Program Title:**

**Master of The Veterinary Science**

**(Hygienic control of Milk and Dairy products)**



## **A- Administrative information:**

- 1- Awarding Body:** Kafrelsheikh University
- 2- Teaching Body:** Faculty of Veterinary Medicine
- 3- Department responsible:** Food control
- 4- Program Title:** Master of Veterinary Medical Sciences in Hygienic control of Milk and Dairy products
- 5- Final award:** Master Degree
- 6- Registration period:** 2-4 years
- 7- Program Coordinator:** Prof. Dr. Azza Marghany M. Deeb
- 8- External evaluator:** **Prof. Dr. Kamal Kamal Metwally**

## **B- Professional Information**

### **1-Educational aims of the program**

- Provides graduates the opportunity to develop communication and teaching skills and the experience of scientific research.
- Develops the ability of graduate to engage critically with recent techniques and diagnostic tools in the field of Milk Hygiene and control.
- Supplies the graduates with the most recent knowledge in science and technological applications in Milk Hygiene and control.
- Demonstrates an awareness of the connections between disciplines and develop the ability to engage critically with scientific literature and to critically review and present their own research data for the protection and promotion of the human health.
- Allows graduates to develop practical research project.
- Enables graduates to achieve competency in modern laboratory technology.

### **2- Academic standards:**

**Academic reference standards (ARS) adopted by the faculty committee No**

**1 (14-9-2014)**

### **3-Graduate attributes:**



*Upon successful completion of the program, the graduate has the ability for:*

- 1) Perfect application of scientific research basics and methodologies in Milk Hygiene and control, and using its varied tools.
- 2) Application and use of analytical methods in detection of microorganisms and toxins and identification of food borne diseases.
- 3) Application of gained specialized knowledge and integrating them with the relevant knowledge in Milk Hygiene and Control.
- 4) Awareness with ongoing problems and recent concepts in Milk Hygiene and Control.
- 5) Identification of food borne illness and suggesting suitable and economic methods of Milk preservation and processing.
- 6) Mastering the proper scope of a rate specialized professional skills, and using appropriate technological means to serve the diagnosis of Milk adulteration, microbial food poisoning, and chemical residues in Milk.
- 7) Effective communication with students, colleagues and animal owners, and leading work team.
- 8) Decision making for suggesting the cause of food poisoning or deterioration.
- 9) Employ available resources efficiently including history, PM lesions and laboratory findings.
- 10) Awareness with his role in society development and preservation of a clean environment.
- 11) Reflection of the commitment to act with integrity, credibility and the rules of profession.
- 12) Academic and professional self- development and ability for life-long learning and progress by studying new cases.

#### **4-Intended learning outcomes of course (ILOs)**

##### **a) Knowledge and understanding**

*By the end of this program the graduate should be able to:*

- a.1. Realize theories and principles in the field of Milk Hygiene and Control and related fields.
- a.2. Recognize the impact of preservatives and toxins on the milk and its products and methods of keeping the milk clean from different sources of infection.
- a.3. Be aware with scientific progress in production, processing and analysis of milk, dairy products and eggs.
- a.4. Identify legal and ethical basics in examination of milk, dairy products, eggs, fat and oils.
- a.5. Realize health and safety risk assessments for the Milk Hygiene laboratory.



- a.6. Describe basics and ethics of scientific research in the field of Milk Hygiene and Control.

**b) Intellectual skills**

*By the end of this program the graduate should be able to:*

- b.1. Judge information concerning milk and dairy products microbiology and technology and analog to solve problems.
- b.2. Find appropriate solutions for problems regarding dairy industry and microbiology.
- b.3. Relate between different knowledge to solve professional problems.
- b.4. Write scientific article on a research problem in milk hygiene and control.
- b.5. Evaluate risks in milk and dairy products plants in addition to application of HACCP in processing plants
- b.6. Develop of plans to improve performance in laboratory practice with automation.
- b.7. Use appropriate intellectual strategy to deal with laboratory diagnosis of bacteria and fungal contamination.

**C- Professional and Practical Skills**

*By the end of this program the graduate should be able to:*

- c.1. Apply recent techniques and tools necessary to diagnose and characterize different bacteria, fungi, microbial toxins or chemical preservatives in milk and dairy products.
- c.2. Write a conclusive report about milk, milk products and egg
- c.3. Planning a research project in the field of Milk Hygiene and Control.

**D- General and Transferable Skills**

*By the end of this program, the graduate should be able to:*

- d.1. Communicate effectively with his professors, collages and animal owner(s).
- d.2. Utilize different sources of knowledge and information.
- d.3. Assess himself and identify his personal educational needs.
- d.4. Demonstrate interpersonal skills and team working ability
- d.5. Demonstrate an ability to learn independently for a career of lifelong learning.
- d.6. Use information technology to serve the professional practice.
- d.7. Manage time efficiently.
- d.8. Set tools and indicators for assessment of the performance of others.



### **5- Program structure (duration 2-4 years)**

#### **a) Premaster courses – at least one academic year**

	Lecture (hours/week)	Practical (hours/week)
Fundamental (core) course	3	4
Research methodology	1	3
2-5 Elective Courses (10-12 hours)	Offered by other departments and are selected from the list below according to thesis topic	

#### **b) MVSc Thesis (at least one academic year)**

- All master-degree students should prepare a master thesis.
- The department and the ethical committees must approve the protocol of the research.
- The thesis should include a review part and a research part.
- The thesis is supervised by one or more senior staff members of the department responsible for the program and may include other specialties according to the nature of the research.
- The thesis should be evaluated and approved by a committee of three professors including one of the supervisors and an external professor.

*A number of subsidiary courses are selected from the following list according to the title of the research work:*

subject	Code	Course title	No of hours/week	
			Lecture	Practical Lab
Anatomy and histology	101/1	<b>1- Applied anatomy</b>	2	2
	102/1	<b>2- Anatomical techniques and surface anatomy</b>	2	2
	103/1	<b>3- Osteology and arthrology</b>	2	2
	104/1	<b>4- Comparative digestive system</b>	2	2
	105/1	<b>5- Comparative uro-genital system</b>	2	2
	106/1	<b>6-Comparative respiratory system</b>	2	2





	107/1	<b>7- Comparative cardiovascular system</b>	2	2
	108/1	<b>8- Comparative nervous system and endocrine glands</b>	2	2
	109/1	<b>9- General and special embryology</b>	2	2
	110/1	<b>10- Avian anatomy</b>	1	2
His tology	111/1	<b>11- cytology and cytochemistry</b>	1	2
	112/1	<b>12- general histology</b>	2	2
	113/1	<b>13- Histology and histochemistry of blood, lymph and cardiovascular system.</b>	1	1
	114/1	<b>14- Comparative histology and histochemistry of body muscles, heart and blood vessels</b>	1	1
	115/1	<b>15- Comparative histology and histochemistry of respiratory system</b>	1	1
	116/1	<b>16-Comparative histology and histochemistry of digestive system</b>	2	2
	117/1	<b>17- Comparative histology and histochemistry of uro-genital system</b>	2	2
	118/1	<b>18- Comparative histology and histochemistry of nervous and endocrine systems</b>	2	2
	119/1	<b>19- Histology and histochemistry of special sensors</b>	1	2
	120/1	<b>20-Histology and histochemistry of skin, hooves, claws and Nails</b>	2	2
		121/1	<b>21- Avian histology</b>	2
	122/1	<b>22- Fish histology</b>	1	2
Phy siology	123/1	<b>23- Physiology of mammalian endocrine and reproduction</b>	2	2
	124/1	<b>24- poultry physiology (advanced)</b>	2	2
	125/1	<b>25- physiology of muscle and nerve</b>	1	2
	126/1	<b>26- physiology of ruminants</b>	2	2
	127/1	<b>27- physiology of environment, adaptation and cell</b>	2	2



	128/1	<b>28- physiology of blood</b>	2	2
	129/1	<b>29- physiology of digestion, metabolism and energy</b>	2	2
	130/1	<b>30- Physiology in pollution</b>	1	2
	131/1	<b>31- Radioactive isotopes and biological uses</b>	2	2
	132/1	<b>32- Physiology of heights</b>	1	1
	133/1	<b>33-Fish physiology.</b>	1	2
Biochemistry	134/1	<b>34- Basics of biochemistry</b>	2	3
	135/1	<b>35- Metabolism</b>	2	2
	136/1	<b>36- Biochemistry of tissue and body fluids .</b>	2	2
	137/1	<b>37- Biochemistry of hormones and reproduction</b>	2	2
	138/1	<b>38- Feeding biochemistry</b>	2	2
	139/1	<b>39- Clinical biochemistry</b>	2	2
	140/1	<b>40- Avian biochemistry</b>	2	2
	141/1	<b>41- Microbial biochemistry</b>	2	2
	142/1	<b>42- Biochemistry of radiation</b>	1	2
	143/1	<b>43- Fish biochemistry</b>		
Animal behavior and management	144/1	<b>44- Behavior and management of ruminants ( specific courses in cattle, buffalo, sheep, camels and goats)</b>	2	3
	145/1	<b>45- Behavior and management of horses</b>	2	3
	146/1	<b>46- Behavior and management of pet animals</b>	1	2
	147/1	<b>47- Behavior and management of laboratory animals</b>	1	2
	148/1	<b>48- Behavior and management of wild animals</b>	2	2
	149/1	<b>49- Behavior and management of poultry</b>	2	2
	150/1	<b>50- Behavior and management of rabbit</b>	1	2
	151/1	<b>51- Behavior of experimental animals</b>	1	2
Nutrition and clinical nutrition	152/1	<b>52- Basics of animal nutrition</b>	2	2
	153/1	<b>53- feedstuff</b>	2	2
	154/1	<b>54- nutrition of farm animals and fish</b>	2	2



		specific courses in ( cattle and buffalo nutrition – sheep and goat nutrition – camel nutrition- equine nutrition – fish nutrition)		
	155/1	<b>55- poultry and rabbit nutrition(advanced)</b>	2	2
	156/1	<b>56- wild animal nutrition</b>	1	2
	157/1	<b>57- laboratory animal nutrition</b>	1	2
	158/1	<b>58- feed additives</b>	1	2
	159/1	<b>59- feedstuff analysis</b>	2	2
	160/1	<b>60- Quality control of feed and feed factories</b>	2	2
	161/1	<b>61- Clinical nutrition and malnutrition</b>	2	2
	162/1	<b>62- Fish nutrition</b>	1	2
<b>Pathology</b>	163/1	<b>63- General pathology and neoplasm( progressive)</b>	2	2
	164/1	<b>64-pathology of microbial and parasitic diseases in animal</b>	2	2
	165/1	<b>65- pathology of bad nutrition</b>	1	2
	166/1	<b>66- pathology of environmental pollution</b>	1	2
	167/1	<b>67- pathology of reproductive diseases</b>	1	2
	168/1	<b>68- Avian pathology</b>	2	2
	169/1	<b>69-Experimental pathology</b>	2	2
	170/1	<b>70- toxins pathology</b>	2	2
	171/1	<b>71- surgical pathology</b>	2	2
	172/1	<b>72- Pathology of experimental animals.</b>		
	173/1	<b>73- Pathology of genetics</b>		
	174/1	<b>74-- Fish pathology</b>	2	2
<b>Clinical pathology</b>	175/1	<b>75- Advanced clinical pathology</b>	2	2
	176/1	<b>76-Organ function tests and body and urine balance</b>	2	2
	177/1	<b>77- Clinical hematology and bone marrow examination</b>	1	2
<b>Bacteriology, immunology and mycology</b>	178/1	<b>78- General bacteriology(advanced)</b>	1	2
	179/1	<b>79-systemic bacteriology</b>	2	3
	182/1	<b>80- Advanced immunology</b>	2	2



		183/2	<b>81- Advanced mycology</b>	1	2
Virology		180/3	<b>82- General virology</b>	1	2
		181/4	<b>83-Systemic virology( specific courses)</b>	2	3
		182/5	<b>84- Advanced immunology</b>	2	2
		184/1	<b>85- Microbiology of poultry</b>	2	2
Microbiology courses		185/1	<b>86- Microbiology of ??????</b>	1	2
		186/1	<b>87- Microbiology of animal product</b>	2	2
		187/1	<b>88- Fish Microbiology</b>	1	2
			<b>81- Advanced immunology</b>	2	2
Parasitology		188/1	<b>89- Veterinary medical entomology and acarology</b>	2	2
		189/1			
		190/1			
		191/1	<b>92- Avian and rabbits parasitology</b>	2	2
		192/1	<b>93Malacology and its vet. Importance</b>	1	2
		193/1	<b>94- parasitic Immunology</b>	1	2
		194/1	<b>95- Clinical parasitology</b>	2	2
		195/1	<b>96-Wild life parasitology</b>	1	2
		196/1	<b>97-Special vet. Parasitology</b>	2	2
		197/1	<b>98- Physiology and biochemistry of parasites</b>	2	2
	198/1	<b>99- Fish parasitology</b>	1	2	
Pharmacology		199/1	<b>100- Aeneral pharmacology ( advanced)</b>	2	2
		200/1	<b>101- pharmacology of autonomic nervous system and autocoid</b>	2	2
		201/1	<b>102- pharmacology of central nervous system</b>	2	2
		202/1	<b>103 pharmacology of anesthesia</b>	2	2
		203/1	<b>104- Systemic pharmacology</b>	2	2
		204/1	<b>105- pharmacology of metabolism</b>	2	2
		205/1	<b>106- pharmacology of hormones</b>	2	2
		206/1	<b>107-Chemotherapy</b>	2	2
		207/1	<b>108-Biological evolution of drug</b>	1	1
Control of meat hygiene and their		215/1	<b>115- Slaughter animal Hygiene</b>	1	2
		216/1	<b>116- Abattoir management and hygiene</b>	2	2



pre jects	217/1	<b>117- Hygienic control of meat and their product</b>	2	2
	218/1	<b>118 inspection of poultry meat.</b>	1	2
	219/1	<b>119- Food technology</b>	1	2
	220/1	<b>120- Microbiology of meat and fish meats and their product</b>	2	1
	221/1	<b>121- Chilled meal microbiology</b>	1	2
	222/1	<b>122- Analysis of meat and fish and their product</b>	1	2
	223/1	<b>123- Preservation of meat, poultry, fish and their products</b>	1	2
	224/1	<b>124- Sanitation affairs of meat and fish plants.</b>	2	2
Int nal medicine	225/1	<b>125- advanced general medicine</b>	2	2
	226/1	<b>126- disease of ruminants( cattle, buffalo, camels, sheep and goats)</b>	3	3
	227/1	<b>127- diseases of equines</b>	2	2
	228/1	<b>128 diseases of pet animals</b>	2	2
	229/1	<b>129- diseases of wild animals</b>	2	2
	230/1	<b>130- diseases of metabolic disorders</b>	2	2
	231/1	<b>131- nutritional deficiency diseases</b>	2	2
	232/1	<b>132- Skin diseases</b>	1	2
	233/1	<b>133 - diseases of newly born animals</b>	2	2
	234/ 1	<b>134- Stress diseases during animals transport.</b>		
Inf dis ses	235/ 1	<b>135- Infectious diseases of cattle</b>	2	2
	236/ 1	<b>136- Infectious diseases of sheep and goat</b>	2	2
	237/ 1	<b>137- Infectious diseases camel</b>	2	2
	238/ 1	<b>138 Infectious diseases of equine</b>	2	2
	239/ 1	<b>139- Infectious diseases of pet animals</b>	2	2
	240/ 1	<b>140- Infectious diseases lab animals</b>	1	2
	241/ 1	<b>141- Infectious diseases of udder and newly born animals</b>	2	2
	242/ 1	<b>142- Infectious diseases buffaloes</b>	2	1
	243/1	<b>143- Infectious diseases of wild animals.</b>		
For me tox ology	244/1	<b>144- Forensic medicine and veterinary procedures</b>	2	2
	245/1	<b>145- general toxicology</b>	2	2



	246/1	<b>146- environmental toxicology</b>	2	2
	247/1	<b>147- forensic toxicology</b>	2	2
	248/1	<b>148- laboratory diagnostic toxicology</b>	2	2
	249/1	<b>149- Drug toxicology</b>		
Therogenology	250/1	<b>150- Female infertility (special specific courses in ruminants- equine- pet animals)</b>	2	2
	251/1	<b>151- Male infertility (special specific courses in ruminants- equine- pet animals)</b>	2	2
	252/1	<b>152- Genital diseases.</b>		
	253/1	<b>153 - obstetrics (special specific courses in farm and pet Animals)</b>	2	2
	254/1	<b>153- reproduction and immunity</b>	1	2
	255/1	<b>155- artificial insemination in ruminants</b>	2	2
	256/1	<b>156- artificial insemination in equine</b>	2	2
	257/1	<b>157- artificial insemination in pet animals</b>	1	2
	258/1	<b>158- embryo transfer</b>	1	2
	Veterinary Surgery	259/1	<b>159- General surgery (advanced)</b>	2
260/1		<b>160- Special surgery( organs)</b>	2	2
261/1		<b>161- surgery of eye, ear, nose and larynx</b>	2	2
262/1		<b>162 digestive system surgery</b>	2	2
263/1		<b>163- surgery of the limbs, hoof and claws</b>	2	2
264/1		<b>164- experimental surgery</b>	2	2
265/1		<b>165- anesthesiology</b>	1	1
266/1		<b>166- radiology and ultrasonography</b>	2	2
Poultry and rabbit diseases	267/1	<b>167- bacterial diseases of poultry</b>	2	2
	268/1	<b>168- viral diseases of poultry</b>	2	2
	269/1	<b>169- fungal diseases of poultry</b>	2	2
	270/1	<b>170 parasitic diseases of poultry</b>	1	2
	271/1	<b>171 - nutritional diseases of poultry</b>	1	2
	272/1	<b>172-diseases of rabbit (advanced)</b>	2	2
	273/1	<b>173-Diseases of wild and migrating birds</b>	2	2
	274/1	<b>174- Preventive vaccines and their evaluation in poultry</b>	2	2
	275/1	<b>175- Laboratory diagnosis of poultry diseases.</b>		



Animal and environmental hygiene	276/1	<b>176- farm animal hygiene ( advanced)</b>	2	2
	277/1	<b>177- poultry hygiene ( advanced)</b>	2	2
	278/1	<b>178- environmental hygiene and pollution</b>	2	2
	279/1	<b>179- control of contagious diseases</b>	2	2
	280/1	<b>180- eradication of rodents and disease vector</b>	2	2
	281/1	<b>181- insecticides and public health</b>	2	2
	282/1	<b>182-hygiene of animal enclosures- specific courses in :- cattle houses – poultry houses – rabbit houses- pet animals house3s – experimental animals houses</b>	2	2
	283/1	<b>183-disinfections and disinfectants</b>	2	2
	284/1	<b>184- veterinary epidemiology – specific courses in animal environment</b>	2	2
Zoonoses	285/1	<b>185- advanced zoonoses ( specific courses in bacterial and Mycotic diseases – viral diseases – parasitic diseases)</b>	2	2
	286/1	<b>186- role of rodents in transmission of zoonoses</b>	2	2
	287/1	<b>187- role of wild animals in transmission of zoonoses</b>	2	2
	288/1	<b>188- role of birds (special courses in: poultry, wild migrating or pets) in transmission of zoonoses</b>		
Genetics and genetic engineering	289/1	<b>189- Genetics of microorganisms .</b>	1	2
	290/1	<b>190- Genetic engineering( advanced)</b>	1	2
	291/1	<b>191- Cytological genetics</b>	1	2
	292/1	<b>192- Genetics of genuses.</b>	2	2
	293/1	<b>193- physiological genetics</b>	2	2
	294/1	<b>194- Chemical and radiological genetics.</b>	1	2
Animal production	295/1	<b>195- Animal breeding and improvement (advanced).</b>	2	2
	296/1	<b>196- Poultry breeding and improvement(advanced).</b>	2	2
	297/1	<b>197- Cattle and buffalo production (advanced).</b>	2	2
	298/1	<b>198- Sheep and goat production (advanced).</b>	2	2
	299/1	<b>199- Poultry production (advanced).</b>	2	2
	300	<b>200-Rabbit production (advanced).</b>	2	2
	301	<b>201-Improving by artificial insemination in poultry and rabbits.</b>	2	2



Fis ma	l i s e a s e s a n d  g e n e r a l	302/1	<b>202- Biology of fish.</b>	2	2
		303/1	<b>203-Fish diseases (advanced)</b>	2	2
		304/1	<b>204-Fish farms.</b>	1	2
		305/1	<b>205-Fish breeding .</b>	2	2
Eco n o m i c  f a r m a n a g e m e n t	o n o m i c a n d  g e n e r a l	306/1	<b>206- economics of animals and dairy production</b>	2	.
		307/1	<b>207- economics of poultry farms</b>	2	.
		308/1	<b>208-economics of fish farms</b>	2	.
		309/1	<b>209- feasibility studies</b>	2	.
		310/1	<b>210- farm management</b>	2	.
		311/1	<b>211- economics of beef production</b>	2	.
Bio s t a t i s t i c s	s t a t i s t i c s	312/1	<b>212- Biostatistics (advanced)</b>	2	.
		313/1	<b>213- Experimental design</b>	2	2
		314/1	<b>214- Computer and data processing</b>	2	]

## 6-Teaching and Learning:

The program features a variety of teaching approaches for different intended learning objectives, including a combination of lectures, seminars, presentation, practical lab assignments, research work and library work leading to write thesis.

## 7- Students assessments:

The program depends on different assessment ways:

### a. Course assessment:

<b>1- Written examination</b>	<b>For assessment of knowledge, back calling and Intellectual skills</b>
<b>2- Practical examination</b>	<b>For assessment of practical and professional skill</b>
<b>3- Oral examination</b>	<b>For assessment of knowledge and Intellectual skills</b>

### b.Master Thesis

- Annual reports adopted by the Faculty
- Finally, the assessment of thesis measure the individual student ability to work independently in the field specialization





•Final evaluation and approval by a judging committee of at least three professors including one or more of the supervisors and an external professor. This assesses the ability to write a review article, perform the needed practical steps and to present the results in tables and graphs. In addition, the skills of analysis of results and discussion with previous findings obtained by other authors are also assessed.

**Assessment of program intended learning outcomes**

Tool or method	ILOs
Written	a.1, a.2,a3, ,b1-3
Oral	a.1, a.2,a3, ,b1-3
Practical	C1,c2,c3; b2,b4
Assignments	a.2, a.5, , b.1, b5, d1-6
Thesis	a4,a5,a6.;b4-b7; c3,4, d1-6

**8. Marking scale as follow:-**

<b>Excellent</b>	> 90	
<b>Very good</b>	>80	
<b>Good</b>	>70	
<b>Pass</b>	>60	
<b>Fail</b>	<b>Weak</b>	45 to less than 60
	<b>very weak</b>	Less than 45

**9. Program evaluation methods**

Evaluator	Tool	Sample
Postgraduate Student	Questioners	<b>20%</b>
	Meeting	<b>1</b>
Postgraduate alumni	Questioners	<b>5</b>
Stakeholders (employers)	Questioners	<b>10</b>
	Meeting	<b>1</b>
External evaluator/External examiner	Reports	<b>1</b>

**10. Program Entrance Requirements:**



-The Applicant must normally satisfy the faculty of veterinary medicine- Kafr el-Sheikh University general entrance and requirement. The normal minimum entrance qualification for registration at the faculty on a master's program in specialization is at least one of the following:

- 1- Bachelor degree in Medical veterinary science of one of the Egyptian universities or hold a degree in Medical veterinary science equivalent through the Supreme Council of Universities with general grade at least "Good" and at least grade very Good" in specialization or the average courses covered the specialization
- 2- Diploma of milk control of at least grade "Good".
- 3- Applications with an appropriate technical qualification, or equivalent qualification and experience from overseas are also welcomed.

#### **9. Regulations for progression Of programme**

- a) Registration period for the MSc in veterinary medical science is at least 3 years after the approval date by the faculty council and it should not exceed a period of five years, an extension could be approved by the faculty council depending on the supervisor report that approved by the department council and postgraduate and research committee refers to the universities regulation law.
- b) The student should conduct the courses proposed by both department council and approved by postgraduate and research committee and faculty council and include,  
5 courses of the postgraduates stated in article (28) in regulation law list and the student will entitled to apply for the exam only after meeting attendance rate for each courses.



- c) The student should pass written, practical and oral exams successfully in all courses, and the grade will be estimated according to one of the estimates stated in the article (34c).
- d) The Faculty council should deprive the student from entering the exam if his attendance rate in the course is less than 75%.
- e) Failure or depriving from entering one or more course did not requires reexamination of successful passed courses.
- f) The applicant should conduct an innovate research on the subject that has been registered for at least 2 years from the date of registration approved by the faculty council. And the faculty council depending on a request from the supervisor has the right to authorize the student to do scientific experiments at recognized scientific institute.
- g) -The applicant should submit the thesis that accepted by the judging committee in an open discussion and the following policies should be met:
  - Pass all courses.
  - The applicant should submit 10 copies of his thesis concerned department council to form committee examining the thesis to be presented to the postgraduate studies committee and the faculty council, and in case of thesis approval by the department council, the applicant will submit 6 copies for the faculty library, 1 copy for public university library before introducing the report of examination committee to the post graduate studies committee and the faculty council.
- h) Registration will be during March and September of each year.



- i) The applicant should submit a request enrolment for the dean who forwards it to the concerned department council to determine the research subject and the study program and then take calendar after complete documentation on the faculty council for approval.
- j) The thesis title should be identified before being submitted at least **2 months** and the judging committee has the right to amend the title without prejudice the subject of research.
- k) The Faculty council has the right to suspend the student enrolment for a certain period if he has acceptable excuse preventing him from continuing his study or research, and his period will not counted within the period stated in **article 16 &20**.
- l) The applicant should submit 10 copies of the thesis after its validity approved by the judging and discussion committee to be distributed to the committee members and faculty library and the judging and discussion committee can decide the exchange of the thesis with other universities or printing at the expense of the university.

#### **12-Registration will be cancelled in one of the following cases:**

- If the supervisors report during the registration period is unsatisfactory (2 reports).
- If he did not submit his thesis before the end of registration period.
- If the judging committee rejected the thesis twice.

#### **13-Examination Regulations**

Time of written exam, 3 hours for each course that have 3 hours or more for lecture / practical /week. If the curriculum less than 3 hours/week, the time of exam, is 2 hours only.



The final degree of each course which has 3 hours (lecture and practical) per week is 100 and less than 3 hours is 50 degrees and divided into 50% for written exam, and 50% for practical and oral exam.

#### **14-Program completion:**

- Successfully completion of the required courses.
- Approved completion of the research experiments.
- Successfully pass of thesis open defense examination.

Program co-ordinator

*Prof. Dr. Azza Marghany M. Deeb.*

Head of the Department

*Prof. Dr. Nader Yehia Mostafa*



## Matching program ILOs with ARS - Matrix

Program ILOs	ARS																							
	K&U (a)						I.S. (b)							P.P. (c)			G.T. (d)							
	1	2	3	4	5	6	1	2	3	4	5	6	7	1	2	3	1	2	3	4	5	6	7	8
<b>K&amp;U</b>	1	2	3	4	5	6																		
<b>I.S.</b>							1	2	3	4	5	6	7											
<b>P.P.</b>														1	2	3								
<b>G.T.</b>																	1	2	3	4	5	6	7	8



## **ARS for Master in Veterinary Medical Sciences (Hygienic control of Milk and Dairy products)**

### **1) Graduate attributes**

*The graduate should have the ability for:*

- 13) Perfect application of scientific research basics and methodologies in Milk Hygiene and control, and using its varied tools.
- 14) Application and use of analytical methods in detection of microorganisms and toxins and identification of food borne diseases.
- 15) Application of gained specialized knowledge and integrating them with the relevant knowledge in Milk Hygiene and Control.
- 16) Awareness with ongoing problems and recent concepts in Milk Hygiene and Control.
- 17) Identification of food borne illness and suggesting suitable and economic methods of Milk preservation and processing.
- 18) Mastering the proper scope of a rate specialized professional skills, and using appropriate technological means to serve the diagnosis of Milk adulteration, microbial food poisoning, and chemical residues in Milk.
- 19) Effective communication with students, colleagues and animal owners, and leading work team.
- 20) Decision making for suggesting the cause of food poisoning or deterioration.
- 21) Employ available resources efficiently including history, PM lesions and laboratory findings.
- 22) Awareness with his role in society development and preservation of a clean environment.
- 23) Reflection of the commitment to act with integrity, credibility and the rules of profession.
- 24) Academic and professional self- development and

#### **A) Knowledge and understanding**

<b>Adopted ARS</b>	<b>NARS (Master)</b>
<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and</i>



		<i>accommodate the following:</i>
1)	Basics of microbiological investigation, chemical analysis and quality control of milk and dairy products.	Theories and principles in the field of specialization and related fields.
2)	The mutual effect of insuring milk and dairy products quality and conserving public health by providing safe and high quality dairy products.	Mutual effect between professional practice and its impact on environment
3)	The scientific progress in production, processing and analysis of milk and dairy products and their quality control.	Scientific progress in the field of specialization
4)	The legal and ethical basics in examination of milk and dairy products.	Legal and ethical basics in professional practice in the field of specialization
5)	The quality assurance of laboratory facilities and different procedures of food analysis to get accurate and reliable results, insuring milk quality by application of different control programs during production of and processing of it like HACCP and ISO	Principles and basics of quality assurance in the area of specialization
6)	The basics and ethics of scientific research especially that involving examination of milk and dairy products.	Basics and ethics of scientific research

## **B) Intellectual skills**

<b>Adopted ARS</b>		<b>NARS (Master)</b>
	<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Analyze and judge the information in dairy chemistry, microbiology and technology and analog to solve their quality problems.	Analysis and judgment of information in the field of specialization and analog to solve problems.
2)	Find clues for manufacturing and microbiological problems of milk and dairy products even in scarcity of information.	Solving professional problems even in scarcity of data.
3)	Relate between different knowledge and experiences to control dairy quality problems during production and processing.	Relating between different knowledge to solve professional problems.
4)	Participate in preparing research plan in and/ or write scientific article on a current research problems in dairy industry.	Preparing research plan in specialization and/ or writing scientific article on a research problem.
5)	Assess risks facing dairy quality control and finding the way to overcome them.	Risk-assessment of professional practices in specialization.
6)	Plan for improvement performance during dealing	Planning for improvement of

	with problems in dairy plant, farm and laboratory to support proper decision making and efficient control of milk quality.	professional performance.
7)	Using appropriate intellectual strategy to deal with laboratory results of different milk quality items complying them with quality standards to make a proper decision.	Taking professional decisions in a variety of professional contexts.

### C) Professional and practical skills

<b>Adopted ARS</b>		<b>NARS (Master)</b>
	<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Master basic and recent professional skills in the assessment of dairy products and milk quality and its control.	Mastering basic and recent professional skills in the field of specialization
2)	Constructing a conclusive professional reliable reports help in judgment on milk quality and evaluates and interprets any reports in a proper manner to achieve dairy quality control.	Writing and evaluating professional reports.
3)	Planning a research project in the field of hygiene and control of milk and dairy products with a consideration to the technical, ethical and safety issues and associated costs.	Evaluating existing materials and methods in the area of specialization.

### D) General and transferable skill

<b>Adopted ARS</b>		<b>NARS (Master)</b>
	<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Communicating effectively with teaching staff, colleagues and the community.	Effective communication.
2)	Using information technology in scientific research and publications.	Utilizing information technology to serve development of professional practice.
3)	Demonstrating appropriate attitude towards teaching staff and colleagues.	Self-assessment and determination of personal educational needs.
4)	Identifying and use different sources of information and knowledge.	Using different resources to obtain knowledge and information.
5)	Set tools and indicators for assessment of the performance of others.	Establishing rules and indicators for assessment of the performance of others.

6)	Demonstrate interpersonal skills and team working ability	Team working and leading a team in familiar professional contexts.
7)	Manage time efficiently.	Efficient time management.
8)	Demonstrate an ability to learn independently for a career of lifelong learning.	Self and continuous learning.

## ثانياً: برامج الماجستير

### ١- مواصفات الخريج

خريج برنامج الماجستير في أي تخصص يجب أن يكون قادراً على:

١. إجادة تطبيق أساسيات و منهجيات البحث العلمي واستخدام أدواته المختلفة
٢. تطبيق المنهج التحليلي واستخدامه في مجال التخصص
٣. تطبيق المعارف المتخصصة و دمجها مع المعارف ذات العلاقة في ممارسته المهنية
٤. إظهار وعيا بالمشاكل الجارية و الرؤى الحديثة في مجال التخصص
٥. تحديد المشكلات المهنية و إيجاد حلول لها
٦. إتقان نطاق مناسب من المهارات المهنية المتخصصة، واستخدام الوسائل التكنولوجية المناسبة بما يخدم ممارسته المهنية
٧. التواصل بفاعلية و القدرة على قيادة فرق العمل
٨. اتخاذ القرار في سياقات مهنية مختلفة
٩. توظيف الموارد المتاحة بما يحقق أعلى استفادة و الحفاظ عليها
١٠. إظهار الوعي بدوره في تنمية المجتمع و الحفاظ على البيئة في ضوء المتغيرات العالمية و الإقليمية
١١. التصرف بما يعكس الالتزام بالنزاهة و المصداقية و الالتزام بقواعد المهنة
١٢. تنمية ذاته أكاديمياً و مهنياً و قادراً على التعلم المستمر

### ١٢- المعايير القياسية العامة

#### ١ المعرفة و الفهم

- بانتهاج دراسة برنامج الماجستير يجب ان يكون الخريج على فهم و دراية بكل من:
- أ- النظريات و الأساسيات المتعلقة بمجال التعلم وكذا في المجالات ذات العلاقة
  - ب- التأثير المتبادل بين الممارسة المهنية وانعكاسها على البيئة
  - ت- التطورات العلمية في مجال التخصص
  - ث- المبادئ الأخلاقية و القانونية للممارسة المهنية في مجال التخصص

ج- مبادئ و أساسيات الجودة في الممارسة المهنية في مجال التخصص  
ح- أساسيات وأخلاقيات البحث العلمي

### ٢ المهارات الذهنية

- بانتهاء دراسة برنامج الماجستير يجب ان يكون الخريج قادرا على:  
أ -تحليل و تقييم المعلومات في مجال التخصص و القياس عليها لحل المشاكل  
ب -حل المشاكل المتخصصة مع عدم توافر بعض المعطيات  
ت -الربط بين المعارف المختلفة لحل المشاكل المهنية  
ث -إجراء دراسة بحثية و /أو كتابة دراسة علمية منهجية حول مشكلة بحثية  
ج -تقييم المخاطر في الممارسات المهنية في مجال التخصص  
ح -التخطيط لتطوير الأداء في مجال التخصص  
خ -اتخاذ القرارات المهنية في سياقات مهنية متنوعة

### ٣ المهارات المهنية

- بانتهاء دراسة برنامج الماجستير يجب ان يكون الخريج قادرا على:  
أ - إتقان المهارات المهنية الأساسية و الحديثة في مجال التخصص  
ب -كتابة و تقييم التقارير المهنية  
ت -تقييم الطرق و الأدوات القائمة في مجال التخصص

### ٤ المهارات العامة و المنتقلة

- بانتهاء دراسة برنامج الماجستير يجب أن يكون الخريج قادرا على:  
أ -التواصل الفعال بأنواعه المختلفة  
ب -استخدام تكنولوجيا المعلومات بما يخدم الممارسة المهنية  
ت -التقييم الذاتي وتحديد احتياجاته التعليمية الشخصية  
ث -استخدام المصادر المختلفة للحصول على المعلومات و المعارف  
ج -وضع قواعد ومؤشرات تقييم أداء الآخرين  
ح -العمل في فريق ، وقيادة فرق في سياقات مهنية مختلفة  
خ -إدارة الوقت بكفاءة  
د -التعلم الذاتي و المستمر

**DEPARTMENT OF FOOD CONTROL**  
**Basic Course specification**  
**(2021 - 2022)**

**1 - Basic Information:**

Code number: -

Course title: **Hygienic control of milk and dairy products**

Total teaching hours: 336 hrs. hrs

Lectures: 144 hrs

Practical: 192 hrs

**2 - OVERALL AIMS OF THE COURSE:**

To provide postgraduates with advanced knowledge concerning hygienic production of milk, dairy products, table eggs, fats and oils and to provide them with the skills to analyze milk, dairy products, table eggs, fats and oils, in addition to learn postgraduates how to write a report about the suitability of each sample for human consumption

**3 - INTENDED LEARNING OUTCOMES (I. L. Os.):**

**3-A: KNOWLEDGE and UNDERSTANDING:**

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

A.1 Recite knowledge about milk hygiene.

A.2 Relate the knowledge about biosynthesis of milk.

A.3 Match between milk composition and factors affecting milk composition and yield.

A.4 Identify the nutritive values of milk, dairy products and table eggs.

A.5 Discuss hygienic handling of raw milk (application of HACCP system from dairy animal until reach to dairy plant).

A.6 Estimate the knowledge about milk spoilage (fermentation) and abnormal milk.

A.7 Outline and discuss basis for clean milk and table eggs production.

A.8 Explain the international organizations dealing with food, regulations and ethical codes relevant to milk.

A.9 Remember Knowledge about milk-borne pathogens, their source of contamination, isolation and control measures as well as spoilage organisms in dairy foods and table eggs.

A.10 State the knowledge about sanitary and keeping quality of milk and table eggs.

A. 11 Identify and outline hygienic measures during production of dairy products, table eggs and fats and oils.

**3-B: INTELLECTUAL SKILLS:**

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

B.1 Assess the important problem from case interaction.

B.2 Design appropriate quantitative and qualitative advanced methodologies.

B.3 Originate the HACCP system at the dairy plants and revise the methods to confirm its correct application

**3- C: PRACTICAL AND PROFESSIONAL SKILLS:**

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

C.1 Examine, compare and report the samples.

C.2 Sketch the method to minimize the risks of contamination and cross infection.

C. 3 Construct the method to perform laboratory experiments safely with appropriate equipment.

### **3- D: GENERAL and transferable SKILLS:**

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

- D.1** Draw the way by which he should be able to work effectively as a member of a team in the delivery of services to community.
- D.2** Prioritize effective communication with the public, colleagues and appropriate authorities.
- D.3** Apply the skills to be able to have access to the internet and retrieve information.
- D.4** Write reports in a form that is satisfactory and understandable.
- D.5** Apply primary research techniques and critical evaluation.

### **4 - COURSE CONTENTS:**

TOPIC	Total hours	Hours for lecture	Hours for practical
Introduction of milk hygiene.	12	12	-
Biosynthesis of milk.	9	9	-
Milk composition.	42	12	30
Factors affecting milk composition and yield.	28	12	16
Nutritive values of milk.	12	12	-
Hygienic handling of raw milk (application of HACCP system from dairy animal until dairy plant).	44	12	32
Milk spoilage (fermentation).	32	12	20
Abnormal milk.	40	12	28
Basis for clean milk production.	30	12	18
Knowledge about the international organizations dealing with food, and laws and ethical codes relevant to milk	12	12	-
Knowledge about milk-borne pathogens (Epidemic, Zoonotic diseases and isolation of causative agents) and spoilage organisms	40	12	28
Sanitary and keeping quality of milk	7	3	4
Hygienic measures during production of dairy products	28	12	16
Total	336	192	144

### **5- TEACHING & LEARNING METHODS:**

#### **\*Lectures**

(Using white board, data show and brain storming)

#### **\*Practical and small group sessions:**

1: Practical training

(Practical demonstrations, practice of skills, and discussions)

#### **\* Site visits**

Two visits to the dairy farm and one to the dairy plant for practical application

#### **\*self learning**

(Computer researches and faculty library visits to prepare essays and presentations)

Library researches.

Internet researches.

Discussion in the researches.

Visits to dairy plants.

#### **\* Audiovisual**

Video show in practical laboratory

Television circle in practical laboratory

## 6. METHODS FOR STUDENTS With limited capabilities:-

- Activation of office hours.
- Discussion with them during practical session.

## 7. STUDENT ASSESSMENT:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination
<b>7.b time</b>	<b>After 48<sup>th</sup> week</b>	<b>After 48<sup>th</sup> week</b>	<b>After 48<sup>th</sup> week</b>
<b>7.c grads</b>	50	20	30

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: BASIC MATERIALS:

- Text book available in faculty library

### 8-2: References books:

- 8-2.a-Pesticides residues in food evaluations, FAO( 1990 ).
- 8-2.b-Alan H. Varnam, Jane P. Sutherland, Milk and milk products, Chapman & Hall
- 8-2.c-A.P.H.A. Standard Method For Examination of Dairy products.
- 8-2.d-A.H.Varnam, Food borne pathogens, Wolfe publishing Ltd.
- 8-2.e-AAOAC, Official Methods of Analysis of AOAC international. 16th ed., 1998.
- 8-2.f-U.S. Food and Drug Admin, Dept. of Health and Human Services. Code of Federal Regulations, Part 1, Title 21, Sections 131, 133, and 135. April 2006 Revision. <http://www.gpoaccess.gov/cfr/index.html>,
- 8-2.g-Law, B. A. ed. Microbiology and Biochemistry of Cheese and Fermented Milks. 1997. 2nd Ed. Blackie Academic and Professional, London.
- 8-2.h-Hall, C. W., and G. M. Trout. Milk Pasteurization. 1968. AVI Publ. Co., Inc., Westport, CT.
- 8-2.i-Adnan Y. Tamime (2009 ) Milk Processing and Quality Management . Blackwell Publishing Ltd. ISBN: 978-1-405-14530-5

### 8-3: Suggested materials:

- Apparatus
- Chemicals, glasses reagents and media
- Kits
- Data show

### 8.4: web sites and jouranls .....and so on

- WWW.PubMed.com
- International of veterinary information services (IVIS)
- www.Vet.net.com
- Journal of dairy sciences
- Journal of food protection
- Journal of veterinary microbiology
- Veterinary medical journal

## 9.1. Course content ILOs Matrix:

TOPIC	K.U (A)	I.S (B)	P.P.S (C)	G.T.S (D)
-------	------------	------------	--------------	--------------

Introduction of milk hygiene.	A1	B1	-	
Biosynthesis of milk.	A1-A2	B1	-	D3
Milk composition.	A2-A3-A8	B1-B2	C1-C2-C3	D1-D2-D3-D4- D5
Factors affecting milk composition and yield.	A2-A3	B1-B2- B3-	C1-C2-C3	D1-D2-D3-D4- D5
Nutritive values of milk.	A2-A3-A4	B1	-	-D3
Hygienic handling of raw milk (application of HACCP system from dairy animal until dairy plant).	A3-A4-A5- A8	B1-B2- B3	C1-C2-C3	D1-D2-D4- D5
Milk spoilage (fermentation).	A6	B1-B2- B3	C1-C2-C3	D1-D2-D4- D5
Abnormal milk.	A3-A4-A6-A8	B1-B2- B3	C1-C2-C3	D1-D2-D3-D4- D5
Basis for clean milk production.	A3-A4-A6- A7- A8	B1-B2- B3	C1-C2-C3	D1-D2-D3-D4- D5
Knowledge about the international organizations dealing with food, and laws and ethical codes relevant to milk	A3-A9		-	D3
Knowledge about milk-borne pathogens (Epidemic, Zoonotic diseases and isolation of causative agents) and spoilage organisms	A5-A6-A7- A9	B1-B2- B3	C1-C2-C3	D1-D2-D3-D4- D5
Sanitary and keeping quality of milk	A3-A5-A6- A7-A8- A10	B1-B2- B3	C1-C2-C3	D1-D2-D4-D5
Hygienic measures during production of dairy products	A3--A4-A5- A6-A7-A8- A9-A10 A11	B1-B2- B3	C1-C2-C3	D1-D2-D3-D4-D5

## 9.2. Assessment ILOs Matrix:

TOOLS	I.L.O.S Evaluation				Marks allocated
	Knowledge	Intellectual	Practical	General	
Written examination	A1-A2-A3-A4-A5-A6- A7-A8- A9-A10 A11	B2.B3		D4	50
Oral examination	A1-A2-A3-A4-A5-A6- A7-A8- A9-A10 A11	B3.		D2	20
Practical examination		B1.B2.B3	C1.C2.C3	D1.D2.D4.D5	30

**Course Coordinator:**

**Prof. Dr. Ibrahim Mohamed Aman**

**Head of Department:**

**Prof. Dr. Azza M.M. Deeb**



**DEPARTMENT OF FOOD CONTROL**  
**Course specification**  
**(2021 - 2022)**

**1 - Basic Information:**

Code number...208/1

Course title: **Hygienic control of milk and dairy products (Advanced)**

Total teaching hours: ..... 192 hrs. hrs

Lectures: 96 hrs

Practical: 96 hrs

**2 - OVERALL AIMS OF THE COURSE:**

To provide student with advanced knowledge concerning the hygienic production of milk and dairy products and to gain the skills to use the advanced methods to analyze milk samples and dairy products and to write a report about the suitability of each sample for human consumption.

**3 - INTENDED LEARNING OUTCOMES (I. L. Os.):**

**3-A: KNOWLEDGE and UNDERSTANDING:**

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

- A.1 Outline the international organizations dealing with food, and laws and ethical codes relevant to milk.
- A.2 Explain the knowledge about milk hygiene and biosynthesis of milk.
- A.3 Paraphrase the knowledge about milk composition, factors affecting milk composition and yield, nutritive values of milk and advanced methods for analysis of milk nutrients.
- A.4 Recite and define hygienic handling of raw milk (application of HACCP system from dairy animal until reach to dairy plant).
- A.5 Discuss basis for clean milk production and methods of cleaning, sanitization and sterilization in dairy farms.
- A.6 Write the knowledge about sanitary and keeping quality of milk.
- A.7 Estimate and define milk spoilage (fermentation) and abnormal milk.
- A.8 Outline machine milking and, its role in transmitting microorganisms causing mastitis.
- A.9 Relate advanced methods for detection of subclinical mastitis
- A.10 State the knowledge about milk-borne pathogens (Epidemic, Zoonotic diseases and isolation of causative agents), spoilage organisms and advanced methods used for detection of causative organisms.
- A. 11 Infer and discuss the hygienic measures during production of dairy products and advanced methods used for detection of products quality.

**3-B: INTELLECTUAL SKILLS:**

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

- B.1 Assess the important problem from case interaction.
- B.2 Design appropriate quantitative and qualitative advanced methodologies.
- B.3 Originate the HACCP system at the dairy plants and revise the methods to confirm its correct application
- B.4 Prioritize the use the advanced methods for analyze milk samples and dairy products.

**3- C: PRACTICAL AND PROFESSIONAL SKILLS:**

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

- C.1 Apply ideal methods to collect and transfere the samples.
- C.2 Sketch the method to minimize the risks of contamination and cross infection.

C.3 Examine milk and dairy products samples (physically, chemically, microbiologically and for residues).

**3- D: GENERAL and transferable SKILLS:**

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

- D.1 Draw the way by which he should be able to work effectively as a member of a team in the delivery of services to community.
- D.2 Prioritize effective communication with the public, colleagues and appropriate authorities.
- D.3 Apply the skills to be able to have access to the internet and retrieve information.
- D.4 Write reports in a form that is satisfactory and understandable.
- D.5 Apply primary research techniques and critical evaluation.

**4 - COURSE CONTENTS:**

TOPIC	Total hours	Hours for lecture	Hours for practical
The international organizations dealing with food, and laws and ethical codes relevant to milk.	10	10	-
Introduction of milk hygiene and biosynthesis of milk.	10	10	-
Milk composition, factors affecting milk composition and yield , nutritive values of milk	20	8	12
Hygienic handling of raw milk (application of HACCP system from dairy animal until reach to dairy plant).	22	8	14
Basis for clean milk production and methods of cleaning, sanitization and sterilization in dairy farms.	12	6	6
Sanitary and keeping quality of milk.	20	8	12
Milk spoilage (fermentation) and abnormal milk.	10	4	6
Machine milking and, its role in transmitting microorganisms causing mastitis.	10	4	6
Advanced methods for detection of subclinical mastitis	22	8	14
Milk-borne pathogens (Epidemic, Zoonotic diseases and isolation of causative agents) and spoilage organisms. Advanced methods used for detection of causative organisms.	16	12	4
Hygienic measures during production of dairy products. Advanced methods used for detection of products quality.	40	18	22
Total	192	96	96

**5- TEACHING & LEARNING METHODS:**

**\*Lectures**

(Using white board, data show and brain storming)

**\*Practical and small group sessions:**

1: Practical training

(Practical demonstrations, practice of skills, and discussions)

**\* Site visits**

Two visits one to the dairy farm and one to the dairy plant for practical application

**\*self learning**

(Computer researches and faculty library visits to prepare essays and presentations)

Library researches.

Internet researches.

Discussion in the researches.

Visits to dairy plants.

**\* Audiovisual**

Video show in practical laboratory

Television circle in practical laboratory

**6. METHODS FOR STUDENTS With limited capabilities:-**

- Activation of office hours.
- Discussion with them during practical session.

**7. STUDENT ASSESSMENT:-**

<u>7.a Used methods</u>	Written examination	Oral examination	Practical examination
<u>7.b time</u>	After 48 <sup>th</sup> week	After 48 <sup>th</sup> week	After 48 <sup>th</sup> week
<u>7.c grads</u>	50	25	25

**8. LEARNING AND REFERENCE MATERIALS:**

**8-1: BASIC MATERIALS:**

- Text book available in faculty library
- Microscopes, slides and computer presentations used during teaching.

**8-2: References books:**

8-2.a-Pesticides residues in food evaluations, FAO( 1990 ).

8-2.b-Alan H. Varnam, Jane P. Sutherland, Milk and milk products, Chapman & Hall

8-2.c-A.P.H.A. Standard Method For Examination of Dairy products.

8-2.d-A.H.Varnam, Food borne pathogens, Wolfe publishing Ltd.

8-2.e-AAOAC, Official Methods of Analysis of AOAC international. 16th ed., 1998.

8-2.f-U.S. Food and Drug Admin, Dept. of Health and Human Services. Code of Federal Regulations, Part 1, Title 21, Sections 131, 133, and 135. April 2006 Revision.

<http://www.gpoaccess.gov/cfr/index.html>,

8-2.g-Law, B. A. ed. Microbiology and Biochemistry of Cheese and Fermented Milks. 1997. 2nd Ed. Blackie Academic and Professional, London.

8-2.h-Hall, C. W., and G. M. Trout. Milk Pasteurization. 1968. AVI Publ. Co., Inc., Westport, CT.

8-2.i-Adnan Y. Tamime (2009 ) Milk Processing and Quality Management . Blackwell Publishing Ltd. ISBN: 978-1-405-14530-5

**8-3: Suggested materials:**

- Apparatus
- Chemicals, glasses reagents and media
- Kits
- Data show

**8.4: web sites and journals .....and so on**

- WWW.PubMed.com
- International of veterinary information services (IVIS)
- www.Vet.net.com
- Journal of dairy sciences

- Journal of food protection
- Journal of veterinary microbiology
- Veterinary medical journal

### 9.1. Course content ILOs Matrix:

TOPIC	K.U (a)	I.S (b)	P.P.S (c)	G.T.S (d)
The international organizations dealing with food, and laws and ethical codes relevant to milk.	A1		-	D1-D2-D3
Introduction of milk hygiene and biosynthesis of milk.	A2	B1	-	D1-D2-D3
Milk composition, factors affecting milk composition and yield , nutritive values of milk	A1-A2-A3	B1-B2-B4-	C1-C2-C3	D1-D2-D3-D4-D5
Hygienic handling of raw milk (application of HACCP system from dairy animal until reach to dairy plant).	A1-A3-A4	B1-B2-B3-	C1-C2-C3	D1-D2-D3-D4-D5
Basis for clean milk production and methods of cleaning, sanitization and sterilization in dairy farms.	A1-A2-A3-A4-A5	B1-B2-B3-B4	C1-C2-C3-	D1-D2-D4- D5
Sanitary and keeping quality of milk.	A4-A5-A6	B1-B2-B4	C1-C2-C3	D1-D2-D4- D5
Milk spoilage (fermentation) and abnormal milk.	A6-A7	B1-B2-B4	C1-C2-C3	D1-D2-D4- D5
Machine milking and, its role in transmitting microorganisms causing mastitis.	A5-A8-	B1-B2-B4	C1-C2-C3	D1-D2-D3-D4-D5
Advanced methods for detection of subclinical mastitis	A9	B1-B2-B4	C1-C2-C3	D1-D2-D3-D4-D5
Milk-borne pathogens (Epidemic, Zoonotic diseases and isolation of causative agents) and spoilage organisms. Advanced methods used for detection of causative organisms.	A4-A5-A10	B1-B2-B3	C1-C2-C3	D1-D2-D3-D4-D5
Hygienic measures during production of dairy products. Advanced methods used for detection of products quality.	A1-A3-A4-A5-A6-A7 A11	B1-B2-B3-B4	C1-C2-C3	D1-D2-D3-D4-D5

### 9.2. Assessment ILOs Matrix:

TOOLS	I.L.O.S Evaluation				Marks allocated
	Knowledge	Intellectual	Practical	General	
Written examination	A1-A2-A3-A4-A5-A6-A7-A8- A9-A10 A11	B3. B4		D4	50
Oral examination	A1-A2-A3-A4-A5-A6-A7-A8- A9-A10 A11	B3		D2	25
Practical examination		B1. B2. B3. B4	C1.C2.C3	D1.D2.D4.D5	25

**Course Coordinator:**  
Prof. Dr. Ibrahim Mohamed Aman

**Head of Department:**  
Prof. Dr. Azza M.M. Deeb

**DEPARTMENT OF FOOD CONTROL**  
**Course specification**  
**(2021 - 2022)**

**1 - Basic Information:**

Code number...209/1

Course title: Dairy microbiology

Total teaching hours: ..... 192 hrs. hrs

Lectures: 96hrs

Practical: 96 hrs

**2 - OVERALL AIMS OF THE COURSE:**

The aim of the course is to provide the students with the advanced knowledge about microbiology of milk and dairy products, to gain the skills to analyze and judge milk and dairy products samples microbiologically and be able to write a report about microbial quality and the suitability of a sample for human consumption.

**3 - INTENDED LEARNING OUTCOMES (I. L. Os.):**

**3-A: KNOWLEDGE and UNDERSTANDING:**

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

- A.1 Discuss the sources of milk and dairy products contamination
- A.2 State the factors affecting microbial growth.
- A.3 Recite the knowledge about microbiology of raw milk.
- A.4 Relate the knowledge about microbiology of market milk.
- A.5 Write on the microbiology of cream.
- A.6 Repeat the the knowledge about microbiology of butter.
- A.7 List the knowledge about microbiology of milk powder.
- A.8 Memmorize the information about concentrated milk microbiology.
- A.9 Paraphrase the knowledge about cheese microbiology.
- A.10 Infer the information about microbiology of fermented milks.
- A.11 Outline and discuss milk-borne pathogens and spoilage organisms.
- A.12 Estimate the knowledge about indicator organisms.
- A.13 Identify microbial defects in milk and dairy products.

**3-B: INTELLECTUAL SKILLS:**

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

- B.1 Assess the important problem from case interaction.
- B.2 Design and formulate appropriate quantitative and qualitative advanced methodologies.
- B.3 Originate the HACCP system at the dairy plants and revise the methods to confirm its correct application

**3- C: PRACTICAL AND PROFESSIONAL SKILLS:**

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

- C.1 Apply ideal methods to collect and transfere the samples.
- C.2 Sketch the method to minimize the risks of contamination and cross infection.
- C.3 Examine milk and dairy products samples microbiologically and apply the sensitivity test to the isolated organisms.

**3- D: GENERAL and transferable SKILLS:**

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

- D.1** Draw the way by which he should be able to work effectively as a member of a team in the delivery of services to community.
- D.2** Prioritize effective communication with the public, colleagues and appropriate authorities.
- D.3** Apply the skills to be able to have access to the internet and retrieve information.
- D.4** Write reports in a form that is satisfactory and understandable.
- D.5** Apply primary research techniques and critical evaluation.

#### **4 - COURSE CONTENTS:**

TOPIC	Total hours	Hours for lecture	Hours for practical
Sources of milk and dairy products contamination	16	8	8
Factors affecting microbial growth	16	8	8
Microbiology of raw milk	20	10	10
Microbiology of market milk	20	10	10
Microbiology of cream	12	6	6
Microbiology of butter	12	6	6
Microbiology of milk powder	12	6	6
Microbiology of concentrated milk	12	6	6
Microbiology of cheese	12	6	6
Microbiology of fermented milks	12	6	6
Milk-borne pathogens and spoilage organisms	16	8	8
Indicator organisms	16	8	8
Microbial defects in milk and dairy products	16	8	8
Total	192	96	96

#### **5- TEACHING & LEARNING METHODS:**

**\*Lectures**

(Using white board, data show and brain storming)

**\*Practical and small group sessions:**

1: Practical training

(Practical demonstrations, practice of skills, and discussions)

**\* Site visits**

Two visits one to the dairy farm and one to the dairy plant for practical application

**\*self learning**

(Computer researches and faculty library visits to prepare essays and presentations)

Library researches.

Internet researches.

Discussion in the researches.

Visits to dairy plants.

**\* Audiovisual**

Video show in practical laboratory

Television circle in practical laboratory

#### **6. METHODS FOR STUDENTS With limited capabilities:-**

- Activation of office hours.

- Discussion with them during practical session.

## 7. STUDENT ASSESSMENT:-

<u>7.a Used methods</u>	Written examination	Oral examination	Practical examination
<u>7.b time</u>	After 48 <sup>th</sup> week	After 48 <sup>th</sup> week	After 48 <sup>th</sup> week
<u>7.c grads</u>	50	25	25

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: BASIC MATERIALS:

- Text book available in faculty library

### 8-2: References books:

- 8-2.a-Pesticides residues in food evaluations, FAO( 1990 ).
- 8-2.b-Alan H. Varnam, Jane P. Sutherland, Milk and milk products, Chapman & Hall
- 8-2.c-A.P.H.A. Standard Method For Examination of Dairy products.
- 8-2.d-A.H.Varnam, Food borne pathogens, Wolfe publishing Ltd.
- 8-2.e-AAOAC, Official Methods of Analysis of AOAC international. 16th ed., 1998.
- 8-2.f-U.S. Food and Drug Admin, Dept. of Health and Human Services. Code of Federal Regulations, Part 1, Title 21, Sections 131, 133, and 135. April 2006 Revision. <http://www.gpoaccess.gov/cfr/index.html>,
- 8-2.g-Law, B. A. ed. Microbiology and Biochemistry of Cheese and Fermented Milks. 1997. 2nd Ed. Blackie Academic and Professional, London.
- 8-2.h-Hall, C. W., and G. M. Trout. Milk Pasteurization. 1968. AVI Publ. Co., Inc., Westport, CT.
- 8-2.i-Adnan Y. Tamime (2009 ) Milk Processing and Quality Management . Blackwell Publishing Ltd. ISBN: 978-1-405-14530-5

### 8-3: Suggested materials:

- Apparatus
- Chemicals, glasses reagents and media
- Kits
- Data show

### 8.4: web sites and jouranls .....and so on

- WWW.PubMed.com
- International of veterinary information services (IVIS)
- www.Vet.net.com
- Journal of dairy sciences
- Journal of food protection
- Journal of veterinary microbiology
- Veterinary medical journal

## 9.1. Course content ILOs Matrix:

TOPIC	K.U (a)	I.S (b)	P.P.S (c)	G.T.S (d)
-------	------------	------------	--------------	--------------

Sources of milk and dairy products contamination	A1	B1- B3	C2	D2--D3-D4
Factors affecting microbial growth	A2	B1-B2-B3	C2	D2-D3- D5
Microbiology of raw milk	A1-A2-A3	B1-B2- B3-	C1-C2- C3	D2-D3-D4- D5
Microbiology of market milk	A1-A2-A3-A4	B1-B2-B3	C1-C2- C3	D2-D3-D4- D5
Microbiology of cream	A1-A2- A3-A5	B1-B2-B3	C1-C2- C3	D1-D2-D3- D4- D5
Microbiology of butter	A1-A2-A3- A5-A6	B1-B2-B3	C1-C2- C3	D1-D2-D3- D4- D5
Microbiology of milk powder	A1-A2-A3-A7	B2-B3	C1	D1-D2-D3- D4- D5
Microbiology of concentrated milk	A1-A2-A3- A8	B1-B2-B3	C1-C2- C3	D1-D2-D3- D4- D5
Microbiology of cheese	A1-A2-A3-A9	B1-B2-B3	C1-C2- C3	D1-D2-D3- D4- D5
Microbiology of fermented milks	A1-A2-A3-A4- A10	B1-B2-B3	C1-C2- C3	D1-D2-D3- D4- D5
Milk-borne pathogens and spoilage organisms	A1-A2-A3-A4- A11	B1-B2-B3	C1-C2- C3	D1-D2-D3- D4- D5
Indicator organisms	A1-A2-A3-A4- A12	B1-B2-B3	C1-C2- C3	D1-D2-D3- D4- D5
Microbial defects in milk and dairy products	A1-A2-A3-A4- A13	B1-B2-B3	C1-C2- C3	D1-D2-D3- D4- D5

## 9.2. Assessment ILOs Matrix:

TOOLS	I.L.O.S Evaluation				Marks allocated
	Knowledge	Intellectual	Practical	General	
Written examination	A1-A2-A3-A4-A5 -A6- A7-A8- A9-A10 A11- A12-A13	B1-B2		D1.D2	50
Oral examination	A1-A2-A3-A4-A5 -A6- A7-A8- A9-A10 A11- A12-A13	B1-B2-B3.		D4- D5	25
Practical examination		B1-B2-B3	C1-C2-C3	D1.D2.D3.D5	25

**Course Coordinator:**

**Prof. Dr. Hossam Farouk Ahmed**

**Head of Department:**

**Prof. Dr. Azza M.M. Deeb**



**DEPARTMENT OF FOOD CONTROL**  
**Course specification**  
**(2021 - 2022)**

**1 - Basic Information:**

Code number... 210/1

Course title: Milk technology

Total teaching hours: ..... 192hrs. hrs

Lectures: 96 hrs

Practical: 96 hrs

**2 - OVERALL AIMS OF THE COURSE:**

To provide student with advanced knowledge and skills concerning dairy technology and student gain the skills for testing quality of dairy products, also highlight the important Critical Control Points on manufacture of each dairy product, monitor and evaluate the parameters for product safety.

**3 - INTENDED LEARNING OUTCOMES (I. L. Os.):**

**3-A: KNOWLEDGE and UNDERSTANDING:**

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

- A.1 Recite knowledge about dairy plant hygiene.
- A.2 Discuss the basis for dairy products manufacture.
- A.3 Infer the application of HACCP system on manufacture of each dairy product.
- A.4 Estimate the knowledge about chemistry of dairy products
- A.5 Explain the knowledge about microbiology of dairy products.
- A.6 Identify the dairy preservation.

**3-B: INTELLECTUAL SKILLS:**

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

- B.1 Assess the important Critical control points on manufacture of each dairy product.
- B.2 Design the parameters for product safety.

**3- C: PRACTICAL AND PROFESSIONAL SKILLS:**

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

- C.1 Construct the HACCP system at the dairy plants and apply methods to verify its correct application.
- C.2 Investigate the quality of each dairy product.

**3- D: GENERAL and transferable SKILLS:**

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

- D.1 Draw the way by which he should be able to work effectively as a member of a team in the delivery of services to community.
- D.2 Prioritize effective communication with the public, colleagues and appropriate authorities.
- D.3 Apply the skills to be able to have access to the internet and retrieve information.
- D.4 Write reports in a form that is satisfactory and understandable.
- D.5 Apply primary research techniques and critical evaluation.

#### 4 - COURSE CONTENTS:

TOPIC	Total hours	Hours for lecture	Hours for practical
Aim and introduction to dairy technology	6	6	-
Assessment of plant hygiene (Monitoring and evaluation of parameters e.g. microbiology, chemical and physical for product safety)	12	8	4
Heat treatment	18	10	8
Starter culture	12	4	8
Main steps in manufacture of dairy products (cream, butter, ghee, ice cream, fermented dairy products, concentrated milk, milk powder, ....)	34	20	14
Application of HACCP system on manufacture of each dairy products	18	8	10
Chemistry of dairy products	18	8	10
Microbiology of dairy products	18	10	8
Spoilage and defects of dairy products	16	8	8
Milk byproducts ( Dairy protein byproducts, fermented byproducts, industrial uses, ....)	14	6	8
Therapeutic value of dairy products	12	4	8
Dairy preservation (Technologies used to render food safe, keep contaminants below dangerous levels and that prevent recontamination during or after manufacture)	14	4	10
Total	192	96	96

#### 5- TEACHING & LEARNING METHODS:

**\*Lectures**

(Using white board, data show and brain storming)

**\*Practical and small group sessions:**

1: Practical training

(Practical demonstrations, practice of skills, and discussions)

**\* Site visits**

Two visits one to the dairy farm and one to the dairy plant for practical application

**\*self learning**

(Computer researches and faculty library visits to prepare essays and presentations)

Library researches.

Internet researches.

Discussion in the researches.

Visits to dairy plants.

**\* Audiovisual**

Video show in practical laboratory

Television circle in practical laboratory

#### 6. METHODS FOR STUDENTS With limited capabilities:-

- Activation of office hours.

- Discussion with them during practical session.

## 7. STUDENT ASSESSMENT:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination
<b>7.b time</b>	<b>After 48<sup>th</sup> week</b>	<b>After 48<sup>th</sup> week</b>	<b>After 48<sup>th</sup> week</b>
<b>7.c grads</b>	50	25	25

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: BASIC MATERIALS:

- Text book available in faculty library

### 8-2: References books:

- 8-2.a Wilkie F. Harrigan, Laboratory Methods in Food Microbiology, Academic press limited
- 8-2.b Sara Martimore , Carole Wallace, HACCP A practical approach.
- 8-2.c A.H.Varnam, Food Borne Pathogens, Wolfe publishing Ltd.
- 8-2.d RK. Robinson, Modern Dairy Technology, Library of congress.
- 8-2.e A.P.H.A. Standard Method For Examination of Dairy products.
- 8-2.f AOAC, Official Methods of Analysis of AOAC international. 16<sup>th</sup> ed., 1998.
- 8-2. G Edgar Spreer, Milk and Dairy Product Technology, Marcel Dekker, Inc, New York .Basel,

### 8-3: Suggested materials:

- Apparatus
- Chemicals, glasses reagents and media
- Kits
- Data show

### 8.4: web sites and jouranls .....and so on

- WWW.PubMed.com
- International of veterinary information services (IVIS)
- www.Vet.net.com
- Journal of dairy sciences
- Journal of food protection
- Journal of food and drug analysis
- Veterinary medical journal

## 9.1. Course content ILOs Matrix:

TOPIC	K.U (A)	I.S (B)	P.P.S (C)	G.T.S (D)
Aim and introduction to dairy technology	A1	-	-	-
Assessment of plant hygiene (Monitoring and evaluation of parameters e.g. microbiology, chemical and physical for product safety)	A1-A3	B1-B2	C1	D1-D2-D3-D4
Heat treatment	A2-A3-A5- A6	B1-B2	C1-C2	D1-D2-D3-D4
Starter culture	A2-A3-A5-A6	B1-B2	C2	D1-D2-D3-D4
Main steps in manufacture of dairy products (cream, butter, ghee, ice cream, fermented dairy products, concentrated milk, milk powder, ....)	A2-A3-A4-A5-A6-	B1-B2	C1-C2	D1-D2-D3-D4-D5-
Application of HACCP system on manufacture of each dairy products	A1-A2	B2	C1	D1-D2-

				D4- D5-
Chemistry of dairy products	A2-A4		C1-C2-	D1-D2- D3-D4- D5-
Microbiology of dairy products	A2-A5	B1-B2	C2	D1-D2- D3-D4- D5
Spoilage and defects of dairy products	A2-A4- A5-	B1-B2	C2	D1-D2- D3-D4- D5-
Milk byproducts ( Dairy protein byproducts, fermented byproducts, industrial uses, .....)	A2-A5-A6	B1-B2	C2-	D1-D2- D3-D4- D5-
Therapeutic value of dairy products	A2-A3A4- A5-A6	B1-B2	C1-	D1-D2- D3-D4
Dairy preservation (Technologies used to render food safe, keep contaminants below dangerous levels and that prevent recontamination during or after manufacture)	A2-A4- A5-A6	B1-B2	C1-	D1-D2- D3-D4

## 9.2. Assessment ILOs Matrix:

TOOLS	I.L.O.S Evaluation				Marks allocated
	Knowledge	Intellectual	Practical	General	
Written examination	A1.A2.A3.A4.A5.A6	B1.B2		D5	50
Oral examination	A1.A2.A3.A4.A5.A6	B1.B2		D4	25
Practical examination		B1.B2	C1.C2.	D1.D2.D3.D4- D5	25

**Course Coordinator:**

**Prof. Dr. Azza M. K.Sobeih**

**Head of Department:**

**Prof. Dr. Azza M.M. Deeb**

**DEPARTMENT OF FOOD CONTROL**  
**Course specification**  
**(2021 - 2022)**

**1 - Basic Information:**

Code number... 211/1

Course title: food analysis

Total teaching hours 192 hrs. hrs

Lectures: 96 hrs

Practical: 96 hrs

**2 - OVERALL AIMS OF THE COURSE:**

To provide student with advanced knowledge concerning food (milk and its products, eggs and its products, fats and oils) analysis and to gain the skills for sampling(milk and its products, eggs and its products, fats and oils) and analyzing them, and to write a report about the suitability of each sample for human consumption.

**3 - INTENDED LEARNING OUTCOMES (I. L. Os.):**

**3-A: KNOWLEDGE and UNDERSTANDING:**

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

A.1 Recite the knowledge about principles of food analysis techniques.

A.2 State the knowledge about food inspection.

A.3 Outline the international organizations and laws dealing with food and ethical codes relevant to food.

A.4 Relate and understand the knowledge about compositional quality (physical character and chemical composition) of food of animal origin (milk, dairy products, fats, oils and eggs) and their adulteration.

A.5 Discuss the knowledge about residues, contaminants and inhibitory substances in food of animal origin

A.6 Estimate the knowledge about analysis of milk and dairy products.

A.7 Relate the knowledge about analysis of fats and oils.

A.8 Write about testing of eggs and its products.

**3-B: INTELLECTUAL SKILLS:**

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

B.1 Design essential precautions for sampling.

B.2 Compose the methods to minimize the risks of contamination of samples.

B.3 Assess the defects in each samples.

B.4 Choose and apply appropriate quantitative and qualitative methodologies.

**3- C: PRACTICAL AND PROFESSIONAL SKILLS:**

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

C.1 Apply ideal methods to collect and transfe the samples.

C.2 Examine milk samples (physically, chemically, microbiologically and for residues)

C.3 Analyze dairy product samples (physically, chemically, microbiologically and for residues).

C.4 Investigate fats, oils and egg samples (physically, chemically, microbiologically and for residues).

**3- D: GENERAL SKILLS:**

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

D.1 Draw the way by which he should be able to work effectively as a member of a team in the delivery of services to community.

D.2 Prioritize effective communication with the public, colleagues and appropriate authorities.

D.3 Apply the skills to be able to have access to the internet and retrieve information.

D.4 Write reports in a form that is satisfactory and understandable.

D.5 Apply primary research techniques and critical evaluation.

#### 4 - COURSE CONTENTS:

TOPIC	Total hours	Hours for lecture	Hours for practical
Sampling of food (Milk, eggs and their products, fats and oils)	6	4	2
Nutrient analysis	8	6	2
Principles of food analysis techniques (e.g Kjeldahl, Soxhlet, Calorimetry.....)	8	6	2
Food inspection	8	4	4
National and international standards	6	6	-
Milk analysis ( Physical testing, chemical analysis)	18	8	10
Dairy products analysis ( Sensory evaluation, chemical analysis)	18	8	10
Milk adulteration	12	4	8
Testing dairy products for adulteration	20	8	12
Detection of potential hazardous substances in food (Antibiotics, insecticides, heavy metals, mycotoxins,....)	30	14	16
Testing physical and chemical constants of fats and oils.	22	10	12
Testing of table eggs (freshness, structural quality, nutrient content, microbiological quality, residues and contaminant,....)	22	10	12
Testing of egg products	14	8	6
Total	192	96	96

#### 5- TEACHING & LEARNING METHODS:

##### \*Lectures

(Using white board, data show and brain storming)

##### \*Practical and small group sessions:

1: Practical training

(Practical demonstrations, practice of skills, and discussions)

##### \* Site visits

Two visits one to the dairy farm and one to the dairy plant for practical application

##### \*self learning

(Computer researches and faculty library visits to prepare essays and presentations)

Library researches.

Internet researches.

Discussion in the researches.

Visits to dairy plants.

##### \* Audiovisual

Video show in practical laboratory

Television circle in practical laboratory

#### 6. METHODS FOR STUDENTS WITH LIMITED CAPABILITIES:-

- Activation of office hours.
- Discussion with them during practical session.

#### 7. STUDENT ASSESSMENT:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination
<b>7.b time</b>	After 48 <sup>th</sup> week	After 48 <sup>th</sup> week	After 48 <sup>th</sup> week

<b>7.c grads</b>	50	25	25
------------------	----	----	----

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: BASIC MATERIALS:

- Text book available in faculty library

### 8-2: References books:

- 8-2.a-Pesticides residues in food evaluations, FAO( 1990 ).
- 8-2.b-Alan H. Varnam, Jane P. Sutherland, Milk and milk products, Chapman &Hall
- 8-2.c-A.P.H.A. Standard Method For Examination of Dairy products.
- 8-2.d-A.H.Varnam, Food borne pathogens, Wolfe publishing Ltd.
- 8-2.e-AAOAC, Official Methods of Analysis of AOAC international. 16th ed., 1998.

### 8-3: Suggested materials:

- Apparatus
- Chemicals, glasses reagents and media
- Kits
- Data show

### 8.4: web sites and jouranls .....and so on

- WWW.PubMed.com
- International of veterinary information services (IVIS)
- www.Vet.net.com
- Journal of dairy sciences
- Journal of food protection
- Journal of food and drug analysis
- Veterinary medical journal

### 9.1. Course content ILOs Matrix:

TOPIC	K.U (A)	I.S (B)	P.P.S ©	G.T.S (D)
Sampling of food (Milk, eggs and their products, fats and oils)	A1- A2- A6- A7- A8	B1-B2	C1	D1-D2-D4
Nutrient analysis	A1- A2- A3-A4	B1-B2- B3- B4	C1- C2- C3-C4	D1-D2-D4- D5
Principles of food analysis techniques (e.g Kjeldahl, Soxhlet, Calorimetry.....)	A1-A2-A3	B1-B2- B3-	C1- C2- C3-C4	D1-D2-D3-D4- D5
Food inspection	A1- A2-A3-A4-A6- A7-A8	B1-B2 B3-B4	C1- C2- C3-C4	D1-D2-D3-D4- D5
National and international standards	A1-A2 -A4	B3	-	D1-D2-D3-D4- D5
Milk analysis ( Physical testing, chemical analysis)	A1-A2-A3-A4-A6	B1-B2- B3-B4	C1-C2	D1-D2-D4- D5
Dairy products analysis ( Sensory evaluation, chemical analysis)	A1-A2- A3 A4-A6-	B1-B2- B3- B4	C1,C3	D1-D2-D4- D5
Milk adulteration	A1-A2- A3- A4-A6	B1-B2- B3-	C1-C2	D1-D2-D4- D5
Testing dairy products for adulteration	A2-A3-A5-A6- A9	B1-B2- B3- B4	C1,C3	D1-D2-D4-D5
Detection of potential hazardous substances in food (Antibiotics, insecticides, heavy metals, mycotoxins,.....)	A1-A2-A3-A5-	B1-B2- B3- B4	C1- C2- C3-C4	D1-D2-D3-D4- D5
Testing physical and chemical constants of fats and oils.	A1-A2- A3- A4- A7	B1-B2- B3- B4	C1,C4	D1-D2-D4-D5

Testing of table eggs (freshness, structural quality, nutrient content, microbiological quality, residues and contaminant,...)	A1-A2-A3-A4-A8	B1-B2-B3- B4	C1,C4	D1-D2-D4-D5
Testing of egg products	A1-A2-A3-A4-A8-	B1-B2-B3- B4	C1,C4	D1-D2-D4-D5

## 9.2. Assessment ILOs Matrix:

TOOLS	I.L.O.S Evaluation				Marks
	Knowledge	Intellectual	Practical	General	
Written examination	A1.A2.A3.A4.A5.A6.A7.A8	B1. B2		D4	50
Oral examination	A1.A2.A3.A4.A5.A6.A7.A8	B3.		D2	25
Practical examination		B1. B2. B3. B4	C1.C2.C3.C4	D1.D2.D4.D5	25

**Course Coordinator:**

**Prof. Dr. Azza M.M. Deeb**

**Head of Department:**

**Prof. Dr. Azza M.M. Deeb**



**DEPARTMENT OF FOOD CONTROL**  
**Course specification**  
**(2021 - 2022)**

**1 - Basic Information:**

Code number... 212/1  
 Course title: food poisoning  
 Total teaching hours: 144 hrs. hrs  
     Lectures: 48 hrs  
     Practical: 96 hrs

**2 - OVERALL AIMS OF THE COURSE:**

To provide students with basic knowledge concerning food poisoning microorganisms and to gain skills how to write reports in a form that is satisfactory and understandable.

**3 - INTENDED LEARNING OUTCOMES (I. L. Os.):**

**3-A: KNOWLEDGE and UNDERSTANDING:**

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

- A.1 Recite and discuss historical aspects about food poisoning
- A.2 Identify the important problem of food poisoning.
- A.3 State the Knowledge about bacterial food poisoning (Infection and intoxication)
- A.4 Remember Knowledge about viral food poisoning
- A.5 Outline Knowledge about mycotic food poisoning

**3-B: INTELLECTUAL SKILLS:**

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

- B.1 Assess role of food of animal origin in food poisoning outbreaks.
- B.2 Rate the method to differentiate between the different food poisoning causes.
- B.3 Design research techniques and critical evaluation.

**3- C: PRACTICAL AND PROFESSIONAL SKILLS:**

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

- C.1 Apply ideal methods to collect and transfe re the samples.
- C.2 Apply appropriate quantitative and qualitative methodologies for diagnosis.
- C.3 Examine food samples for food poisoning organisms.

**3- D: GENERAL SKILLS:**

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

- D.1 Draw the way by which he should be able to work effectively as a member of a team in the delivery of services to community.
- D.2 Prioritize effective communication with the public, colleagues and appropriate authorities.
- D.3 Apply the skills to be able to have access to the internet and retrieve information.
- D.4 Write reports in a form that is satisfactory and understandable.

**4 - COURSE CONTENTS:**

TOPIC	Total hours	Hours for lecture	Hours for practical
Aim and introduction	2	2	-
Classification of food poisoning	4	4	-

Bacterial food poisoning (Infection and intoxication)(causative agent, implicated food, symptoms, diagnosis, prevention and control)	46	14	32
Viral food poisoning (causative agent, implicated food, symptoms, diagnosis, prevention and control)	46	14	32
Mycotic food poisoning (causative agent, implicated food, symptoms, diagnosis, prevention and control)	46	14	32
Total	144	48	96

## 5- TEACHING & LEARNING METHODS:

### \*Lectures

(Using white board, data show and brain storming)

### \*Practical and small group sessions:

1: Practical training

(Practical demonstrations, practice of skills, and discussions)

### \* Site visits

Two visits one to the dairy farm and one to the dairy plant for practical application

### \*self learning

(Computer researches and faculty library visits to prepare essays and presentations)

Library researches.

Internet researches.

Discussion in the researches.

Visits to dairy plants.

### \* Audiovisual

Video show in practical laboratory

Television circle in practical laboratory

## 6. METHODS FOR STUDENTS With limited capabilities:-

- Activation of office hours.
- Discussion with them during practical session.

## 7. STUDENT ASSESSMENT:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination
<b>7.b time</b>	<b>After 48<sup>th</sup> week</b>	<b>After 48<sup>th</sup> week</b>	<b>After 48<sup>th</sup> week</b>
<b>7.c grads</b>	50	20	30

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: BASIC MATERIALS:

- Text book available in faculty library

### 8-2: References books:

- 8-2.a- Wilkie F. Harrigan: Laboratory methods in food microbiology, Academic press limited
- 8-2.b-A.P.H.A. Standard Method For Examination of Dairy products.
- 8-2.e-AAOAC, Official Methods of Analysis of AOAC international.

### 8-3: Suggested materials:

- Apparatus
- Chemicals, glasses reagents and media
- Kits

- Data show

#### **8.4: web sites and journals .....and so on**

- WWW.PubMed.com
- International of veterinary information services (IVIS)
- www.Vet.net.com
- Journal of dairy sciences
- Journal of food protection
- Journal of veterinary microbiology
- Veterinary medical journal

#### **9.1. Course content ILOs Matrix:**

TOPIC	K.U (A)	I.S (B)	P.P.S ©	G.T.S (D)
Aim and introduction	A1-A2	B1	-	D1
Classification of food poisoning	A2	B2	-	D1
Bacterial food poisoning (Infection and intoxication)(causative agent, implicated food, symptoms, diagnosis, prevention and control)	A2-A3	B1-B2-B3	C1-C2-C3	D1-D2-D3-D4
Viral food poisoning (causative agent, implicated food, symptoms, diagnosis, prevention and control)	A2-A4	B1-B2-B3	C1-C2-C3	D1-D2-D3-D4
Mycotic food poisoning (causative agent, implicated food, symptoms, diagnosis, prevention and control)	A2-A5	B1-B2-B3	C1-C2-C3	D1-D2-D3-D4

#### **9.2. Assessment ILOs Matrix:**

TOOLS	I.L.O.S Evaluation				Marks allocated
	Knowledge	Intellectual	Practical	General	
Written examination	A1-A2-A3-A4-A5	B1-B2-B3		D1-D2	50
Oral examination	A1-A2-A3-A4-A5	B1-B2-B3		D1-D2-D3	20
Practical examination		B3	C1-C2-C3	D1-D2-D3-D4	30

**Course Coordinator:**

**Prof. Dr. Hossam Farouk Ahmed**

**Head of Department:**

**Prof. Dr. Azza M.M. Deeb**

**DEPARTMENT OF FOOD CONTROL**  
**Course specification**  
**(2021 - 2022)**

**1 - Basic Information:**

Code number: 213/1

Course title: **Variable courses in (Milk contamination, Mastitis, diseases transmitted through milk and its products, quality of eggs, edible fats and oils**

Total teaching hours: **192 hrs. hrs**

Lectures: **96 hrs**

Practical: **96 hrs**

**2 - OVERALL AIMS OF THE COURSE:**

To provide student with knowledge and skills concerning of sources of contamination of milk and its products and to gain the skills to detect subclinical mastitis, and determine quality of milk, eggs and their products .

**3 - INTENDED LEARNING OUTCOMES (I. L. Os.):**

**3-A: KNOWLEDGE and UNDERSTANDING:**

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

A.1 Estimate the knowledge about basis of raw milk and dairy products contaminants (types and sources).

A.2 Recite the knowledge about basis for clean milk production.

A.3 State the knowledge about Diseases of the udder.

A.4 Outline and discuss milk-borne pathogens and spoilage organisms.

A.5 Discuss the knowledge about eggs and eggs products (nutritive value, contamination, quality, diseases transmitted through them)

A.6 Infer the knowledge about edible fats and oils (Composition, nutritive value and examination)

**3-B: INTELLECTUAL SKILLS:**

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

B.1 Assess the important problem from case interaction.

B.2 Design appropriate quantitative and qualitative advanced methodologies.

B.3 Conclude the role of milk, egg and their products in transmitting diseases to consumer.

**3- C: PRACTICAL AND PROFESSIONAL SKILLS:**

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

C.1 Sketch the method to minimize the risks of contamination and cross infection.

C.2 Examine subclinical mastitis samples.

C.3 Analyze milk, eggs, their product, fats and oils samples for quality.

**3- D: GENERAL SKILLS:**

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

D.1 Draw the way by which he should be able to work effectively as a member of a team in the delivery of services to community.

D.2 Prioritize effective communication with the public, colleagues and appropriate authorities.

D.3 Apply the skills to be able to have access to the internet and retrieve information.

D.4 Write reports in a form that is satisfactory and understandable.

D.5 Apply primary research techniques and critical evaluation.

**4 - COURSE CONTENTS:**

TOPIC	Total hours	Hours for lecture	Hours for practical
Raw milk and dairy products contaminants (Types and sources).	16	16	-
Abnormal milk	16	4	12
Mastitis (Causes, physical, chemical and microbial changes of milk, detection )	34	16	18
Role of milk and its products in transmitting diseases to consumer.	26	18	8
Eggs and eggs products (nutritive value, quality, diseases transmitted through them, testing)	44	20	24
Edible fats and oils ( Composition , nutritive value, animal fats, oils, margarine and other related products)	20	8	12
Examination of edible fats and oils (For physical and chemical constant, quality , rancidity)	26	10	16
Cholesterol and dairy food	10	4	6
Total	192	96	96

## 5- TEACHING & LEARNING METHODS:

### \*Lectures

(Using white board, data show and brain storming)

### \*Practical and small group sessions:

1: Practical training

(Practical demonstrations, practice of skills, and discussions)

### \* Site visits

Two visits one to the dairy farm and one to the dairy plant for practical application

### \*self learning

(Computer researches and faculty library visits to prepare essays and presentations)

Library researches.

Internet researches.

Discussion in the researches.

Visits to dairy plants.

### \* Audiovisual

Video show in practical laboratory

Television circle in practical laboratory

## 6. METHODS FOR STUDENTS With limited capabilities:-

- Activation of office hours.
- Discussion with them during practical session.

## 7. STUDENT ASSESSMENT:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination
<b>7.b time</b>	<b>After 48<sup>th</sup> week</b>	<b>After 48<sup>th</sup> week</b>	<b>After 48<sup>th</sup> week</b>
<b>7.c grads</b>	50	25	25

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: BASIC MATERIALS:

- Text book available in faculty library

### 8-2: References books:

8-2.a-Wilkie F. Harrigan, Laboratory methods in food microbiology, Academic press limited

8-2.b-Alan H. Varnam, Jane P. Sutherland, Milk and milk products, Chapman & Hall .

- 8-2.c-AOAC, Official Methods of Analysis of AOAC international. 16<sup>th</sup> ed., 1998.  
 8-2.d-Pesticides residues in food evaluations, FAO( 1990 ).  
 8-2.e-Sara Martimore , Carole Wallace, HACCP A practical approach.  
 8-2.f-A.H.Varnam, Food borne pathogens, Wolfe publishing Ltd.  
 8-2.g-RK. Robinson, Modern dairy technology, Library of congress.  
 8-2.h A.P.H.A. Standard Method For Examination of Dairy products

**8-3: Suggested materials:**

- Apparatus
- Chemicals, glasses reagents and media
- Kits
- Data show

**8.4: web sites and jouranls .....and so on**

- WWW.PubMed.com
- International of veterinary information services (IVIS)
- www.Vet.net.com
- Journal of dairy sciences
- Journal of food protection
- Journal of veterinary microbiology
- Veterinary medical journal

**9.1. Course content ILOs Matrix:**

TOPIC	K.U (a)	IS (b)	P.P.S (c)	G.T.S (d)
Raw milk and dairy products contaminants (Types and sources).	A1	B1-B3	-	D1-D2-D3-D4- D5
Abnormal milk	A1-A2 A3	B1-B2-B3	C1-C2- C3	D1-D2-D3-D4- D5
Mastitis (Causes, physical, chemical and microbial changes of milk, detection )	A2-A3	B1-B2-B3-	C1-C2- C3	D1-D2-D3-D4- D5
Role of milk and its products in transmitting diseases to consumer.	A1-A2-A3-A4	B1-B2-B3	C1-C2- C3	D1-D2-D3-D4- D5
Eggs and eggs products (nutritive value, quality, diseases transmitted through them, testing)	A5	B1-B2-B3	C1,C3	D1-D2-D3-D4- D5
Edible fats and oils ( Composition , nutritive value, animal fats, oils, margarine and other related products)	A6	B1-B2	C1,C3	D1-D2-D4- D5
Examination of edible fats and oils (For physical and chemical constant, quality , rancidity)	A6	B1-B2	C1,-C3	D1-D2-D4- D5
Cholesterol and dairy food	A5-A6	B1-B2-B3	C1-C2- C3	D1-D2-D3-D4- D5

**9.2. Assessment ILOs Matrix:**

TOOLS	I.L.O.S Evaluation				Marks allocated
	Knowledge	Intellectual	Practical	General	
Written examination	A1-A2-A3-A4-A5-A6	B1.B2 B1.B2		D4	50
Oral examination	A1-A2-A3-A4-A5-A6	B3.		D2	25
Practical examination		B1.B2.B3	C1.C2.C3	D1.D2.D4.D5	25

**Course Coordinator:**  
 Prof. Dr. Azza M.K.Sobeih

**Head of Department:**  
 Prof. Dr. Azza M.M. Deeb

**DEPARTMENT OF FOOD CONTROL**  
**Course specification**  
**(2021 - 2022)**

**1 - Basic Information:**

Code number... 214/1

Course title: **Hygienic criteria in dairy plant**

Total teaching hours: ..... 192hrs. hrs

Lectures: 96hrs.

Practical: 96 hrs

**2 - OVERALL AIMS OF THE COURSE:**

To provide student with advanced knowledge concerning the hygienic criteria in dairy plant, to gain the skills to assess hygiene in dairy plant, to analyze dairy products and to write a report about the suitability of each sample for human consumption and the hygiene of the plant.

**3 - INTENDED LEARNING OUTCOMES (I. L. Os.):**

**3-A: KNOWLEDGE and UNDERSTANDING:**

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

- A.1 State the knowledge about standards used to establish the dairy industry.
- A.2 Outline and discuss hygienic measures adopted inside and outside the industry.
- A.3 Estimate the knowledge about application of HACCP system in dairy plants
- A.4 Recite and define detergent and chemical sanitizer.
- A.5 Predict the knowledge about cleaning procedures.
- A.6 Describe of clean in place system (CIP)
- A.7 Identify cleaning process
- A.8 Discuss efficiency of sanitization.
- A.9 Paraphrase the knowledge about criteria for evaluation of dairy products.

**3-B: INTELLECTUAL SKILLS:**

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

- B.1 Assess the important problem from case interaction.
- B.2 Design appropriate quantitative and qualitative advanced methodologies.
- B.3 Originate the HACCP system at the dairy plants and revise the methods to confirm its correct application

**3- C: PRACTICAL AND PROFESSIONAL SKILLS:**

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

- C.1 Apply criteria for evaluation of dairy products.
- C.2 Construct the methods to minimize the risks of contamination and cross infection.
- C.3 Examine the efficiency of cleaning and sanitization of dairy equipment.
- C.4 Analyze dairy products samples (physically, chemically, microbiologically and for residues).

**3- D: GENERAL SKILLS:**

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

- D.1 Draw the way by which he should be able to work effectively as a member of a team in the delivery of services to community.
- D.2 Prioritize effective communication with the public, colleagues and appropriate authorities.
- D.3 Apply the skills to be able to have access to the internet and retrieve information.
- D.4 Write reports in a form that is satisfactory and understandable.
- D.5 Apply primary research techniques and critical evaluation.

#### 4 - COURSE CONTENTS:

TOPIC	Total hours	Hours for lecture	Hours for practical
Knowledge about standard used to establish the dairy industry.	24	12	12
Hygienic measures adopted inside and outside the industry.	24	12	12
Application of HACCP system in dairy plants	24	12	12
Knowledge about detergent and chemical sanitizer.	24	12	12
Cleaning procedures.	24	12	12
Designing of clean in place system (CIP)	16	8	8
Verification of cleaning	12	6	6
Detection of efficiency of sanitization.	20	10	10
Criteria for evaluation of dairy products.	24	12	12
Total	192	96	96

#### 5- TEACHING & LEARNING METHODS:

##### \*Lectures

(Using white board, data show and brain storming)

##### \*Practical and small group sessions:

1: Practical training

(Practical demonstrations, practice of skills, and discussions)

##### \* Site visits

visit to the dairy farm and to the dairy plant for practical application

##### \*self learning

Computer researches and faculty library visits to prepare essays and presentations

Library researches.

Internet researches.

Discussion in the researches.

Visits to dairy plants.

##### \* Audiovisual

Video show in practical laboratory

Television circle in practical laboratory

#### 6. METHODS FOR STUDENTS WITH LIMITED CAPABILITIES:-

- Activation of office hours.
- Discussion with them during practical session.

#### 7. STUDENT ASSESSMENT:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination
<b>7.b time</b>	After 48 <sup>th</sup> week	After 48 <sup>th</sup> week	After 48 <sup>th</sup> week
<b>7.c grads</b>	50	25	25

#### 8. LEARNING AND REFERENCE MATERIALS:

##### 8-1: BASIC MATERIALS:

- Text book available in faculty library

##### 8-2: References books:

8-2.a-Pesticides residues in food evaluations, FAO( 1990 ).

8-2.b-Alan H. Varnam, Jane P. Sutherland, Milk and milk products, Chapman & Hall

8-2.c-A.P.H.A. Standard Method For Examination of Dairy products.



8-2.d-A.H.Varnam, Food borne pathogens, Wolfe publishing Ltd.  
 8-2.e-AAOAC, Official Methods of Analysis of AOAC international.

**8-3: Suggested materials:**

- Apparatus
- Chemicals, glasses reagents and media
- Kits
- Data show

**8.4: web sites and jouranls .....and so on**

- WWW.PubMed.com
- International of veterinary information services (IVIS)
- www.Vet.net.com
- Journal of dairy sciences
- Journal of food protection
- Journal of FDA
- Veterinary medical journal

**9.1. Course content ILOs Matrix:**

TOPIC	K.U (A)	I.S (B)	P.P.S (C)	G.T.S (D)
Knowledge about standard used to establish the dairy industry.	A1	B1	C1	D1-D2-D4
Hygienic measures adopted inside and outside the industry.	A2	B1-B2-B3	C1-C2-C3	D1-D2-D3-D4- D5
Application of HACCP system in dairy plants	A1-A2-A3	B1-B2-B3-	C1-C2-C3	D1-D2-D3-D4- D5
Knowledge about detergent and chemical sanitizer.	A4	B2-B3	C1	D1-D2-D4-D5
Cleaning procedures.	A1-A2 -A4 A5	B1-B2- B3	C1-C2-C3	D1-D2-D3- D4- D5
Designing of clean in place system (CIP)	A1-A2- A3-A4- A5-A6	B1-B2- B3	C1-C2-C3	D1-D2-D3- D4- D5
Verification of cleaning	A3-A5- A7	B1-B2- B3	C1-C2-C3	D1-D2-D3- D4- D5
Detection of efficiency of sanitization.	A8	B1-B2- B3	C1-C2-C3	D1-D2-D4- D5
Criteria for evaluation of dairy products.	A2-A3- A5-A6- A9	B1-B2- B3	C1-C2-C3- C4	D1-D2-D4 D5

**9.2. Assessment ILOs Matrix:**

TOOLS	I.L.O.S Evaluation				Marks
	Knowledge	Intellectual	Practical	General	
Written examination	A1.A2.A3.A4.A5.A6 A7.A8.A9	B1		D4	50
Oral examination	A1.A2.A3.A4.A5.A6 A7.A8.A9	B1		D2	25
Practical examination		B1.B2.B3.	C1.C2.C3.C4	D1.D2.D4.D5	25

**Course Coordinator:**  
 Prof. Dr. Azza M.M.Deeb

**Head of Department:**  
 Prof. Dr. Azza M.M. Deeb



**Kafrelsheikh University**  
Faculty of Veterinary Medicine



**Kafrelsheikh University**

**Faculty of Veterinary Medicine**

**Parasitology Department**

# **Program Specification for Master Degree**

**(2021 - 2022)**

**Program Title:**

**Master of The Veterinary Medicine  
(Parasitology)**



### **A- Administrative information:**

- 1- **Awarding Body:** **Kafrelsheikh University**
- 2- **Teaching Body:** Faculty of Veterinary Medicine
- 3- **Department(s) responsible:** Parasitology
- 4- **Program Title:** Master of Veterinary Medicine (Parasitology)
- 5- **Final award:** Master Degree (MSc)
- 6- **Registration period:** 2-4 years
- 7- **Program Coordinator:**
- 8- **External evaluator:**
- 9- **Date of revision:**
- 10- **Date of approval:**

### **B- Professional information:**

#### **1- Educational aims of the Program:**

- Provides graduates the opportunity to develop communication and teaching skills and the experience of scientific research.
- Develops the ability of graduate to engage critically with recent techniques and tools in the field of parasitology.
- Supplies the graduates with the most recent knowledge in science and technological applications in Parasitology.
- Demonstrates an awareness of the connections between disciplines and develop the ability to engage critically with scientific literature and to critically review and present their own research data for the diagnosis of parasitic diseases.
- Allows graduates to develop practical research project.  
Enables graduates to achieve competency in modern Parasitology technologies.

#### **2- Academic standards:**

**Academic reference standards (ARS) adopted by the faculty committee No(1)  
14/9/2014**

#### **3-Graduate attributes:**

*Upon successful completion of the program, the graduate has the ability for:*

- 1) Perfect application of scientific research basics and methodologies in Parasitology, and using its various tools.
- 2) Application and use of analytical methodology in the field of Parasitology.
- 3) Application of gained specialized knowledge and integrating them with the relevant knowledge in Parasitology.
- 4) Awareness with current problems and recent visions in Parasitology.
- 5) Identification of parasitological problems suggesting suitable and economic solutions.
- 6) Mastering an appropriate scale of specific professional skills, and using suitable



technological means to serve professional practice.

- 7) Effective communication with students, animal breeders and owners of animal and poultry farms and leading work team.
- 8) Decision making in various parasitological contexts.
- 9) Employment of the available parasitological techniques efficiently to improve diagnostic ability and control of parasitic diseases.
- 10) Awareness with his role in society development and using improved diagnostic techniques for preservation of a clean environment.
- 11) Reflection of the commitment to act with integrity, credibility and the rules of profession.
- 12) Academic and professional self-development and ability for life-long learning and progress.

#### **4-Intended Learning Outcomes (ILOs)**

##### **a- Knowledge and understanding**

*By the end of this program the graduate should be able to:*

- a.1. Explain different theories and principles in the field of parasitology and related fields.
- a.2. Illustrate the host parasite relationship and microbial pathogenesis and their impact on environment.
- a.3. Recognize the general properties of parasite pathogenicity and different methods of diagnosis of parasitic diseases.
- a.4. Outline the principles of laboratory safety and regulations (laboratory hazards and protective equipment).
- a.5. Describe the most important methods of decontamination, sterilization and principles of infestation control.
- a.6. Recognize the basics and ethics of scientific research.

##### **b- Intellectual Skills**

*By the end of this program the graduate should be able to:*

- b.1. Integrate the results of clinical and laboratory test findings into a meaningful diagnostic formulation.
- b.2. Interpreting results of parasitological, serological and molecular tests.
- b.3. Development of creative approaches to solve technical problems or issues associated with running and researches project.
- b.4. Identification, summarizing and evaluating prior researches finding in Parasitology.
- b.5. Evaluate different laboratory data with normal and reference values and formulate diagnosis after excluding non-specific interpretation.
- b.6. Using appropriate intellectual strategy and evidence based decisions to deal with uncertainty and laboratory diagnostic problems
- b.7. Develop plans to improve performance in laboratory practice with automation.
- b.8. Using appropriate intellectual strategy to deal with laboratory diagnostic problems.

##### **c- Professional and Practical Skills**

*By the end of this program the graduate should be able to:*



- c.1. Investigating using recent techniques and tools necessary to diagnose and characterize parasitic diseases of veterinary importance.
- c.2. Writing and interpreting parasitological, immunological and molecular reports.
- c.3. Planning a research project in the field of veterinary Parasitology with a consideration to the technical, ethical and safety issues and associated costs.
- c.4. Performing essential laboratory skills that underpin techniques associated with sampling and different techniques for parasite identification.
- c.5. Use the different diagnostic methods related to clinical parasitology (Photometric, ELISA, IFAT, RIA, and PCR), and make comment on it and evaluate methods and instruments related to allergic tests.

**a) General and transferable skill**

*By the end of this program, the graduate should be able to:*

- d.1. Communicate effectively with his professors, collages and animal owner(s).
- d.2. Utilize different sources of knowledge and information.
- d.3. Assess himself and his personal educational needs.
- d.4. Demonstrate interpersonal skills and team working ability
- d.5. Demonstrate an ability to learn independently for a career of lifelong learning.
- d.6. Use information technology to serve the professional practice.
- d.7. Manage time efficiently.
- d.8. Set tools and indicators for assessment of the performance of others.

**5-Program structure:**

**a) Program duration (years):**

Master degree from 2-4 years

**b) Premaster courses – at least one academic year**

Course	Lecture (hours/week)	Practical (hours/week)
Fundamental (core) course	3	4
Research methodology	1	2
2-5 Elective Courses Offered by other departments and are selected from the list below according to thesis topic (10-12 hours)	5-6	5-6

**c) M.V.Sc Thesis (at least one academic year)**

- All master-degree students should prepare a master thesis.
- The department and the ethical committees must approve the protocol of the research.
- The thesis should include a review part and a research part.



- The thesis is supervised by one or more senior staff members of the department responsible for the program and may include other specialties according to the nature of the research.
- The thesis should be evaluated and approved by a committee of three professors including one of the supervisors and an external professor.

- *A number of subsidiary courses are selected from the following list according to the title of the research work*

Subject	Code	Course title	No of hours/week	
			Lecture	Practical Lab
<b>Anatomy and embryology</b>	101/1	<b>1- Applied anatomy</b>	2	2
	102/1	<b>2- Anatomical techniques and surface anatomy</b>	2	2
	103/1	<b>3- Osteology and arthrology</b>	2	2
	104/1	<b>4- Comparative digestive system</b>	2	2
	105/1	<b>5- Comparative uro-genital system</b>	2	2
	106/1	<b>6-Comparative respiratory system</b>	2	2
	107/1	<b>7- Comparative cardiovascular system</b>	2	2
	108/1	<b>8- Comparative nervous system and endocrine glands</b>	2	2
	109/1	<b>9- General and special embryology</b>	2	2
	110/1	<b>10- Avian anatomy</b>	1	2
<b>Histology</b>	111/1	<b>11- cytology and cytochemistry</b>	1	2
	112/1	<b>12- general histology</b>	2	2
	113/1	<b>13- Histology and histochemistry of blood, lymph and cardiovascular system.</b>	1	1
	114/1	<b>14- Comparative histology and histochemistry of body muscles, heart and blood vessels</b>	1	1
	115/1	<b>15- Comparative histology and histochemistry of respiratory system</b>	1	1
	116/1	<b>16-Comparative histology and histochemistry of digestive system</b>	2	2
	117/1	<b>17- Comparative histology and histochemistry of uro-genital system</b>	2	2
	118/1	<b>18- Comparative histology and histochemistry of nervous and endocrine systems</b>	2	2
	119/1	<b>19- Histology and histochemistry of special sensors</b>	1	2



	120/1	<b>20-Histology and histochemistry of skin, hooves, claws and Nails</b>	2	2
	121/1	<b>21- Avian histology</b>	2	2
	122/1	<b>22- Fish histology</b>	1	2
<b>Physiology</b>	123/1	<b>23- Physiology of mammalian endocrine and reproduction</b>	2	2
	124/1	<b>24- poultry physiology (advanced)</b>	2	2
	125/1	<b>25- physiology of muscle and nerve</b>	1	2
	126/1	<b>26- physiology of ruminants</b>	2	2
	127/1	<b>27- physiology of environment, adaptation and cell</b>	2	2
	128/1	<b>28- physiology of blood</b>	2	2
	129/1	<b>29- physiology of digestion, metabolism and energy</b>	2	2
	130/1	<b>30- Physiology in pollution</b>	1	2
	131/1	<b>31- Radioactive isotopes and biological uses</b>	2	2
	132/1	<b>32- Physiology of heights</b>	1	1
	133/1	<b>33-Fish physiology.</b>	1	2
<b>Biochemistry</b>	134/1	<b>34- Basics of biochemistry</b>	2	3
	135/1	<b>35- Metabolism</b>	2	2
	136/1	<b>36- Biochemistry of tissue and body fluids .</b>	2	2
	137/1	<b>37- Biochemistry of hormones and reproduction</b>	2	2
	138/1	<b>38- Feeding biochemistry</b>	2	2
	139/1	<b>39- Clinical biochemistry</b>	2	2
	140/1	<b>40- Avian biochemistry</b>	2	2
	141/1	<b>41- Microbial biochemistry</b>	2	2
	142/1	<b>42- Biochemistry of radiation</b>	1	2
	143/1	<b>43- Fish biochemistry</b>		
<b>Animal behavior and management</b>	144/1	<b>44- Behavior and management of ruminants ( specific courses in cattle, buffalo, sheep, camels and goats)</b>	2	3
	145/1	<b>45- Behavior and management of horses</b>	2	3
	146/1	<b>46- Behavior and management of pet animals</b>	1	2
	147/1	<b>47- Behavior and management of laboratory animals</b>	1	2
	148/1	<b>48- Behavior and management of wild animals</b>	2	2
	149/1	<b>49- Behavior and management of poultry</b>	2	2
	150/1	<b>50- Behavior and management of rabbit</b>	1	2
	151/1	<b>51- Behavior of experimental animals</b>	1	2
<b>Nutrition and clinical nutrition</b>	152/1	<b>52- Basics of animal nutrition</b>	2	2
	153/1	<b>53- feedstuff</b>	2	2
	154/1	<b>54- nutrition of farm animals and fish specific</b>	2	2



		<b>courses in ( cattle and buffalo nutrition – sheep and goat nutrition – camel nutrition- equine nutrition – fish nutrition)</b>		
	155/1	<b>55- poultry and rabbit nutrition( advanced)</b>	2	2
	156/1	<b>56- wild animal nutrition</b>	1	2
	157/1	<b>57- laboratory animal nutrition</b>	1	2
	158/1	<b>58- feed additives</b>	1	2
	159/1	<b>59- feedstuff analysis</b>	2	2
	160/1	<b>60- Quality control of feed and feed factories</b>	2	2
	161/1	<b>61- Clinical nutrition and malnutrition</b>	2	2
	162/1	<b>62- Fish nutrition</b>	1	2
<b>Pathology</b>	163/1	<b>63- General pathology and neoplasm( progressive)</b>	2	2
	164/1	<b>64-pathology of microbial and parasitic diseases in animal</b>	2	2
	165/1	<b>65- pathology of bad nutrition</b>	1	2
	166/1	<b>66- pathology of environmental pollution</b>	1	2
	167/1	<b>67- pathology of reproductive diseases</b>	1	2
	168/1	<b>68- Avian pathology</b>	2	2
	169/1	<b>69-Experimental pathology</b>	2	2
	170/1	<b>70- toxins pathology</b>	2	2
	171/1	<b>71- surgical pathology</b>	2	2
	172/1	<b>72- Pathology of experimental animals.</b>		
	173/1	<b>73- Pathology of genetics</b>		
	174/1	<b>74-- Fish pathology</b>	2	2
<b>Clinical pathology</b>	175/1	<b>75- Advanced clinical pathology</b>	2	2
	176/1	<b>76-Organ function tests and body and urine balance</b>	2	2
	177/1	<b>77- Clinical hematology and bone marrow examination</b>	1	2
<b>Bacteriology, immunology and mycology</b>	178/1	<b>78- General bacteriology(advanced)</b>	1	2
	179/1	<b>79-systemic bacteriology</b>	2	3
	182/1	<b>80- Advanced immunology</b>	2	2
	183/2	<b>81- Advanced mycology</b>	1	2
<b>Virology</b>	180/3	<b>82- General virology</b>	1	2
	181/4	<b>83-Systemic virology( specific courses)</b>	2	3
	182/5	<b>84- Advanced immunology</b>	2	2
<b>Mixed courses between Bacteriology and Virology</b>	184/1	<b>85- Microbiology of poultry</b>	2	2
	185/1	<b>86- Microbiology of ??????</b>	1	2
	186/1	<b>87- Microbiology of animal product</b>	2	2
	187/1	<b>88- Fish Microbiology</b>	1	2
		<b>81- Advanced immunology</b>	2	2





<b>Pharmacology</b>	199/1	<b>100- Aeneral pharmacology ( advanced)</b>	2	2
	200/1	<b>101- pharmacology of autonomic nervous system and autocoid</b>	2	2
	201/1	<b>102- pharmacology of central nervous system</b>	2	2
	202/1	<b>103 pharmacology of anesthesia</b>	2	2
	203/1	<b>104- Systemic pharmacology</b>	2	2
	204/1	<b>105- pharmacology of metabolism</b>	2	2
	205/1	<b>106- pharmacology of hormones</b>	2	2
	206/1	<b>107-Chemotherapy</b>	2	2
	207/1	<b>108-Biological evolution of drug</b>	1	1
<b>Hygiene and control of milk and dairy products</b>	208/1	<b>108- Hygiene and control of milk and dairy products</b>	2	2
	209	<b>109- Microbiology of milk and dairy products</b>	2	2
	210/1	<b>110- Milk technology and preservation</b>	2	2
	211/1	<b>111- Food analysis</b>	2	2
	212/1	<b>112- Food poisoning</b>	1	2
	213/1	<b>113- Specific courses on sources of contamination, disturbances of milk production, milk born diseases, hygiene of table egg, edible fats and oils</b>	1	1
	214/1	<b>114- The sanitation of dairy plant</b>	2	2
<b>Control of meat hygiene and their products</b>	215/1	<b>115- Slaughter animal Hygiene</b>	1	2
	216/1	<b>116- Abattoir management and hygiene</b>	2	2
	217/1	<b>117- Hygienic control of meat and their product</b>	2	2
	218/1	<b>118 inspection of poultry meat.</b>	1	2
	219/1	<b>119- Food technology</b>	1	2
	220/1	<b>120- Microbiology of meat and fish meats and their product</b>	2	1
	221/1	<b>121- Chilled meal microbiology</b>	1	2
	222/1	<b>122- Analysis of meat and fish and their product</b>	1	2
	223/1	<b>123- Preservation of meat, poultry, fish and their products</b>	1	2
224/1	<b>124- Sanitation affairs of meat and fish plants.</b>	2	2	
<b>Internal medicine</b>	225/1	<b>125- advanced general medicine</b>	2	2
	226/1	<b>126- disease of ruminants( cattle, buffalo, camels, sheep and goats)</b>	3	3
	227/1	<b>127- diseases of equines</b>	2	2
	228/1	<b>128 diseases of pet animals</b>	2	2
	229/1	<b>129- diseases of wild animals</b>	2	2
	230/1	<b>130- diseases of metabolic disorders</b>	2	2
	231/1	<b>131- nutritional deficiency diseases</b>	2	2



	232/1	<b>132- Skin diseases</b>	1	2
	233/1	<b>133 - diseases of newly born animals</b>	2	2
	234/ 1	<b>134- Stress diseases during animals transport.</b>		
<b>Infectious diseases</b>	235/ 1	<b>135- Infectious diseases of cattle</b>	2	2
	236/ 1	<b>136- Infectious diseases of sheep and goat</b>	2	2
	237/ 1	<b>137- Infectious diseases camel</b>	2	2
	238/ 1	<b>138 Infectious diseases of equine</b>	2	2
	239/ 1	<b>139- Infectious diseases of pet animals</b>	2	2
	240/ 1	<b>140- Infectious diseases lab animals</b>	1	2
	241/ 1	<b>141- Infectious diseases of udder and newly born animals</b>	2	2
	242/ 1	<b>142- Infectious diseases buffaloes</b>	2	1
	243/1	<b>143- Infectious diseases of wild animals.</b>		
<b>Forensic medicine and toxicology</b>	244/1	<b>144- Forensic medicine and veterinary procedures</b>	2	2
	245/1	<b>145- general toxicology</b>	2	2
	246/1	<b>146- environmental toxicology</b>	2	2
	247/1	<b>147- forensic toxicology</b>	2	2
	248/1	<b>148- laboratory diagnostic toxicology</b>	2	2
	249/1	<b>149- Drug toxicology</b>		
<b>Theriogenology</b>	250/1	<b>150- Female infertility (special specific courses in ruminants- equine- pet animals)</b>	2	2
	251/1	<b>151- Male infertility (special specific courses in ruminants- equine- pet animals)</b>	2	2
	252/1	<b>152- Genital diseases.</b>		
	253/1	<b>153 - obstetrics (special specific courses in farm and pet Animals)</b>	2	2
	254/1	<b>153- reproduction and immunity</b>	1	2
	255/1	<b>155- artificial insemination in ruminants</b>	2	2
	256/1	<b>156- artificial insemination in equine</b>	2	2
	257/1	<b>157- artificial insemination in pet animals</b>	1	2
	258/1	<b>158- embryo transfer</b>	1	2
<b>Veterinary Surgery</b>	259/1	<b>159- General surgery (advanced)</b>	2	2
	260/1	<b>160- Special surgery( organs)</b>	2	3
	261/1	<b>161- surgery of eye, ear, nose and larynx</b>	2	2
	262/1	<b>162 digestive system surgery</b>	2	2
	263/1	<b>163- surgery of the limbs, hoof and claws</b>	2	2
	264/1	<b>164- experimental surgery</b>	2	2
	265/1	<b>165- anesthesiology</b>	1	1
	266/1	<b>166- radiology and ultrasonography</b>	2	2



<b>Poultry and rabbit diseases</b>	267/1	<b>167- bacterial diseases of poultry</b>	2	2
	268/1	<b>168- viral diseases of poultry</b>	2	2
	269/1	<b>169- fungal diseases of poultry</b>	2	2
	270/1	<b>170 parasitic diseases of poultry</b>	1	2
	271/1	<b>171 - nutritional diseases of poultry</b>	1	2
	272/1	<b>172-diseases of rabbit (advanced)</b>	2	2
	273/1	<b>173-Diseases of wild and migrating birds</b>	2	2
	274/1	<b>174- Preventive vaccines and their evaluation in poultry</b>	2	2
275/1	<b>175- Laboratory diagnosis of poultry diseases.</b>			
<b>Animal and environmental hygiene</b>	276/1	<b>176- farm animal hygiene ( advanced)</b>	2	2
	277/1	<b>177- poultry hygiene ( advanced)</b>	2	2
	278/1	<b>178- environmental hygiene and pollution</b>	2	2
	279/1	<b>179- control of contagious diseases</b>	2	2
	280/1	<b>180- eradication of rodents and disease vector</b>	2	2
	281/1	<b>181- insecticides and public health</b>	2	2
	282/1	<b>182-hygiene of animal enclosures- specific courses in :- cattle houses – poultry houses – rabbit houses- pet animals house3s – experimental animals houses</b>	2	2
	283/1	<b>183-disinfections and disinfectants</b>	2	2
	284/1	<b>184- veterinary epidemiology – specific courses in animal environment</b>	2	-
<b>Zoonoses</b>	285/1	<b>185- advanced zoonoses ( specific courses in bacterial and Mycotic diseases – viral diseases – parasitic diseases)</b>	2	2
	286/1	<b>186- role of rodents in transmission of zoonoses</b>	2	2
	287/1	<b>187- role of wild animals in transmission of zoonoses</b>	2	2
	288/1	<b>188- role of birds (special courses in: poultry, wild migrating or pets) in transmission of zoonoses</b>		
<b>Genetics and genetic engineering</b>	289/1	<b>189- Genetics of microorganisms .</b>	1	2
	290/1	<b>190- Genetic engineering( advanced)</b>	1	2
	291/1	<b>191- Cytological genetics</b>	1	-
	292/1	<b>192- Genetics of genuses.</b>	2	-
	293/1	<b>193- physiological genetics</b>	2	-
	294/1	<b>194- Chemical and radiological genetics.</b>	1	2
<b>Animal production</b>	295/1	<b>195- Animal breeding and improvement (advanced).</b>	2	-
	296/1	<b>196- Poultry breeding and improvement(advanced).</b>	2	-



	297/1	<b>197- Cattle and buffalo production (advanced).</b>	2	2
	298/1	<b>198- Sheep and goat production (advanced).</b>	2	2
	299/1	<b>199- Poultry production (advanced).</b>	2	2
	300	<b>200-Rabbit production (advanced).</b>	2	2
	301	<b>201-Improving by artificial insemination in poultry and rabbits.</b>	2	2
<b>Fish diseases and management</b>	302/1	<b>202- Biology of fish.</b>	2	2
	303/1	<b>203-Fish diseases (advanced)</b>	2	2
	304/1	<b>204-Fish farms.</b>	1	2
	305/1	<b>205-Fish breeding .</b>	2	2
<b>Economic and farms management</b>	306/1	<b>206- economics of animals and dairy production</b>	2	-
	307/1	<b>207- economics of poultry farms</b>	2	-
	308/1	<b>208-economics of fish farms</b>	2	-
	309/1	<b>209- feasibility studies</b>	2	-
	310/1	<b>210- farm management</b>	2	-
	311/1	<b>211- economics of beef production</b>	2	-
<b>Biostatistics</b>	312/1	<b>212- Biostatistics (advanced)</b>	2	-
	313/1	<b>213- Experimental design</b>	2	2
	314/1	<b>214- Computer and data processing</b>	2	1

## 6-Teaching and Learning Methods:

*The program features a variety of teaching approaches for different intended learning objectives including:*

- Lectures to gain knowledge and understanding skills
- Writing a review paper to gain the skills of self-learning and presentation
- Practical and lab sessions to gain practical skills
- Seminars

## 7- Students assessments:

The program depends on different assessment ways:

### a. Course assessment:

<b>1- Written examination</b>	<b>For assessment of knowledge, back calling and Intellectual skills</b>
<b>2- Practical examination</b>	<b>For assessment of practical and professional skill</b>
<b>3- Oral examination</b>	<b>For assessment of knowledge and Intellectual skills</b>

### b. Master Thesis

- Annual reports adopted by the Faculty



- Finally, the assessment of thesis measure the individual student ability to work independently in the field specialization
- Final evaluation and approval by a judging committee of at least three professors including one or more of the supervisors and an external professor. This assesses the ability to write a review article, perform the needed practical steps and to present the results in tables and graphs. In addition, the skills of analysis of results and discussion with previous findings obtained by other authors are also assessed.

**Assessment of program intended learning outcomes**

Tool or method	ILOs
1- Written	a1,2; b1,2,3,5,6,7
2- Oral	a1,2,5; b2,3,4,6
3- Practical	b1,7; c1-5
4- Thesis	a2-7; b1-7, c1-6, d1-8

**8. Marking scale as follow:-**

<b>Excellent</b>	> 90	
<b>Very good</b>	>80	
<b>Good</b>	>70	
<b>Pass</b>	>60	
<b>Fail</b>	<b>Weak</b>	45 to less than 60
	<b>very weak</b>	Less than 45

**9. Program evaluation methods**

Evaluator	Tool	Sample
Postgraduate Student	Questioners	<b>20%</b>
	Meeting	<b>1</b>
Postgraduate alumni	Questioners	<b>5</b>
	Meeting	<b>1</b>
Stakeholders (employers)	Questioners	<b>10</b>
	Meeting	<b>1</b>
External evaluator/External examiner	Reports	<b>1</b>

**10. Program Admission Requirements:**

The Applicant must normally satisfy the faculty of veterinary medicine- kafrelsheikh University general entrance and requirement. The normal minimum entrance qualification for registration at the faculty on a master's program

- 1- Bachelor degree in Veterinary Medical Sciences of one of the Egyptian Universities or hold a degree in Veterinary Medical Sciences equivalent through the Supreme Council of



Universities with general grade at least “Good” and at least grade “Very Good” in specialization.

- 2- Diploma of general grade at least “Good” and at least grade “Very Good” in specialization. The total number of study hours must be not less than 3 weekly in that specialization.
- 3- After he has passed the courses studied during premaster he must perform a research work in a subject approved by the faculty council at least for one year. He must submit the results of this work in thesis that should be approved by the discussion committee.

## 11. Regulations for progression of program

- a) Registration period for the M.V.Sc in veterinary medical science is at least 2 years after the approval date by the faculty council and it should not exceed a period of 4 years, an extension could be approved by the faculty council depending on the supervisor report that approved by the department council and postgraduate and research committee refers to the universities regulation law.
- b) The student should conduct the courses proposed by both department council and approved by postgraduate and research committee and faculty council and include, 2-5 courses of the postgraduates stated in article (28) in regulation law list and the student will entitled to apply for the exam only after meeting attendance rate for each courses.
- c) The student should pass written, practical and oral exams successfully in all courses, and the examination is held two times annually.
- d) The Faculty council should deprive the student from entering the exam if his attendance rate in the course is less than 75%.
- e) Failure or depriving from entering one or more course did not require reexamination of successful passed courses.
- f) The applicant should conduct an innovate research on the subject that has been registered for at least 2 years from the date of registration approved by the faculty council. And the faculty council depending on a request from the supervisor has the right to authorize the student to do scientific experiments at recognized scientific institute.
- g) The applicant should submit the thesis that accepted by the judging committee in an open discussion and the following policies should be met:
  - h) Pass all courses.
  - i) The applicant should submit 4 copies of his thesis concerned department council to form committee examining the thesis to be presented to the postgraduate studies committee and the faculty council, and in case of thesis approval by the department council, the applicant will submit 6 copies for the faculty library, 1 copy for public university library before introducing the report of examination committee to the post graduate studies committee and the faculty council.
  - j) Registration will be during March and September of each year.
  - k) The applicant should submit a request enrolment for the dean who forwards bit to the concerned department council to determine the research subject and the study program and then take calendar after complete documentation on the faculty council for approval.



- l) The thesis title should be identified before being submitted at least 2 months and the judging committee has the right to amend the title without prejudice the subject of research.
- m) The Faculty council has the right to suspend the student enrolment for a certain period if he has acceptable excuse preventing him from continuing his study or research, and his period will not counted within the period stated in article 25.
- n) The applicant should submit 5 hard copies and 10 electronic copies (CDs) of the thesis after its validity approved by the judging committee and head of department to be distributed to the committee members and faculty library and the judging committee can decide the exchange of the thesis with other universities or printing at the expense of the university.

**12. Registration will be cancelled in one of the following cases:**

1. If the supervisors report during the registration period is un satisfactory (2 reports).
2. If he did not submit his thesis before the end of registration period.
3. If the judging committee rejected the thesis twice.

**13. Examination Regulations**

- a- Time of written exam, 3 hours for each course that has 3 hours or more for lecture / practical /week. **If has less than 3 hours/week, the time of exam, is 2 hours only.**
- b- The final degree of each course which has 3 hours (lecture and practical) per week is **100 and less than 3 hours is 50 degrees and divided into 50% for written exam, and 50% for practical and oral exam.**

**14. Program completion:**

- Successfully completion of the required courses and submission of a thesis.

**Program Coordinator**

Prof. Dr.

**Head of Department**

Prof. Dr.



## Matching program ILOs with ARS - Matrix

Program ILOs	ARS																																
	K&U (a)						I.S. (b)								P.P. (c)					G.T. (d)													
	1	2	3	4	5	6	1	2	3	4	5	6	7	1	2	3	4	5	1	2	3	4	5	6	7	8							
K&U	1 2	3	4	5	5	6																											
I.S.							1	2	3	4	5	6	8																				
P.P.												7		1	2	3	4	5															
G.T.																										1	2	3	4	5	6	7	8





## Program Specification Matrix

### Master in Veterinary Medicine (Parasitology)

Courses		Total Contact hours/ course	No. of hours / week			KU (a)						IS (b)								PPS (c)					GTS (d)							
Code	Name		Lect.	Lab.	Total	1	2	3	4	5	6	1	2	3	4	5	6	7	8	1	2	3	4	5	1	2	3	4	5	6	7	8
-	Fundamental (Basic) course	308	3	4	7	x	x	x				x	x	x						x					x	x	x	x				
-	Research methodology	176	1	3	4			x	x	x			x	x	x						x					x	x	x				
	Elective courses	10-12 hours/ week				x						x								x					x	x	x					
<b>Thesis</b>										x	x				x	x	x	x	x			x	x	x	x	x	x	x	x	x	x	

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.



---

**Kafrelsheikh University**  
**Faculty of Veterinary Medicine**  
**Department of Parasitology**



---

## **ARS for Master in Veterinary Medicine (Parasitology)**

### **1) Graduate attributes**

*The graduate should have the ability for:*

- 1) Perfect application of scientific research basics and methodologies in Parasitology, and using its various tools.
- 2) Application and use of analytical methodology in the field of Parasitology.
- 3) Application of gained specialized knowledge and integrating them with the relevant knowledge in Parasitology.
- 4) Awareness with current problems and recent visions in Parasitology.
- 5) Identification of parasitological problems suggesting suitable and economic solutions.
- 6) Mastering an appropriate scale of specific professional skills, and using suitable technological means to serve professional practice.
- 7) Effective communication with students, animal breeders and owners of animal and poultry farms and leading work team.
- 8) Decision making in various parasitological contexts.
- 9) Employment of the available parasitological techniques efficiently to improve diagnostic ability and control of parasitic diseases.
- 10) Awareness with his role in society development and using improved diagnostic techniques for preservation of a clean environment.
- 11) Reflection of the commitment to act with integrity, credibility and the rules of profession.
- 12) Academic and professional self-development and ability for life-long learning and progress.

#### **A) Knowledge and understanding**



<b>Adopted ARS</b>		<b>NARS (Master)</b>	
	<i>By the end of this program the graduate should understand and accommodate the following:</i>		<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Theories and basic principles of parasitology and clinical parasitology.		Theories and principles in the field of specialization and related fields.
2)	Illustrate the host parasite relationship and microbial pathogenesis and their impact on environment		Mutual effect between professional practice and its impact on environment
3)	Recognize the general properties of parasite pathogenicity and different methods of diagnosis of parasitic diseases		Scientific progress in the field of specialization
4)	Outline the principles of laboratory safety and regulations (laboratory hazards and protective equipment)		Legal and ethical basics in professional practice in the field of specialization
5)	Describe the most important methods of decontamination, sterilization and principles of infestation control.		Principles and basics of quality assurance in the area of specialization
6)	Basics and ethics of scientific research.		Basics and ethics of scientific research

## **B) Intellectual skills**

<b>Adopted ARS</b>		<b>NARS (Master)</b>	
	<i>By the end of this program the graduate should understand and accommodate the following:</i>		<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Integrate the results of clinical and laboratory test findings into a meaningful diagnostic formulation		Analysis and judgment of information in the field of specialization and analog to solve problems.
2)	Interpreting results of parasitological, serological and molecular tests.		Solving professional problems even in scarcity of data.
3)	Development of creative approaches to solve technical problems or issues associated with running and researches project.		Relating between different knowledge to solve professional problems.
4)	Identification, summarizing and evaluating prior researches finding in Parasitology.		Preparing research plan in specialization and/ or writing scientific article on a research problem.
5)	Evaluate different laboratory data with normal and reference values and formulate diagnosis after excluding non-specific interpretation		Risk-assessment of professional practices in specialization.



6)	Using appropriate intellectual strategy and evidence based decisions to deal with uncertainty and laboratory diagnostic problems Develop plans to improve performance in laboratory practice with automation	Planning for improvement of professional performance.
7)	Using appropriate intellectual strategy to deal with laboratory diagnostic problems.	Taking professional decisions in a variety of professional contexts.

### C) Professional and practical skills

Adopted ARS		NARS (Master)
	<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Investigating using recent techniques and tools necessary to diagnose and characterize parasitic diseases of veterinary importance.	Mastering basic and recent professional skills in the field of specialization
2)	Writing and Interpreting parasitological, immunological and molecular reports	Writing and evaluating professional reports.
3)	Planning a research project in the field of veterinary Parasitology with a consideration to the technical, ethical and safety issues and associated costs.	Evaluating existing materials and methods in the area of specialization.
4)	Performing essential laboratory skills that underpin techniques associated with sampling and different techniques for parasite identification	
5)	Use the different diagnostic methods related to clinical parasitology (Photometric, ELISA, RIA, PCR), and make comment on it and evaluate methods and instruments related to allergic tests	

### D) General and transferable skill

Adopted ARS		NARS (Master)
	<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Communicating effectively with teaching staff, colleagues and the community.	Effective communication.
2)	Using information technology in scientific research and publications.	Utilizing information technology to serve development of professional

		practice.
3)	Demonstrating appropriate attitude towards teaching staff and colleagues.	Self-assessment and determination of personal educational needs.
4)	Identifying and use different sources of information and knowledge.	Using different resources to obtain knowledge and information.
5)	Using appropriate attitude and rules towards teaching staff and colleagues and use evidence based evaluations.	Establishing rules and indicators for assessment of the performance of others.
6)	Respecting the importance of team work.	Team working and leading a team in familiar professional contexts.
7)	Doing good control of timing.	Efficient time management.
8)	Performing continuous self-learning.	Self and continuous learning.

## ثانياً: برامج الماجستير

### ١- مواصفات الخريج

خريج برنامج الماجستير في أي تخصص يجب أن يكون قادراً على:

١. إجادة تطبيق أساسيات و منهجيات البحث العلمي واستخدام أدواته المختلفة
٢. تطبيق المنهج التحليلي واستخدامه في مجال التخصص
٣. تطبيق المعارف المتخصصة و دمجها مع المعارف ذات العلاقة في ممارسته المهنية
٤. إظهار وعيا بالمشاكل الجارية و الرؤى الحديثة في مجال التخصص
٥. تحديد المشكلات المهنية و إيجاد حلول لها
٦. إتقان نطاق مناسب من المهارات المهنية المتخصصة، واستخدام الوسائل التكنولوجية المناسبة بما يخدم ممارسته المهنية
٧. التواصل بفاعلية و القدرة على قيادة فرق العمل
٨. اتخاذ القرار في سياقات مهنية مختلفة
٩. توظيف الموارد المتاحة بما يحقق أعلى استفادة و الحفاظ عليها
١٠. إظهار الوعي بدوره في تنمية المجتمع و الحفاظ على البيئة في ضوء المتغيرات العالمية و الإقليمية
١١. التصرف بما يعكس الالتزام بالنزاهة و المصداقية و الالتزام بقواعد المهنة
١٢. تنمية ذاته أكاديمياً و مهنياً و قادراً علي التعلم المستمر

### ١٢- المعايير القياسية العامة

#### ١ المعرفة و الفهم

- بانتهاء دراسة برنامج الماجستير يجب ان يكون الخريج على فهم و دراية بكل من:
- النظريات و الأساسيات المتعلقة بمجال التعلم وكذا في المجالات ذات العلاقة
  - التأثير المتبادل بين الممارسة المهنية وانعكاسها علي البيئة
  - التطورات العلمية في مجال التخصص
  - المبادئ الأخلاقية و القانونية للممارسة المهنية في مجال التخصص
  - مبادئ و أساسيات الجودة في الممارسة المهنية في مجال التخصص
  - أساسيات و أخلاقيات البحث العلمي

### ٢ المهارات الذهنية

- بانتهاء دراسة برنامج الماجستير يجب ان يكون الخريج قادرا على:
- تحليل و تقييم المعلومات في مجال التخصص و القياس عليها لحل المشاكل
  - حل المشاكل المتخصصة مع عدم توافر بعض المعطيات
  - الربط بين المعارف المختلفة لحل المشاكل المهنية
  - إجراء دراسة بحثية و /أو كتابة دراسة علمية منهجية حول مشكلة بحثية
  - تقييم المخاطر في الممارسات المهنية في مجال التخصص
  - التخطيط لتطوير الأداء في مجال التخصص
  - اتخاذ القرارات المهنية في سياقات مهنية متنوعة

### ٣ المهارات المهنية

- بانتهاء دراسة برنامج الماجستير يجب ان يكون الخريج قادرا على:
- إتقان المهارات المهنية الأساسية و الحديثة في مجال التخصص
  - كتابة و تقييم التقارير المهنية
  - تقييم الطرق و الأدوات القائمة في مجال التخصص

### ٤ المهارات العامة و المنتقلة

- بانتهاء دراسة برنامج الماجستير يجب أن يكون الخريج قادرا على:
- التواصل الفعال بأنواعه المختلفة
  - استخدام تكنولوجيا المعلومات بما يخدم الممارسة المهنية
  - التقييم الذاتي و تحديد احتياجاته التعليمية الشخصية
  - استخدام المصادر المختلفة للحصول على المعلومات و المعارف
  - وضع قواعد و مؤشرات تقييم أداء الآخرين
  - العمل في فريق ، وقيادة فرق في سياقات مهنية مختلفة
  - إدارة الوقت بكفاءة
  - التعلم الذاتي و المستمر



## COURSE SPECIFICATION (2021 / 2022)

### 1 - Basic Information:

Code number: .....

Course title: Parasitology (Basic) (طفيليات أساسية)

Academic Year: Master of Veterinary Medicine Program

Total teaching hours: 336 hrs.

Lectures: 144 hrs. (48 weeks- 3hrs/week)

Practical: 192 hrs. (48 weeks- 4hrs/week)

### 2 - OVERALL AIMS OF THE COURSE:

*By the end of this course, the student should acquire the concepts, principles and skills related to basic and fundamental knowledge, skills and positive attitude concerning Taxonomy & morphological characters Biology, Survival strategies, the means of spread and behavioral ecology of different parasites*

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING (K.U):

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

- a.1. Define the fundamental concepts of Parasitology and with the technical vocabulary used in this field.
- a.2. Identify different species of helminths and their stages in the intermediate host based on morpho-biological characteristics, geographical distribution, clinical observation, and how could they induce diseases in different animals, and birds.
- a.3. Identify different species of arthropods and their biological and morphological features with reference to their medical importance in transmitting diseases (arthropod borne diseases) or in inducing lesions (blood loss, mange /scabies and myiasis) to the affected different host animals and birds
- a.4. Discuss the ability of Protozoa to induce diseases in domesticated, wild animal, fish, birds and man by studying their life cycles, intermediate hosts /vector, mode of infection transmission.
- a.5. Identify the physiological mechanisms that enable parasites to survive, grow, reproduce, digest /absorb their nutrients, nervous and muscular system and biochemistry of parasites.
- a.6. Outline the molecular and cellular immunological basis of host-parasite interactions
- a.7. Identify the classification of different parasites and how could they induce diseases in different animals, and birds and their symptoms.

#### 3-B: INTELLECTUAL SKILLS (I.S):

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

- b.1. Categorize the factors responsible for parasites/hosts.
- b.2. Analyze the host-parasite interaction (Immune response).
- b.3. Compare between different parasites.

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS (P.P.S):

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

- c.1. Diagnose the different parasitic infection in different hosts by direct Microscopical and indirect (ELISA, PCR, Antigen-Antibody reaction) methods, collecting the samples (urine, feces, blood, serum, lymph, and skin scrapings) correctly, their preservation and processing.
- c.2. Select rational treatment and control programs for parasite population based on his/her knowledge of physiology and biochemistry of parasites.

#### 3- D: GENERAL SKILLS:



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

- d.1. Communicate effectively with his professors, and collages.
- d.2. Utilize different sources of knowledge and information
- d.3. Use information technology to serve the professional practice.
- d.4. Manage time efficiently.

#### **4 - COURSE CONTENTS:**

Topic	No. of hours		
	Lectures	Practical	Total
1. Introduction and Course description	3	4	7
2. Helminths	36	48	84
3. Arthropods	36	48	84
4. Protozoa	24	32	56
5. Physiology/biochemistry of parasites	12	16	28
6. Immunoparasitology	12	16	28
7. Clinical parasitology	21	28	49
Total	144	192	336

#### **5- TEACHING & LEARNING METHODS:**

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library  
Making individual reports about Parasitology

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a7	b1 to b3		d1, d4
Practical sessions		b1 to b3	c1 to c2	d2, d4
Self-Learning activities				d2, d3, d4
Distance Teaching and Learning	a1 to a7	b1 to b3	c1 to c2	d1 to d4

\*Lectures and some practical topics may be offered face to face or via distance teaching and learning.

#### **6. METHODS FOR STUDENTS With limited capabilities:-**

- Special handling in the laboratory with extra time if needed.

Ensure that all students with disabilities have equal access to educational opportunities and to help students to achieve academic and personal success

#### **7. STUDENT ASSESSMENT:-**

<u>7.a Used methods</u>	Written examination	Oral examination	Practical examination	Activities





<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	At the end of the academic year
<b>7.c grads</b>	50	25	25	10

6.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a7	b1 to b3		d4
Practical exams			c1 to c2	d2, d3
Oral exams	a1 to a7	b1 to b3		d1
Student activities	a1, a7,			d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Essential Books

- M.A. Taylor, R.L. Coop. 2015. **Veterinary Protozoology**. <https://doi.org/10.1002/9781119073680.ch2>
- Roberts, L. S. and J.J. Janovy. 2000. **Foundations of Parasitology**. 5<sup>th</sup> Edition, W.C.B. Company, U.K.
- Urquhart G. M., J. Armour, J. L. Duncan, A.M. Dunn, F. W. Jennings. 2000. **Veterinary Parasitology**, Longman Scientific Technical, U.K.
- Levine, N. D. 1990. **Veterinary Protozoology**. Iowa State University Press, Ames, Iowa, USA.
- Soulsby, E. J. L. 1986. **Helminths, Arthropods and Protozoa of Domesticated Animals**. The English Language Book Society Bailliere Tindall, London.
- Georgi, J. R., M. E. Georgi and V. J. Theodorides. 1999. **Parasitology for Veterinarians**. 7th Ed. W.B. Saunders Company London.
- Wall, R. and D. Shearer. 1997. **Veterinary Entomology**. Chapman and Hall.
- Hendrix, C. M. 1998. **Diagnostic Veterinary Parasitology**. 2nd Edition. Mosby.

### 8-2: Recommended books:

- Elsheikha, Hany M., and H. A. Khan. **Essentials of veterinary parasitology**. Caister Academic Press, 2011.
- Elsheikha, Hany, and Edward L. Jarroll, eds. **Illustrated Dictionary of Parasitology in the Post-genomic Era**. Caister Academic Press, 2017.
- Taylor, Mike A., R. L. Coop, and Richard L. Wall. **Veterinary parasitology**. John Wiley & Sons, 2015.

### 8-3: Egyptian Knowledge Bank:

- Bowman, Dwight D. **Georgis' Parasitology for Veterinarians E-Book**. Elsevier Health Sciences, 2020.
- Zajac, Anne M., et al. **Veterinary clinical parasitology**. John Wiley & Sons, 2021.
- Bowman, Dwight D., et al. **Feline clinical parasitology**. John Wiley & Sons, 2008.
- Kassai, Tibor. **Veterinary helminthology**. Acribia, SA, 2002.
- Kreier, Julius P., ed. **Parasitic Protozoa: Volume 10**. Academic Press, 2013.
- Rohde, Klaus, ed. **Marine parasitology**. Csiro publishing, 2005.
- Papadopoulos, Elias. **Atlas of parasites in sheep**. Group Asís Bio media SL, 2021.



## Scientific Journals

1. Current research in parasitology & vector-borne diseases.
2. Veterinary parasitology: X.
3. Parasitology open.
4. Veterinary parasitology, regional studies and reports.
5. Annals of parasitology.
6. International journal for parasitology. Parasites and wildlife.
7. ISRN parasitology. (International Scholarly Research Network Parasitology)
8. Tropical parasitology.
9. Journal of parasitology research.
10. Parasites & vectors.
11. The open parasitology journal.
12. Journal of parasitology.
13. Journal of vector borne diseases.
14. Trends in parasitology.
15. Iranian journal of parasitology.
16. Parasitology international.
17. The Korean journal of parasitology.
18. Acta parasitologica
19. Journal of veterinary parasitology
20. Parasitology research.
21. Parasitology today.
22. Tropical medicine and parasitology: official organ of Deutsche
23. Tropical biomedicine.
24. Turkiye parazitolojii dergisi
25. Veterinary parasitology.
26. Egyptian journal of bilharziasis.
27. Tropenmedizin und Parasitologie.
28. International journal for parasitology.
29. Folia parasitologica.
30. Advances in parasitology.
31. Parassitologia.
32. The Journal of protozoology.
33. Experimental parasitology.
34. Kiseichugaku zasshi. Japanese journal of parasitology.
35. Revista Kuba de medicina tropical y parasitologica.

## Scientific websites

- **The Egyptian Knowledge Bank:** <https://www.ekb.eg/web/guest/home>
- [Alberta Agriculture, Food and Rural Development](#)  
Livestock diseases and parasites.
- [American Heartworm Society](#)  
Aims: Further scientific progress in the study of heartworm disease; inform the membership of new developments; and encourage and help promote effective procedures for the diagnosis, treatment and prevention of heartworm disease.
- [Arthropods and Protozoan Parasites](#)  
Arthropods and Protozoan Parasites Important to Vet Med
- [Canine heartworm disease](#)  
A detailed look at heartworm disease including a dogs vs cats comparison chart showing illustrating major differences. Presented by the American Heartworm Society.



- [Control Of Parasites In Companion Animals](#)  
The Companion Animal Parasite Council (CAPC) is an independent group of U.S. veterinary, governmental, and association leaders in the parasitology field.
- [Diagnosis of Veterinary Endoparasitic Infections](#)  
University of Pennsylvania program designed to assist students, researchers, and clinicians in diagnosing parasitic infections.
- [Diagnosteg](#)  
This website contains information compiled by experts in equine parasitic diseases.
- [Ectoparasite Database](#)  
Treatments for ectoparasites. Covers species (avian, reptilian, small mammal), route of administration, etc. Last update 2002.
- [Fleas Factsheet](#)  
Provides a concise description of flea biology, products and some general strategies to eliminate fleas.
- [Guarding against Giardia](#)  
The original source of an outbreak may be cysts in contaminated water or the environment. What are the clinical signs and how is it treated?
- [Infectious Enteritis](#)  
Dr. Jody Gookin's biographical site provides links to *Trichostrongylus axei* information (test kits, sample submission, videomicroscopy, research pubs, etc.), along with some *Cryptosporidium* information.
- [Iowa State Entomology Image Gallery](#)  
Pictures and information on everything from ants to stink bugs.
- [Know Heartworms](#)  
This Pfizer site, approved by the American Heartworm Society and the American Association of Feline Practitioners, contains downloadable handouts/posters/etc. for clinic use.
- [Medical Entomology](#)  
Iowa state entomology index with links to a wide variety of related entomology sites.
- [Morbidity and Mortality Weekly Report \(MMWR\)](#)  
A Synopsis On Raccoon Roundworm Encephalitis In Chicago, Illinois, and Los Angeles, California, 2000.
- [Ohio State University Acarology Laboratory](#)
- [Parasitology Research](#)  
Cryptosporidium/Coccidial research from Kansas State University, Biology division.
- [Research In Veterinary Parasitology](#)  
it includes: a) development of an immunodiagnostic assay for larval stages of Cyathostomins; b) development of DNA probes to identify individual Cyathostomin species; c) the role of cytokines in parasite induced colitis; d) identification of stage specific genes that may be involved in reactivation and inhibition of larval stages; etc.
- [Tick ID](#)  
The Rhode Island Department of Health Lyme Disease tick identification site.
- [Ticks & Tick-Transmitted Diseases in Oklahoma](#)
- [UW Veterinary Parasitology](#)
- [Veterinary clinical parasitology images](#)  
Images and descriptions from Oklahoma State University.
- [Veterinary Entomology](#)  
Insects of veterinary importance.

**Course Coordinator**

**Dr. Nagwa Mohammed Kandeel**

**Head of Department**

**Prof. Dr. Reda Elbastawisy  
Khalafalla**





## COURSE SPECIFICATION (2021 / 2022)

### 1 - Basic Information:

Code number: 188/1

Course title: Veterinary Medical Entomology

Academic Year: Master of Veterinary Medicine Program

Total teaching hours: 192 hrs.

Lectures: 96 hrs. (48 weeks- 2hrs/week)

Practical: 96 hrs. (48 weeks- 2hrs/week)

### 2 - OVERALL AIMS OF THE COURSE:

By the end of this course, the student should acquire the concepts, principles and skills related to provide students with basic and fundamental knowledge, skills and positive attitude concerning insects and arthropods affecting different animals and birds.

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- a.1. Define the fundamental concepts of veterinary medical entomology and the technical vocabulary used in this field.
- a.2. Describe different species of insects (Class: Insecta) and their biological and morphological features with reference to their medical importance in transmitting diseases (arthropod borne diseases) or in inducing lesions (blood loss and myiasis) to the affected different host animals and birds.
- a.3. Explain different species of Crustacea, their role as intermediate hosts and how could they induce or transmit diseases among different animals, and birds.
- a.4. Restate different species of Myriopoda and how could they induce or transmit diseases (their role as intermediate hosts) among different animals, and birds.
- a.5. Contrast different species of Arachnida (including Ticks and mites) and their stages in the environment based on morpho-biological, geographical, clinical observation, and their ability to transmit different diseases (Tick-born diseases).
- a.6. Summarize different species of Pentastomatida and their role to induce diseases in different animals, and birds.
- a.7. Identify different control strategies to eliminate the insects, crustaceans, myriopoda, arachnids, pentastomatids and their stages in the environment to diminish their presence and subsequently, diseases and conditions among animals and birds.

#### 3-B: INTELLECTUAL SKILLS:

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

- b.1. Collect the field samples of different arthropods /insects and their stages to make proper laboratory and Microscopical identification.



- b.2. Organize the differential diagnosis between infections and diseases caused by various arthropods /insects.
- b.3. Analyze the immune reaction of the affected animal /bird host to the infestations with arthropods /insects.
- b.4. Compare between the diagnostic stages of different arthropods /insects.

### **3- C: PRACTICAL AND PROFESSIONAL SKILLS:**

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

- c1. Prepare the samples of arthropods /insects in permanent slides for Microscopical examination.
- c2. Diagnose the different arthropods /insects infestations in different hosts by direct and indirect methods.
- c3. Select rational control and prevention programs for arthropods population based on his/her knowledge of arthropods biology.

### **3- D: GENERAL SKILLS:**

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

- d.1. Communicate effectively with his professors, and colleagues.
- d.2. Utilize different sources of knowledge and information
- d.3. Use information technology to serve the professional practice.
- d.4. Manage time efficiently

### **4 - COURSE CONTENTS:**

Topic	No. of hours		
	Lectures	Practical	Total
1.Introduction	10	-	10
2.Class: Insecta	28	32	60
3.Class: Crustacea	10	10	20
4.Class: Myriapoda	6	6	12
5.Class :Arachnida	28	32	60
6.Class Penatstomida	4	6	10
7.CONTROL OF ARTHROPDS	10	10	20
Total	96	96	192

### **5- TEACHING & LEARNING METHODS:**

- \* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming
- \* **Self-Learning activities:** Mini reviews from the web and the library  
Making individual reports about arthropods which has veterinary and medical importance
- \* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather



emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a7	b1 to b4		d1, d2
Practical sessions		b1 to b4	c1 to c3	d1, d2, d3
Self-Learning activities				d2, d3, d4
Distance Teaching and Learning	a1 to a7	b1 to b4	c1 to c3	d1, d2, d4

Lectures may be offered face to face or via distance teaching and 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 lectures.

## 7. STUDENT ASSESSMENT:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	Allover the academic year
<b>7.c grads</b>	50	20	20	10

6.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a7	b1 to b4		d4
Practical exams			c1 to c3	d2, d3
Oral exams	a1 to a7	b1 to b4		d1
Student activities	a3, a7			d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Essential Books

- Mullen, Gary R., and Lance A. Durden, eds. *Medical and veterinary entomology*. Academic press, 2009.
- Kettle, Douglas Stewart. *Medical and veterinary entomology*. Croom Helm Ltd, 1984.
- Eldridge, Bruce F., and John D. Edman, eds. *Medical entomology: a textbook on public health and veterinary problems caused by arthropods*. Springer Science & Business Media, 2012.



- Russell, Richard C., Domenico Otranto, and Richard L. Wall. *The encyclopedia of medical and veterinary entomology*. CABI, 2013.
- Wall, Richard, and David Shearer. *Veterinary entomology: Arthropod ectoparasites of veterinary importance*. Springer Science & Business Media, 1997.

### **8-2: Recommended books:**

- Wall, Richard L., and David Shearer. *Veterinary ectoparasites: biology, pathology and control*. John Wiley & Sons, 2008.

### **8-3: Egyptian Knowledge Bank:**

Williams, Ralph E. *Veterinary entomology: livestock and companion animals*. CRC Press, 2009.

### **Scientific Journals**

1. Current research in parasitology & vector-borne diseases.
2. Parasites & vectors.
3. Journal of vector borne diseases.
4. Trends in parasitology.
5. Iranian journal of parasitology.
6. Parasitology international.
7. The Korean journal of parasitology.
8. Acta parasitologica
9. Journal of veterinary parasitology
10. Parasitology research.
11. Parasitology today.
12. Veterinary parasitology.

### **Scientific websites**

- **The Egyptian Knowledge Bank:** <https://www.ekb.eg/web/guest/home>
- Arthropods and Protozoon Parasites Important to Vet Med
- [Ectoparasite Database](#)  
[Iowa State Entomology Image Gallery](#)  
Pictures and information on everything from ants to stink bugs.
- [Medical Entomology](#)  
Iowa state entomology index with links to a wide variety of relate entomology sites.
- [Tick ID](#)  
The Rhode Island Department of Health Lyme Disease tick identification site.
- [Ticks & Tick-Transmitted Diseases in Oklahoma](#)
- [Veterinary Entomology](#)  
Insects of veterinary importance.

**Course Coordinator**

**Head of Department**

**Dr. Nagwa Mohammed Kandel**

**Prof. Dr. Reda Elbastawisy  
Khalafalla**





**Course Matrix for Achievement of Intended Learning Outcomes**

Topics	Hours	Knowledge & Understanding							Intellectual Skills				Practical & Professional Skills			General & Transferable Skills				
		1	2	3	4	5	6	7	1	2	3	4	1	2	3	1	2	3	4	
Introduction	10	✓															✓	✓	✓	✓
Class: Insecta	60		✓						✓	✓	✓	✓	✓	✓			✓	✓	✓	✓
Class: Crustacea	20			✓					✓	✓	✓	✓	✓	✓			✓	✓	✓	✓
Class: Myriopoda	12				✓				✓	✓	✓		✓	✓			✓	✓	✓	✓
Class :Archanida	60					✓			✓	✓	✓	✓	✓	✓			✓	✓	✓	✓
Class Penatstomida	10						✓		✓	✓	✓	✓	✓	✓			✓	✓	✓	✓
CONTROL OF ARTHROPDS	20							✓							✓		✓	✓	✓	✓



## COURSE SPECIFICATION (2021 / 2022)

### 1 - Basic Information:

Code number: 189/1

Course title: Veterinary Helminthology

Academic Year: **Master of Veterinary Medicine Program**

Total teaching hours: 192 hrs.

Lectures: 96 hrs. (48 weeks- 2hrs/week)

Practical: 96 hrs. (48 weeks- 2hrs/week)

### 2 - OVERALL AIMS OF THE COURSE:

By the end of this course, the student should acquire the concepts, principles and skills related to provide students with basic and fundamental knowledge, skills and positive attitude concerning helminthology in different animals, birds and fish.

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING (K.U):

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

- a1. Define the fundamental concepts of Parasitology and with the technical vocabulary used in this field.
- a2. Identify different species of trematodes and their stages in the intermediate host (snails) based on morpho-biological, geographical, clinical observation, and their ability to induce diseases in different animals, and birds.
- a3. Describe different species of Eucestoda (true Cestodes) and their metacestodes in the intermediate hosts based on morpho-biological, geographical, clinical observation, and how could they induce diseases in different animals, and birds.
- a4. Explain different species of Cotyloda (Pseudophyllidea) and their metacestodes in the intermediate hosts based on morpho-biological, geographical, clinical observation, and how could they induce diseases in different animals, and birds.
- a5. Restate different species of nematodes and their stages in the environment based on morpho-biological, geographical, clinical observation, and by what method they induce diseases in different animals, and birds.
- a6. Summarize different species of Acanthocephala by studying their morpho-biological features besides how could they induce diseases in different fish and birds.
- a7. Contrast different control and prevention strategies to eliminate the helminths and their larval stages from the environment surrounding the different livestock animals.

#### 3-B: INTELLECTUAL SKILLS (I.S):

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

- b.1. Organize the effective factors on the existence of helminths and the relevant disease severity to the affected hosts.
- b.2. Analyze the helminth -host relationship.
- b.3. Compare between different helminths.

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS (P.P.S):

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

- c.1. Prepare permanent slides from freshly collected samples of trematodes, cestodes, nematodes and acanthocephalan parasites



c.2. Diagnose the different helminth infection in different hosts by direct and indirect methods to demonstrate their diagnostic stage in different body excreta and fluids (eggs in feces or urine, microfilaria in bloods).

c.3. Select rational prevention and control programs for parasite population based on his/her knowledge of morpho-biological characteristics of parasites.

### **3- D: GENERAL AND TRANSFERABLE SKILLS (G.T.S):**

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

d.1. Communicate effectively with his professors, and collages.

d.2. Utilize different sources of knowledge and information

d.3. Use information technology to serve the professional practice.

d.4. Manage time efficiently

### **4 - COURSE CONTENTS:**

Topic	No. of hours		
	Lectures	Practical	Total
1.INTRODUCTION	10	10	20
2.CLASS: TREMATODA	28	28	56
3.CLASS: EUCESTODA	10	10	20
4.CLASS: COTYLODA	6	6	12
5.CLASS : NEMATODA	28	28	56
6.ACANTHOCEPHALA	4	4	8
7.CONTROL OF HELMINTHES	10	10	20
Total	96	96	192

### **5- TEACHING & LEARNING METHODS:**

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library

Making individual reports about different helminthes.

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a7	b1 to b3		d1, d4
Practical sessions		b1 to b3	c1 to c3	d2, d4
Self-Learning activities				d2, d3, d4
Distance Teaching and Learning	a1 to a7	b1 to b3	c1 to c3	d1 to d4

\*Lectures and some practical topics may be offered face to face or via distance teaching and learning.

### **6. METHODS FOR STUDENTS With limited capabilities:-**



- Special handling in the laboratory with extra time if needed.

Ensure that all students with disabilities have equal access to educational opportunities and to help students to achieve academic and personal success

## 7. STUDENT ASSESSMENT:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	All over the academic year
<b>7.c grads</b>	50	20	20	10

6.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a7	b1 to b3		d4
Practical exams			c1 to c3	d2, d3
Oral exams	a1 to a7	b1 to b3		d1
Student activities	a1, a7			d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Essential Books

- 1. Roberts, L. S. and J.J. Janovy. 2000. Foundations of Parasitology.5th Edition, W.C.B. Company, U.K.
- 2. Urquhart G. M., J. Armour, J. L. Duncan, A.M. Dunn, F. W. Jennings. 2000. Veterinary Parasitology, Longman Scientific Technical, U.K.
- 3. Levine, N. D. 1990. Veterinary Protozoology. Iowa State University Press, Ames, Iowa, USA.
- 4. Soulsby, E. J. L. 1986. Helminths, Arthropods and Protozoa of Domesticated Animals. The English Language Book Society BailliereTindall, London.
- 5. Georgi, J. R., M. E. Georgi and V. J. Theodorides. 1999. Parasitology for Veterinarians. 7th Ed. W.B. Saunder Company London..
- 6. Hendrix, C. M. 1998. Diagnostic Veterinary Parasitology.2nd Edition.Msoby.

### 8-2: Recmended books:

- Elsheikha, Hany M., and H. A. Khan. *Essentials of veterinary parasitology*. Caister Academic Press, 2011.
- Elsheikha, Hany, and Edward L. Jarroll, eds. *Illustrated Dictionary of Parasitology in the Post-genomic Era*. Caister Academic Press, 2017.
- Taylor, Mike A., R. L. Coop, and Richard L. Wall. *Veterinary parasitology*. John Wiley & Sons, 2015.

### 8-3: Egyptian Knowledge Bank:

- Skrjabin, K. I., et al. "Veterinary parasitology and parasitic diseases of the domestic animals." *Veterinary parasitology and parasitic diseases of the domestic animals*. (1934).



- Bowman, Dwight D. *Georgis' Parasitology for Veterinarians E-Book*. Elsevier Health Sciences, 2020.
- Zajac, Anne M., et al. *Veterinary clinical parasitology*. John Wiley & Sons, 2021.
- Bowman, Dwight D., et al. *Feline clinical parasitology*. John Wiley & Sons, 2008.
- Kassai, Tibor. *Veterinary helminthology*. Acribia, SA, 2002..
- Papadopoulos, Elias. *Atlas of parasites in sheep*. Grupo Asís Biomedica SL, 2021.

### Scientific Journals

1. Current research in parasitology & vector-borne diseases.
2. Veterinary parasitology: X.
3. Parasitology open.
4. Veterinary parasitology, regional studies and reports.
5. Annals of parasitology.
6. International journal for parasitology. Parasites and wildlife.
7. ISRN parasitology. (International Scholarly Research Network Parasitology)
8. Tropical parasitology.
9. Journal of parasitology research.
10. Parasites & vectors.

### Scientific websites

- **The Egyptian Knowledge Bank:** <https://www.ekb.eg/web/guest/home>
- [Alberta Agriculture, Food and Rural Development](#)  
Livestock diseases and parasites.
- [American Heartworm Society](#)  
Aims: Further scientific progress in the study of heartworm disease; Inform the membership of new developments; and encourage and help promote effective procedures for the diagnosis, treatment and prevention of heartworm disease.
- [Canine heartworm disease](#)  
A detailed look at heartworm disease including a dogs vs cats comparison chart showing illustrating major differences. Presented by the American Heartworm Society.
- [Control Of Parasites In Companion Animals](#)  
The Companion Animal Parasite Council (CAPC) is an independent group of U.S. veterinary, governmental, and association leaders in the parasitology field.
- [Diagnosteg](#)  
This website contains information compiled by experts in equine parasitic diseases.
- [Know Heartworms](#)  
This Pfizer site, approved by the American Heartworm Society and the American Association of Feline Practitioners, contains downloadable handouts/posters/etc. for clinic use.
- [Morbidity and Mortality Weekly Report \(MMWR\)](#)  
A Synopsis On Raccoon Roundworm Encephalitis In Chicago, Illinois, and Los Angeles, California, 2000.
- [Veterinary clinical parasitology images](#)  
Images and descriptions from Oklahoma State University.

**Course Coordinator**

**Dr. Nagwa Mohammed Kandel**

**Head of Department**

**Prof. Dr. Reda Elbastawisy  
Khalafalla**



### Course Matrix for achievement of Intended Learning Outcomes

Topics	Hours	Knowledge & Understanding							Intellectual Skills			Practical & Professional Skills			General & Transferable Skills			
		1	2	3	4	5	6	7	1	2	3	1	2	3	1	2	3	4
1.INTRODUCTION	20	✓													✓	✓	✓	✓
2.CLASS: TREMATODA	56		✓						✓	✓	✓	✓	✓		✓	✓	✓	✓
3.CLASS: EUCESTODA	20			✓					✓	✓	✓	✓	✓		✓	✓	✓	✓
4.CLASS: COTYLODA	12				✓				✓	✓	✓	✓	✓		✓	✓	✓	✓
5.CLASS : NEMATODA	56					✓			✓	✓	✓	✓	✓		✓	✓	✓	✓
6.ACANTHOCEPHALA	8						✓		✓	✓	✓	✓	✓		✓	✓	✓	✓
7.CONTROL OF HELMINTHES	20							✓						✓	✓	✓	✓	✓



## COURSE SPECIFICATION (2021 / 2022)

### 1 - Basic Information:

Code number: 190/1

Course title: Protozoology

Academic Year: **Master of Veterinary Medicine Program**

Total teaching hours: 192 hrs.

Lectures: 96 hrs. (48 weeks- 2hrs/week)

Practical: 96 hrs. (48 weeks- 2hrs/week)

### 2 - OVERALL AIMS OF THE COURSE:

*By the end of this course, the student should acquire the concepts, principles and skills related to provide students with basic and fundamental knowledge, skills and positive attitude concerning protozoology in different animals, birds and fish*

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING (K.U):

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

- a.1. Define the fundamental concepts of Protozoology and the technical vocabulary used in this field.
- a.2. Discuss the ability of Protozoa to induce diseases in domesticated, wild animal, fish, birds and man by studying their life cycles, intermediate hosts /vectors, mode of infection transmission.
- a.3. Identify common taxa of Protozoa including Myxospora, Mastigophora, Sarcodina, Apicomplexa, Ciliphora, and Microspora, based on their morphological, biologic and geographical criteria and clinical observation.
- a.4. recognize the behavior and ecology of different protozoa species and stages in the environment.

#### 3-B: INTELLECTUAL SKILLS (I.S):

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

- b.1. Organize the factors responsible for protozoal infections in different animals.
- b.2. Analyze the parasite-host relationship between protozoa and their host animals.
- b.3. Compare between different parasites.

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS (P.P.S):

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

- c.1. Collect lymph and blood as well as fecal samples to investigate and to diagnose the presence of different protozoal infections affecting various hosts by applying different techniques including; fecal floatation, fecal sedimentation, blood thin film and blood thick film.
- c.2. Interpreting sample investigations results to write reports for the clinicians for correct treatment, prevention, and control program.
- c.3. Select rational prevention and control programs for protozoan population based on his/her knowledge of life cycles, their intermediate hosts, mode of infection transmission, the morpho-biological characters of the protozoan parasites.

#### 3- D: GENERAL AND TRANSFERABLE SKILLS (G.T.S):

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

- d.1. Communicate effectively with his professors, and collages.
- d.2. Utilize different sources of knowledge and information
- d.3. Use information technology to serve the professional practice.



d.4. Manage time efficiently

#### 4 - COURSE CONTENTS:

Topic	No. of hours		
	Lectures	Practical	Total
1.Introduction	4	4	8
2.Class: Mastigophora	24	24	48
3.Class: Sarcodina	12	12	24
4.Phylum: Apicomplexa	10	10	20
5.Phylum : Ciliphora	28	28	56
6.Phylum: Microspora	6	6	12
7.Phylum: Myxospora	12	12	24
Total	96	96	192

#### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library

Making individual reports about different species of protozoa

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a4	b1 to b3		d1, d4
Practical sessions		b1 to b3	c1 to c3	d2, d4
Self-Learning activities				d2, d3, d4
Distance Teaching and Learning	a1 to a4	b1 to b3	c1 to c3	d1 to d4

\*Lectures and some practical topics may be offered face to face or via distance teaching and learning.

#### 6. METHODS FOR STUDENTS With limited capabilities:-

- Special handling in the laboratory with extra time if needed.

Ensure that all students with disabilities have equal access to educational opportunities and to help students to achieve academic and personal success

#### 7. STUDENT ASSESSMENT:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	All over the academic year
<b>7.c grads</b>	50	20	20	10





6.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a4	b1 to b3		d4
Practical exams			c1 to c2	d2, d3
Oral exams	a1 to a4	b1 to b3		d1
Student activities	a1, a4			d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Essential Books

- 1. Roberts, L. S. and J.J. Janovy. 2000. Foundations of Parasitology.5th Edition, W.C.B. Company, U.K.
- 2. Urquhart G. M., J. Armour, J. L. Duncan, A.M. Dunn, F. W. Jennings. 2000. Veterinary Parasitology, Longman Scientific Technical, U.K.
- 3. Levine, N. D. 1990. Veterinary Protozoology.Iowa State University Press, Ames, Iowa, USA.
- 4. Soulsby, E. J. L. 1986. Helminths, Arthropods and Protozoa of Domesticated Animals. The English Language Book Society BailliereTindall, London.
- 5. Georgi, J. R., M. E. Georgi and V. J. Theodorides. 1999. Parasitology for Veterinarians. 7th Ed. W.B. Saunder Company London.
- 6 Hendrix, C. M. 1998. Diagnostic Veterinary Parasitology.2nd Edition.Msoby.

### 8-2: Recmended books:

- Elsheikha, Hany M., and H. A. Khan. Essentials of veterinary parasitology. Caister Academic Press, 2011.
- Elsheikha, Hany, and Edward L. Jarroll, eds. Illustrated Dictionary of Parasitology in the Post-genomic Era. Caister Academic Press, 2017.
- Taylor, Mike A., R. L. Coop, and Richard L. Wall. Veterinary parasitology. John Wiley & Sons, 2015.

### 8-3: Egyptian Knowledge Bank:

- Skrjabin, K. I., et al. "Veterinary parasitology and parasitic diseases of the domestic animals." Veterinary parasitology and parasitic diseases of the domestic animals. (1934).
- Bowman, Dwight D. Georgis' Parasitology for Veterinarians E-Book. Elsevier Health Sciences, 2020.
- Zajac, Anne M., et al. Veterinary clinical parasitology. John Wiley & Sons, 2021.
- Kreier, Julius P., ed. Parasitic Protozoa: Volume 10. Academic Press, 2013.

### Scientific Journals

1. Current research in parasitology & vector-borne diseases.
2. Veterinary parasitology: X.
3. Parasitology open.
4. Veterinary parasitology, regional studies and reports.
5. Annals of parasitology.
6. International journal for parasitology. Parasites and wildlife.
7. ISRN parasitology. (International Scholarly Research Network Parasitology)



**V. C. I. I.**  
**Faculty**



8. Tropical parasitology.
9. Journal of parasitology research.
10. The open parasitology journal.
11. Journal of parasitology.
12. Parasitology international.
13. Parasitology research.
14. Parasitology today..

#### **Scientific websites**

- **The Egyptian Knowledge Bank: <https://www.ekb.eg/web/guest/home>**
- [Alberta Agriculture, Food and Rural Development](#)  
Livestock diseases and parasites.
- [Arthropods and Protozoan Parasites](#)  
Arthropods and Protozoan Parasites Important to Vet Med
- [Diagnosis of Veterinary Endoparasitic Infections](#)  
University of Pennsylvania program designed to assist students, researchers, and clinicians in diagnosing parasitic infections.
- [Guarding against Giardia](#)  
The original source of an outbreak may be cysts in contaminated water or the environment. What are the clinical signs and how is it treated?
- [Infectious Enteritis](#)  
Dr. Jody Gookin's biographical site provides links to Tritrichomonas foetus information (test kits, sample submission, videomicroscopy, research pubs, etc.), along with some Cryptosporidium information.
- [Parasitology Research](#)  
Cryptosporidium/Coccidial research from Kansas State University, Biology division.
- [Research In Veterinary Parasitology](#)  
it includes: a) development of an immunodiagnostic assay for larval stages of Cyathostomins; b) development of DNA probes to identify individual Cyathostomin species; c) the role of cytokines in parasite induced colitis; d) identification of stage specific genes that may be involved in reactivation and inhibition of larval stages; etc.
- [UW Veterinary Parasitology](#)
- [Veterinary clinical parasitology images](#)  
Images and descriptions from Oklahoma State University.

**Course Coordinator**

**Head of Department**

**Dr. Nagwa Mohammed Kandel**

**Prof. Dr. Reda Elbastawisy  
Khalafalla**



### Course Matrix for achievement of Intended Learning Outcomes

Topics	Hours	Knowledge & Understanding				Intellectual Skills			Practical & Professional Skills			General & Transferable Skills			
		1	2	3	4	1	2	3	1	2	3	1	2	3	4
Introduction	8	✓										✓	✓	✓	✓
Class: Mastigophora	48		✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓
Class: Sarcodina	24		✓	✓	✓		✓	✓	✓		✓	✓	✓	✓	✓
Phylum: Apicomplexa	20		✓	✓	✓		✓	✓	✓		✓	✓	✓	✓	✓
Phylum : Ciliphora	56		✓	✓	✓		✓	✓	✓		✓	✓	✓	✓	✓
Phylum: Microspora	12		✓	✓	✓	✓		✓	✓	✓		✓	✓	✓	✓
Phylum: Myxospora	24		✓	✓	✓	✓		✓	✓		✓	✓	✓	✓	✓



## COURSE SPECIFICATION (2021 / 2022)

### 1 - Basic Information:

Code number: 191/1

Course title: Parasites of birds and rabbits

Academic Year: Master of Veterinary Medicine Program

Total teaching hours: 192 hrs.

Lectures: 96 hrs. (48 weeks- 2hrs/week)

Practical: 96 hrs. (48 weeks- 2hrs/week)

### 2 - OVERALL AIMS OF THE COURSE:

*By the end of this course, the student should acquire the concepts, principles and skills related to basic and fundamental knowledge, skills and positive attitude concerning parasites of birds and rabbits*

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING (K.U):

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

- a.1. Define the fundamental concepts of parasites of birds and rabbits and with the technical vocabulary used in this field.
- a.2. Discuss how could helminthes, arthropods and protozoa are able to induce diseases in domesticated / wild birds and rabbits.
- a.3. Identify common taxa of parasites of birds and rabbits based on criteria of their morphology, biology and geographical distribution and clinical observation
- a.4. Explain the behavior and ecology of different parasite species and stages in the environment.

#### 3-B: INTELLECTUAL SKILLS (I.S):

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

- b.1. Organize the factors responsible for main parasitic infections affecting poultry and rabbits (chicken coccidiosis, Ascariasis, Histomoniasis, blood parasites, scaly leg disease, mange of rabbits, hepatic coccidiosis in rabbits, red mites in poultry farms, etc).
- b.2. Analyze the parasite-host interaction and the defense mechanisms of the parasites against the host immune response.
- b.3. Compare between different parasites.

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS (P.P.S):

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

- c.1. Collect different samples from died and live poultry /rabbits including organs, blood, lymph, serum, swabs, skin scrapings etc.,
- c.2. Apply a variety of laboratory techniques for identification of the causative parasites.
- c.3. Select rational prevention and control programs for parasite population based on his/her knowledge of life cycle, intermediate host and mode of transmission of each parasite of special importance for poultry and rabbits (e.g., chicken coccidiosis, Ascariasis, Histomoniasis, blood parasites, scaly leg disease, mange of rabbits, hepatic coccidiosis in rabbits, red mites in poultry farms, etc).

#### 3- D: GENERAL AND TRANSFERABLE SKILLS (G.T.S):

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

- d.1. Communicate effectively with his professors, and collages.
- d.2. Utilize different sources of knowledge and information



d.3. Use information technology to serve the professional practice.

d.4. Manage time efficiently

#### 4 - COURSE CONTENTS:

Topic	No. of hours		
	Lectures	Practical	Total
1.Introduction	4	4	8
2.Trematodes of birds & rabbits	24	24	48
3.Cestodes of birds & rabbits	12	12	24
4.Nematodes of birds & rabbits	10	10	20
5.Acanthocephala of birds & rabbits	6	6	12
6.Arthropods of birds & rabbits	28	28	56
7.Protozoa of birds & rabbits	12	12	24
Total	96	96	192

#### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library

Making individual reports about parasites of domesticated and wild birds and rabbits.

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures *	a1 to a4	b1 to b3		d1, d4
Practical sessions		b1 to b3	c1 to c2	d2, d4
Self-Learning activities				d2, d3, d4
Distance Teaching and Learning	a1 to a4	b1 to b3	c1 to c2	d1 to d4

\*Lectures and some practical topics may be offered face to face or via distance teaching and learning.

#### 6. METHODS FOR STUDENTS With limited capabilities:-

- Special handling in the laboratory with extra time if needed.

Ensure that all students with disabilities have equal access to educational opportunities and to help students to achieve academic and personal success

#### 7. STUDENT ASSESSMENT:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	Allover the academic year
<b>7.c grads</b>	50	20	20	10



6.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a4	b1 to b3		d4
Practical exams			c1 to c3	d2, d3
Oral exams	a1 to a4	b1 to b3		d1
Student activities	a1, a4			d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Essential Books

- 1. Roberts, L. S. and J.J. Janovy. 2000. Foundations of Parasitology.5th Edition, W.C.B. Company, U.K.
- 2. Urquhart G. M., J. Armour, J. L. Duncan, A.M. Dunn, F. W. Jennings. 2000. Veterinary Parasitology, Longman Scientific Technical, U.K.
- 3. Levine, N. D. 1990. Veterinary Protozoology.Iowa State University Press, Ames, Iowa, USA.
- 4. Soulsby, E. J. L. 1986. Helminths, Arthropods and Protozoa of Domesticated Animals. The English Language Book Society Bailliere Tindall, London.
- 5. Georgi, J. R., M. E. Georgi and V. J. Theodorides. 1999. Parasitology for Veterinarians. 7th Ed. W.B. Saunder Company London.
- 6. Wall, R. and D. Shearer. 1997. Veterinary Entomology. Chapman and Hall.
- 7. Hendrix, C. M. 1998. Diagnostic Veterinary Parasitology.2nd Edition.Msoby.
- 8. Arnall, Leslie, and Ian Frank Keymer. *Bird diseases. An introduction to clinical diagnosis and treatment of diseases in birds other than poultry.* Bailliere Tindall., 1975.
- 9. Valkiunas, Gediminas. *Avian malaria parasites and other haemosporidia.* CRC press, 2004.

### 8-2: Recmended books:

- Pattison, Mark, et al., eds. Poultry diseases. Elsevier Health Sciences, 2007.
- Chauhan, H. V. S. Poultry diseases, diagnosis and treatment. New Age International, 1996.
- Elsheikha, Hany M., and H. A. Khan. Essentials of veterinary parasitology. Caister Academic Press, 2011.
- Elsheikha, Hany, and Edward L. Jarroll, eds. Illustrated Dictionary of Parasitology in the Post-genomic Era. Caister Academic Press, 2017.
- Taylor, Mike A., R. L. Coop, and Richard L. Wall. Veterinary parasitology. John Wiley & Sons, 2015.

### 8-3: Egyptian Knowledge Bank:

- Forrester, Donald J., and Marilyn G. Spalding. Parasites and diseases of wild birds in Florida. University Press of Florida, 2003.
- Atkinson, Carter T., Nancy J. Thomas, and D. Bruce Hunter, eds. Parasitic diseases of wild birds. John Wiley & Sons, 2009.
- Bowman, Dwight D. Georgis' Parasitology for Veterinarians E-Book. Elsevier Health Sciences, 2020.
- Zajac, Anne M., et al. Veterinary clinical parasitology. John Wiley & Sons, 2021.
- Bowman, Dwight D., et al. Feline clinical parasitology. John Wiley & Sons, 2008.
- Kassai, Tibor. Veterinary helminthology. Acribia, SA, 2002.



Assiut University  
Faculty



- Kreier, Julius P., ed. Parasitic Protozoa: Volume 10. Academic Press, 2013.

#### Scientific Journals

1. Current research in parasitology & vector-borne diseases.
2. Veterinary parasitology: X.
3. Parasitology open.
4. Veterinary parasitology, regional studies and reports.
5. Annals of parasitology.
6. International journal for parasitology. Parasites and wildlife.
7. ISRN parasitology. (International Scholarly Research Network Parasitology)
8. Tropical parasitology.
9. Journal of parasitology research.
10. Parasites & vectors.
11. The open parasitology journal.
12. Journal of parasitology.
13. Journal of vector borne diseases

#### Scientific websites

- **The Egyptian Knowledge Bank:** <https://www.ekb.eg/web/guest/home>
- [Alberta Agriculture, Food and Rural Development](#)  
Livestock diseases and parasites.
- [Arthropods and Protozoan Parasites](#)  
Arthropods and Protozoan Parasites Important to Vet Med
- [Diagnosis of Veterinary Endoparasitic Infections](#)  
University of Pennsylvania program designed to assist students, researchers, and clinicians in diagnosing parasitic infections.
- [Ectoparasite Database](#)  
Treatments for ectoparasites. Covers species (avian, reptilian, small mammal), route of administration, etc. Last update 2002.
- [Infectious Enteritis](#)  
Dr. Jody Gookin's biographical site provides links to Tritrichomonas foetus information (test kits, sample submission, videomicroscopy, research pubs, etc.), along with some Cryptosporidium information.
- [Morbidity and Mortality Weekly Report \(MMWR\)](#)  
A Synopsis On Raccoon Roundworm Encephalitis In Chicago, Illinois, and Los Angeles, California, 2000.
- [Parasitology Research](#)  
Cryptosporidium/Coccidial research from Kansas State University, Biology division.
- [Research In Veterinary Parasitology](#)  
[UW Veterinary Parasitology](#)
- [Veterinary clinical parasitology images](#)  
Images and descriptions from Oklahoma State University.
- [Veterinary Entomology](#)  
Insects of veterinary importance.

**Course Coordinator**

**Head of Department**

**Dr. Nagwa Mohammed Kandel**

**Prof. Dr. Reda Elbastawisy**

**Khalafalla**







## COURSE SPECIFICATION (2021 / 2022)

### 1 - Basic Information:

Code number: 192/1

Course title: Snails and its veterinary medical importance

Academic Year: Master of Veterinary Medicine Program

Total teaching hours: 144 hrs.

Lectures: 48 hrs. (48 weeks- 1hrs/week)

Practical: 96 hrs. (48 weeks- 2hrs/week)

### 2 - OVERALL AIMS OF THE COURSE:

*By the end of this course, the student should acquire the concepts, principles and skills related to basic and fundamental knowledge, skills and positive attitude concerning snail and its veterinary medical importance*

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING (K.U):

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

- a.1. Define the fundamental concepts of mollusks and with the technical vocabulary used in this field in relation to the molluscan anatomy, nutrition, reproduction and geographical distribution in relation to the transmitted parasitic diseases in different regions.
- a.2. Describe the role of snails in transmission of different species of parasites.
- a.3. Identify common taxa of snails based on morphological, biologic and geographical criteria and clinical observation.
- a.4. Explain the behavior and ecology of different snails species and stages in the environment and how to control biologically by natural predators (plants/fish/fly etc.) , chemically or physically (i.e.; minimizing the slope of water channels prevent snail attachment, decrease population settlement and increase water speed).

#### 3-B: INTELLECTUAL SKILLS (I.S):

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

- b.1. Organize the factors responsible for increase/ decrease of snails population.
- b.2. Analyze the role of molluscan in transmitting a parasite and the effect of the parasitism on the snail (some parasites can destroy the internal organs of the snail).
- b.3. Compare between different snails (land, fresh water, brackish water or marine water snails).

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS (P.P.S):

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

- c.1. Investigate the snails available in the local region and examine / identify the different parasitic infection related to each type of snails.
- c.2. Select rational treatment and control programs for snails population based on his/her knowledge of biology of each snails.

#### 3- D: GENERAL AND TRANSFERABLE SKILLS (G.T.S):

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

- d.1. Communicate effectively with his professors, and collages.
- d.2. Utilize different sources of knowledge and information
- d.3. Use information technology to serve the professional practice.
- d.4. Manage time efficiently



#### 4 - COURSE CONTENTS:

Topic	No. of hours		
	Lectures	Practical	Total
1.Introduction	5	0	5
2.Biology& physiology of snails	14	32	46
3.Classification of Snails	5	10	15
4.Snails as I.M.H. for trematodes	3	6	9
5.Snails as I.M.H. for cestodes	14	32	46
6.Snails as I.M.H. for Nematodes	2	6	8
7.Control of Snails	5	10	15
Total	48	96	144

#### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library

Making individual reports about common snails and its distribution in Egypt

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a4	b1 to b3		d1, d4
Practical sessions		b1 to b3	c1 to c2	d2, d4
Self-Learning activities				d2, d3, d4
Distance Teaching and Learning	a1 to a4	b1 to b3	c1 to c2	d1 to d4

\*Lectures and some practical topics may be offered face to face or via distance teaching and learning.

#### 6. METHODS FOR STUDENTS With limited capabilities:-

- Special handling in the laboratory with extra time if needed.

Ensure that all students with disabilities have equal access to educational opportunities and to help students to achieve academic and personal success

#### 7. STUDENT ASSESSMENT:-

<u>7.a Used methods</u>	Written examination	Oral examination	Practical examination	Activities
<u>7.b time</u>	At the end of the academic year	At the end of the academic year	At the end of the academic year	All over the academic year
<u>7.c grads</u>	50	20	20	10



	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a4	b1 to b3		d4
Practical exams			c1 to c2	d2, d3
Oral exams	a1 to a4	b1 to b3		d1
Student activities	a1, a4			d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Essential Books

- 1. Roberts, L. S. and J.J. Janovy. 2000. Foundations of Parasitology.5th Edition, W.C.B. Company, U.K.
- 2. Urquhart G. M., J. Armour, J. L. Duncan, A.M. Dunn, F. W. Jennings. 2000. Veterinary Parasitology, Longman Scientific Technical, U.K.
- 3. Soulsby, E. J. L. 1986. Helminths, Arthropods and Protozoa of Domesticated Animals. The English Language Book Society BailliereTindall, London.
- 4. Georgi, J. R., M. E. Georgi and V. J. Theodorides. 1999. Parasitology for Veterinarians. 7th Ed. W.B. Saunder Company London.

### 8-2: Recommended books:

- Brown, David S. Freshwater snails of Africa and their medical importance. CRC press, 2002.
- Smith, V. G. F. "Distribution of snails of medical and veterinary importance in an organically polluted watercourse in Nigeria." Annals of Tropical Medicine & Parasitology 76.5 (1982): 539-546.
- Toledo, Rafael, and Bernard Fried, eds. Biomphalaria snails and larval trematodes. Springer Science & Business Media, 2010.
- Elsheikha, Hany M., and H. A. Khan. Essentials of veterinary parasitology. Caister Academic Press, 2011.
- Elsheikha, Hany, and Edward L. Jarroll, eds. Illustrated Dictionary of Parasitology in the Post-genomic Era. Caister Academic Press, 2017.
- Taylor, Mike A., R. L. Coop, and Richard L. Wall. Veterinary parasitology. John Wiley & Sons, 2015.
- Ram Pratap Yadav, Singh Ajay, Bio-Pesticides Used As Snail Control, Lap Lambert Academic Publishing GmbH KG, 2012

### 8-3: Egyptian Knowledge Bank:

- Willmott, Sheila, ed. Report of an independent evaluation mission on the national bilharzia control program, Egypt, 1985. 1987.
- World Health Organization. "Snail control in the prevention of bilharziasis." Snail control in the prevention of bilharziasis. (1965).
- Skrjabin, K. I., et al. "Veterinary parasitology and parasitic diseases of the domestic animals." Veterinary parasitology and parasitic diseases of the domestic animals. (1934).
- Bowman, Dwight D. Georgis' Parasitology for Veterinarians E-Book. Elsevier Health Sciences, 2020.
- Zajac, Anne M., et al. Veterinary clinical parasitology. John Wiley & Sons, 2021.
- Kassai, Tibor. Veterinary helminthology. Acribia, SA, 2002.

### Scientific Journals



Assiut  
Faculty



1. Current research in parasitology & vector-borne diseases.
2. Veterinary parasitology: X.
3. Parasitology open.
4. Veterinary parasitology, regional studies and reports.
5. Annals of parasitology.
6. International journal for parasitology. Parasites and wildlife.
7. ISRN parasitology. (International Scholarly Research Network Parasitology)
8. Tropical parasitology.
9. Journal of parasitology research.
10. Parasites & vectors.
11. The open parasitology journal.
12. Journal of parasitology.
13. Parasitology international.
14. The Korean journal of parasitology.
15. Journal of veterinary parasitology

#### Scientific websites

- **The Egyptian Knowledge Bank:** <https://www.ekb.eg/web/guest/home>
- [Alberta Agriculture, Food and Rural Development](#)  
Livestock diseases and parasites.
- [Control Of Parasites In Companion Animals](#)  
The Companion Animal Parasite Council (CAPC) is an independent group of U.S. veterinary, governmental, and association leaders in the parasitology field.
- [Iowa State Entomology Image Gallery](#)  
Pictures and information on everything from ants to stink bugs.
- [Ohio State University Acarology Laboratory](#)
- [Parasitology Research](#)  
Cryptosporidium/Coccidial research from Kansas State University, Biology division.
- [Research In Veterinary Parasitology](#)  
it includes: a) development of an immunodiagnostic assay for larval stages of Cyathostomins; b) development of DNA probes to identify individual Cyathostomin species; c) the role of cytokines in parasite inducecolitis; d) identification of stage specific genes that may be involvein reactivation and inhibition of larval stages; etc.
- [UW Veterinary Parasitology](#)
- [Veterinary clinical parasitology images](#)  
Images and descriptions from Oklahoma State University.

**Course Coordinator**

**Head of Department**

**Dr. Nagwa Mohammed Kandel**

**Prof. Dr. Reda Elbastawisy  
Khalafalla**





## COURSE SPECIFICATION (2021 / 2022)

### 1 - Basic Information:

Code number: 193/1

Course title: **Immunity to parasites**

Academic Year: **Master of Veterinary Medicine Program**

Total teaching hours: 144 hrs.

Lectures: 48 hrs. (48 weeks- 1hrs/week)

Practical: 96 hrs. (48 weeks-2hrs/week)

### 2 - OVERALL AIMS OF THE COURSE:

*By the end of this course, the student should acquire the concepts, principles and skills related to basic and fundamental knowledge, skills and positive attitude concerning immunity to parasites in different animals, birds and fish*

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING (K.U):

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

- a.1. Be familiar with the fundamental concepts of Immunology and with the technical vocabulary used in this field.
- a.2. Associate specific helminthes, arthropods and protozoa with disease processes in domesticated, wild animal, fishes, birds and man based on immunological concepts.
- a.3. Identify common immunological responses of different parasites and the parasite defense mechanisms against the host immune response (these mechanisms include; antigenic variation, repeated antigenic determinants, induction of suppressor cells, acquisition of host proteins or molecular mimicry, proteinase destruction of host effector molecules, proteinase inhibitor-mediated inhibition of humoral and cellular immune effector arms and immunosuppressive products of parasite arachidonic acid metabolism).
- a.4. Illustrate the immune behavior of different parasite species.

#### 3-B: INTELLECTUAL SKILLS (I.S):

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

- b.1. Organize the factors responsible for immune response to the parasitism.
- b.2. Analyze the parasite defense mechanisms against the host immune response.
- b.3. Compare between different parasites (protozoa, arthropods, helminths) and how to escape the host immune response.

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS (P.P.S):

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

- c.1. Use the available immune markers against the different parasitic infection as direct and indirect methods for the correct diagnosis.
- c.2. Select rational prevention and control programs (including vaccines and immune sera) for parasite population based on his/her knowledge of host immune response and parasite defense against this response.

#### 3- D: GENERAL AND TRANSFERABLE SKILLS (G.T.S):

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



- d.1. Communicate effectively with his professors, and collages.
- d.2. Utilize different sources of knowledge and information
- d.3. Use information technology to serve the professional practice.
- d.4. Manage time efficiently

#### 4 - COURSE CONTENTS:

Topic	No. of hours		
	Lectures	Practical	Total
1. Introduction of Immuno-parasitology	5	0	5
2. Immunity against parasites & immune evasion	14	32	46
3. Immunity against helminthes	5	10	15
4. Immunity against Arthropods	3	6	9
5. Immunity against Protozoa	14	32	46
6. Immuno-diagnosis of parasitic diseases	2	6	8
7. Vaccination and Immunization	5	10	15
<b>Total</b>	<b>48</b>	<b>96</b>	<b>144</b>

#### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a4	b1 to b3		d1, d4
Practical sessions		b1 to b3	c1 to c2	d2, d4
Self-Learning activities				d2, d3, d4
Distance Teaching and Learning	a1 to a4	b1 to b3	c1 to c2	d1 to d4

\*Lectures and some practical topics may be offered face to face or via distance teaching and learning.

#### 6. METHODS FOR STUDENTS With limited capabilities:-

- Special handling in the laboratory with extra time if needed.

Ensure that all students with disabilities have equal access to educational opportunities and to help students to achieve academic and personal success

#### 7. STUDENT ASSESSMENT:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	All over the academic year



<b>7.c grads</b>	50	20	20	10
------------------	----	----	----	----

6.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a4	b1 to b3		d4
Practical exams			c1 to c2	d2, d3
Oral exams	a1 to a4	b1 to b3		d1
Student activities	a1, a4			d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Essential Books

- 1. Roberts, L. S. and J.J. Janovy. 2000. Foundations of Parasitology.5th Edition, W.C.B. Company, U.K.
- 2. Urquhart G. M., J. Armour, J. L. Duncan, A.M. Dunn, F. W. Jennings. 2000. Veterinary Parasitology, Longman Scientific Technical, U.K.
- 3. Levine, N. D. 1990. Veterinary Protozoology.Iowa State University Press, Ames, Iowa, USA.
- 4. Soulsby, E. J. L. 1986. Helminths, Arthropods and Protozoa of Domesticated Animals. The English Language Book Society BailliereTindall, London.
- 5. Georgi, J. R., M. E. Georgi and V. J. Theodorides. 1999. Parasitology for Veterinarians. 7th Ed. W.B. Saunder Company London.
- 6 Hendrix, C. M. 1998. Diagnostic Veterinary Parasitology.2nd Edition.Msoby.

### 8-2: Recmended books:

- Cohen, Sydney, and Elvio H. Sadun. Immunology of parasitic infections. Blackwell Scientific Publications Ltd, Osney Mead, Oxford, OX2 OEL., 1976.
- Lamb, Tracey, ed. Immunity to parasitic infection. John Wiley & Sons, 2012.
- Wakelin, Derek. Immunity to parasites: how parasitic infections are controlled. Cambridge University Press, 1996.
- Elsheikha, Hany M., and H. A. Khan. Essentials of veterinary parasitology. Caister Academic Press, 2011.
- Elsheikha, Hany, and Edward L. Jarroll, eds. Illustrated Dictionary of Parasitology in the Post-genomic Era. Caister Academic Press, 2017.
- Taylor, Mike A., R. L. Coop, and Richard L. Wall. Veterinary parasitology. John Wiley & Sons, 2015.

### 8-3: Egyptian Knowledge Bank:

- Cohen, Sydney. "The immune response to parasites." Parasites in the immunized host: mechanisms of survival (1974): 3.
- Skrjabin, K. I., et al. "Veterinary parasitology and parasitic diseases of the domestic animals." Veterinary parasitology and parasitic diseases of the domestic animals. (1934).
- Bowman, Dwight D. Georgis' Parasitology for Veterinarians E-Book. Elsevier Health Sciences, 2020.
- Zajac, Anne M., et al. Veterinary clinical parasitology. John Wiley & Sons, 2021.
- Kassai, Tibor. Veterinary helminthology. Acribia, SA, 2002.





- Kreier, Julius P., ed. Parasitic Protozoa: Volume 10. Academic Press, 2013.

### Scientific Journals

1. Current research in parasitology & vector-borne diseases.
2. Veterinary parasitology: X.
3. Parasitology open.
4. Veterinary parasitology, regional studies and reports.
5. Annals of parasitology.
6. International journal for parasitology. Parasites and wildlife.
7. ISRN parasitology. (International Scholarly Research Network Parasitology)
8. Tropical parasitology.
9. Journal of parasitology research.
10. Parasites & vectors.
11. The open parasitology journal.
12. Journal of parasitology.
13. Journal of vector borne diseases.
14. Trends in parasitology.
15. Iranian journal of parasitology.

### Scientific websites

- **The Egyptian Knowledge Bank:** <https://www.ekb.eg/web/guest/home>
- [Alberta Agriculture, Food and Rural Development](#)  
Livestock diseases and parasites.
- [Control Of Parasites In Companion Animals](#)  
The Companion Animal Parasite Council (CAPC) is an independent group of U.S. veterinary, governmental, and association leaders in the parasitology field.
- [Diagnosis of Veterinary Endoparasitic Infections](#)  
University of Pennsylvania program designed to assist students, researchers, and clinicians in diagnosing parasitic infections.
- [Ohio State University Acarology Laboratory](#)
- [Parasitology Research](#)  
Cryptosporidium/Coccidial research from Kansas State University, Biology division.
- [Research In Veterinary Parasitology](#)  
it includes: a) development of an immunodiagnostic assay for larval stages of Cyathostomins; b) development of DNA probes to identify individual Cyathostomin species; c) the role of cytokines in parasite induced colitis; d) identification of stage specific genes that may be involved in reactivation and inhibition of larval stages; etc.
- [UW Veterinary Parasitology](#)
- [Veterinary clinical parasitology images](#)  
Images and descriptions from Oklahoma State University.

**Course Coordinator**

**Head of Department**

**Dr. Nagwa Mohammed Kandel**

**Prof. Dr. Reda Elbastawisy  
Khalafalla**





## COURSE SPECIFICATION (2021 / 2022)

### 1 - Basic Information:

Code number: 194/1

Course title: Clinical parasitology

Academic Year: Master of Veterinary Medicine Program

Total teaching hours: 192 hrs.

Lectures: 96 hrs. (48 weeks- 2hrs/week)

Practical: 96 hrs. (48 weeks- 2hrs/week)

### 2 - OVERALL AIMS OF THE COURSE:

*By the end of this course, the student should acquire the concepts, principles and skills related to basic and fundamental knowledge, skills and positive attitude concerning clinical Parasitology in different animals, birds and fish.*

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING (K.U):

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

- a.1. Define the fundamental concepts of clinical parasitology and the technical vocabulary used in this field.
- a.2. Identify morphology of diagnostic stages of different parasites which can be detected in skin scrapings, faeces, urine, blood and/or different body fluids.
- a.3. Recognize the difference between different species of ectoparasites.
- a.4. Explain the proper serological test for diagnosis of different parasites.

#### 3-B: INTELLECTUAL SKILLS (I.S):

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

- b.1. Realize the factors responsible for shedding of the diagnostic stages (the periodicity: nocturnal or diurnal).
- b.2. Analyze the parasite-host interaction including the defense mechanism of the parasites to the host immune response together with, the clinical findings of the blood picture and clinical signs appeared on the affected host in relation to each specific parasitic infection.
- b.3. Compare between different parasites by microscopical identification of different stages.

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS (P.P.S):

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

- c.1. Collect lymph and blood as well as fecal and urine samples to investigate and diagnose the presence of different parasitic infections affecting various hosts by applying laboratory techniques including; fecal floatation, fecal sedimentation, blood thin /thick film and skin scrapings (for mange diagnosis).
- c.2. Interpreting sample investigations results to write reports to the clinicians for correct treatment, prevention, and control program
- c.3. Diagnose the different parasitic infection in various hosts by indirect methods (serological tests).

#### 3- D: GENERAL AND TRANSFERABLE SKILLS (G.T.S):

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

- d.1. Communicate effectively with his professors, and collages.
- d.2. Utilize different sources of knowledge and information



- d.3. Use information technology to serve the professional practice.  
d.4. Manage time efficiently.

#### 4 - COURSE CONTENTS:

Topic	No. of hours		
	Lectures	Practical	Total
1.Introduction	10	0	10
2.Fecal examination	28	32	60
3.Blood examination	10	10	20
4.Examination of other body fluids and tissues	6	6	12
5.Examination for ectoparasites	28	32	60
6.Making permanent mounts of parasites	4	6	10
7.Serological diagnosis of parasitic diseases	10	10	20
Total	96	96	192

#### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library

Making standard operation procedures for common parasitological tests.

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a4	b1 to b3		d1, d4
Practical sessions		b1 to b3	c1 to c3	d2, d4
Self-Learning activities				d2, d3, d4
Distance Teaching and Learning	a1 to a4	b1 to b3	c1 to c3	d1 to d4

\*Lectures and some practical topics may be offered face to face or via distance teaching and learning.

#### 6. METHODS FOR STUDENTS With limited capabilities:-

- Special handling in the laboratory with extra time if needed.

Ensure that all students with disabilities have equal access to educational opportunities and to help students to achieve academic and personal success

#### 7. STUDENT ASSESSMENT:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	All over the academic year



<b>7.c grads</b>	50	20	20	10
------------------	----	----	----	----

6.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a4	b1 to b3		d4
Practical exams			c1 to c3	d2, d3
Oral exams	a1 to a4	b1 to b3		d1
Student activities	a1, a4			d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Essential Books

- 1. Roberts, L. S. and J.J. Janovy. 2000. Foundations of Parasitology.5th Edition, W.C.B. Company, U.K.
- 2. Urquhart G. M., J. Armour, J. L. Duncan, A.M. Dunn, F. W. Jennings. 2000. Veterinary Parasitology, Longman Scientific Technical, U.K.
- 3. Levine, N. D. 1990. Veterinary Protozoology.Iowa State University Press, Ames, Iowa, USA.
- 4. Soulsby, E. J. L. 1986. Helminths, Arthropods and Protozoa of Domesticated Animals. The English Language Book Society BailliereTindall, London.
- 5. Georgi, J. R., M. E. Georgi and V. J. Theodorides. 1999. Parasitology for Veterinarians. 7th Ed. W.B. Saunder Company London.
- 6. Wall, R. and D. Shearer. 1997. Veterinary Entomology. Chapman and Hall.
- 7. Hendrix, C. M. 1998. Diagnostic Veterinary Parasitology.2nd Edition.Msoby.

### 8-2: Recmended books:

- Elsheikha, Hany M., and H. A. Khan. Essentials of veterinary parasitology. Caister Academic Press, 2011.
- Elsheikha, Hany, and Edward L. Jarroll, eds. Illustrated Dictionary of Parasitology in the Post-genomic Era. Caister Academic Press, 2017.
- Taylor, Mike A., R. L. Coop, and Richard L. Wall. Veterinary parasitology. John Wiley & Sons, 2015.

### 8-3: Egyptian Knowledge Bank:

- Skrjabin, K. I., et al. "Veterinary parasitology and parasitic diseases of the domestic animals." Veterinary parasitology and parasitic diseases of the domestic animals. (1934).
- Bowman, Dwight D. Georgis' Parasitology for Veterinarians E-Book. Elsevier Health Sciences, 2020.
- Zajac, Anne M., et al. Veterinary clinical parasitology. John Wiley & Sons, 2021.
- Kassai, Tibor. Veterinary helminthology. Acribia, SA, 2002.
- Kreier, Julius P., ed. Parasitic Protozoa: Volume 10. Academic Press, 2013.
- Papadopoulos, Elias. Atlas of parasites in sheep. Grupo Asís Biomedica SL, 2021.

### Scientific Journals

1. Current research in parasitology & vector-borne diseases.
2. Veterinary parasitology: X.
3. Parasitology open.
4. Veterinary parasitology, regional studies and reports.



**V. S. I. I.**  
**Faculty**



5. Annals of parasitology.
6. International journal for parasitology. Parasites and wildlife.
7. ISRN parasitology. (International Scholarly Research Network Parasitology)
8. Tropical parasitology.
9. Journal of parasitology research.
10. Parasites & vectors.
11. The open parasitology journal.
12. Journal of parasitology.
13. Journal of vector borne diseases.

#### **Scientific websites**

- **The Egyptian Knowledge Bank: <https://www.ekb.eg/web/guest/home>**
- [Alberta Agriculture, Food and Rural Development](#)  
Livestock diseases and parasites.
- [Arthropods and Protozoan Parasites](#)  
Arthropods and Protozoon Parasites Important to Vet Med
- [Diagnosis of Veterinary Endoparasitic Infections](#)  
University of Pennsylvania program designeto aistudents, researchers, and clinicians in diagnosing parasitic infections.
- [Diagnosteg](#)  
This website contains information compileby experts in equine parasitic diseases.
- [Ohio State University Acarology Laboratory](#)
- [Parasitology Research](#)  
Cryptosporidium/Coccidial research from Kansas State University, Biology division.
- [Veterinary clinical parasitology images](#)  
Images and descriptions from Oklahoma State University.

**Course Coordinator**

**Head of Department**

**Dr. Nagwa Mohammed Kandel**

**Prof. Dr. Reda Elbastawisy  
Khalafalla**



**Course Matrix for achievement of Intended Learning Outcomes**

Topics	Hours	Knowledge & Understanding				Intellectual Skills			Practical & Professional Skills			General & Transferable Skills			
		1	2	3	4	1	2	3	1	2	3	1	2	3	4
Introduction	10	✓										✓	✓	✓	✓
Fecal examination	60		✓			✓		✓	✓	✓		✓	✓	✓	✓
Blood examination	20		✓				✓	✓	✓	✓	✓	✓	✓	✓	✓
Examination of other body fluids and tissues	12		✓				✓	✓	✓	✓		✓	✓	✓	✓
Examination for ectoparasites	60			✓			✓	✓	✓		✓	✓	✓	✓	✓
Making permanent mounts of parasites	10		✓	✓				✓	✓			✓	✓	✓	✓
Serological diagnosis of parasitic diseases	20	✓	✓		✓	✓		✓	✓		✓	✓	✓	✓	✓



## COURSE SPECIFICATION (2021 / 2022)

### 1 - Basic Information:

Code number: 195/1

Course title: Parasites of wild animals

Academic Year: Master of Veterinary Medicine Program

Total teaching hours: 144 hrs.

Lectures: 48 hrs. (48 weeks- 1hrs/week)

Practical: 96 hrs. (48 weeks- 2hrs/week)

### 2 - OVERALL AIMS OF THE COURSE:

*By the end of this course, the student should acquire the concepts, principles and skills related to provide students with basic and fundamental knowledge, skills and positive attitude concerning parasites of wild animals.*

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING (K.U):

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

- a.1. Define the fundamental concepts of Parasites of wild animals and with the technical vocabulary used in this field.
- a.2. Identify different species of helminths (trematodes, nematodes and cestodes) and their stages in the intermediate host (snails) based on morpho-biological, geographical, clinical observation, and how could they induce diseases in different wild animals and how to control.
- a.3. Recognize different species of arthropods and their biological and morphological features with reference to their medical importance in transmitting diseases (arthropod borne diseases) or in inducing lesions (blood loss and myiasis) to the affected wild animals and their control.
- a.4. Discuss the ability of Protozoa to induce diseases in wild animals by studying their life cycles, intermediate hosts /vector, mode of infection transmission and control .

#### 3-B: INTELLECTUAL SKILLS (I.S):

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

- b.1. organize the factors responsible for intensity of parasitic infections among wild animals.
- b.2. analyze the parasite-host interaction and the parasite defense mechanism.
- b.3. compare between different parasites and their impact on the wild animals.

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS (P.P.S):

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

- c.1. Collect lymph and blood as well as fecal samples to investigate and diagnose the presence of different parasitic infections affecting various hosts by applying different techniques including; fecal floatation, fecal sedimentation, skin scrapings, blood thin film and blood thick film.
- c.2. Interpreting sample investigations results to write reports for the clinicians for correct treatment, prevention, and control program
- c.3.. Diagnose the different parasitic infection in wild animals by indirect methods like different serological tests,

#### 3- D: GENERAL AND TRANSFERABLE SKILLS (G.T.S):

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

- d.1. Communicate effectively with his professors, and collages.
- d.2. Utilize different sources of knowledge and information





d.3. Use information technology to serve the professional practice.

d.4. Manage time efficiently.

#### 4 - COURSE CONTENTS:

Topic	No. of hours		
	Lectures	Practical	Total
1.Introduction	5	0	5
2.Trematodes of wild animals	14	32	46
3.Cestodes of wild animals	5	10	15
4.Nematodes of wild animals	3	6	9
5.Arthropods of wild animals	14	32	46
6.Protozoa of wild animals	2	6	8
7.Diagnosis and Control of wild animals parasites	5	10	15
Total	48	96	144

#### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library

Making host parasites list for different wild animals commonly found in Egypt

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a4	b1 to b3		d1, d4
Practical sessions		b1 to b3	c1 to c2	d2, d4
Self-Learning activities				d2, d3, d4
Distance Teaching and Learning	a1 to a4	b1 to b3	c1 to c2	d1 to d4

\*Lectures and some practical topics may be offered face to face or via distance teaching and learning.

#### 6. METHODS FOR STUDENTS With limited capabilities:-

- Special handling in the laboratory with extra time if needed.

Ensure that all students with disabilities have equal access to educational opportunities and to help students to achieve academic and personal success

#### 7. STUDENT ASSESSMENT:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	All over the academic year



<b>7.c grads</b>	50	20	20	10
------------------	----	----	----	----

6.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a4	b1 to b3		d4
Practical exams			c1 to c2	d2, d3
Oral exams	a1 to a4	b1 to b3		d1
Student activities	a1, a4			d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Essential Books

- 1. Roberts, L. S. and J.J. Janovy. 2000. Foundations of Parasitology.5th Edition, W.C.B. Company, U.K.
- 2. Urquhart G. M., J. Armour, J. L. Duncan, A.M. Dunn, F. W. Jennings. 2000. Veterinary Parasitology, Longman Scientific Technical, U.K.
- 3. Levine, N. D. 1990. Veterinary Protozoology.Iowa State University Press, Ames, Iowa, USA.
- 4. Georgi, J. R., M. E. Georgi and V. J. Theodorides. 1999. Parasitology for Veterinarians. 7th Ed. W.B. Saunder Company London.
- 5. Wall, R. and D. Shearer. 1997. Veterinary Entomology. Chapman and Hall.

### 8-2: Recmended books:

- Elsheikha, Hany M., and H. A. Khan. Essentials of veterinary parasitology. Caister Academic Press, 2011.
- Elsheikha, Hany, and Edward L. Jarroll, eds. Illustrated Dictionary of Parasitology in the Post-genomic Era. Caister Academic Press, 2017.
- Taylor, Mike A., R. L. Coop, and Richard L. Wall. Veterinary parasitology. John Wiley & Sons, 2015.

### 8-3: Egyptian Knowledge Bank:

- Skrjabin, K. I., et al. "Veterinary parasitology and parasitic diseases of the domestic animals." Veterinary parasitology and parasitic diseases of the domestic animals. (1934).
- Bowman, Dwight D. Georgis' Parasitology for Veterinarians E-Book. Elsevier Health Sciences, 2020.
- Zajac, Anne M., et al. Veterinary clinical parasitology. John Wiley & Sons, 2021.
- Bowman, Dwight D., et al. Feline clinical parasitology. John Wiley & Sons, 2008.
- Kassai, Tibor. Veterinary helminthology. Acribia, SA, 2002.
- Kreier, Julius P., ed. Parasitic Protozoa: Volume 10. Academic Press, 2013.
- Rohde, Klaus, ed. Marine parasitology. Csiro publishing, 2005.
- Islam, S. "Parasites and parasitic diseases of wildlife." Proceedings of XVII National Congress of Veterinary Parasitology and National symposium on Strengths, challenges and opportunities in Veterinary Parasitology (Nov. 15-17, 2006). 2006.
- Papadopoulos, Elias. Atlas of parasites in sheep. Grupo Asís Biomedica SL, 2021.

### Scientific Journals

1. Journal of parasitology research.



Assiut University  
Faculty of Veterinary Medicine



2. Parasites & vectors.
3. The open parasitology journal.
4. Journal of parasitology.
5. Journal of vector borne diseases.
6. Trends in parasitology.
7. Iranian journal of parasitology.
8. Parasitology international.
9. The Korean journal of parasitology.
10. Acta parasitologica
11. Journal of veterinary parasitology
12. Parasitology research.
13. Parasitology today.
14. Tropical medicine and parasitology: official organ of Deutsche
15. Tropical biomedicine.
16. Turkiye parazitolojii dergisi
17. Veterinary parasitology.
18. International journal for parasitology.

#### Scientific websites

- **The Egyptian Knowledge Bank:** <https://www.ekb.eg/web/guest/home>
- [Arthropods and Protozoan Parasites](#)  
Arthropods and Protozoan Parasites Important to Vet Med
- [Diagnosis of Veterinary Endoparasitic Infections](#)  
University of Pennsylvania program designed to assist students, researchers, and clinicians in diagnosing parasitic infections.
- [Fleas Factsheet](#)  
Provides a concise description of flea biology, products and some general strategies to eliminate fleas.
- [Iowa State Entomology Image Gallery](#)  
Pictures and information on everything from ants to stink bugs.
- [Medical Entomology](#)  
Iowa state entomology index with links to a wide variety of related entomology sites.
- [Morbidity and Mortality Weekly Report \(MMWR\)](#)  
A Synopsis On Raccoon Roundworm Encephalitis In Chicago, Illinois, and Los Angeles, California, 2000.
- [Ohio State University Acarology Laboratory](#)
- [Parasitology Research](#)  
Cryptosporidium/Coccidial research from Kansas State University, Biology division.
- [Research In Veterinary Parasitology](#)
- [Veterinary clinical parasitology images](#)  
Images and descriptions from Oklahoma State University.
- [Veterinary Entomology](#)  
Insects of veterinary importance.

**Course Coordinator**

**Head of Department**

**Dr. Nagwa Mohammed Kandel**

**Prof. Dr. Reda Elbastawisy  
Khalafalla**





## COURSE SPECIFICATION (2021 / 2022)

### 1 - Basic Information:

Code number: 196/1

Course title: Veterinary Medical Parasitology

Academic Year: Master of Veterinary Medicine Program

Total teaching hours: 192 hrs.

Lectures: 96 hrs. (48 weeks- 2hrs/week)

Practical: 96 hrs. (48 weeks- 2hrs/week)

### 2 - OVERALL AIMS OF THE COURSE:

*By the end of this course, the student should acquire the concepts, principles and skills related to basic and fundamental knowledge, skills and positive attitude concerning parasites in different animals, birds and fish*

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING (K.U):

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

- a.1. Define the fundamental concepts of Parasitology and with the technical vocabulary used in this field.
- a.2. Identify different species of helminths (trematodes, nematodes and cestodes) based on their morphology, biology, geographical distribution, clinical observation, and their ability to induce diseases in different hosts.
- a.3. Recognize different species of arthropods and their morphology, biology, geographical distribution, and their ability to induce diseases (mange/scabies, myiasis, blood loss) in different hosts with reference to their veterinary medical importance in transmitting diseases (arthropod borne diseases).
- a.4. Discuss the ability of Protozoa to induce diseases in different hosts by studying their life cycles, intermediate hosts /vector, mode of infection transmission, diagnosis, prevention and control .

#### 3-B: INTELLECTUAL SKILLS (I.S):

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

- b.1. Organize the factors responsible for severity of parasitic infection hosts.
- b.2. Analyze the parasite-host interaction and defense mechanism of the parasites against the host immune reaction.
- b.3. Compare between different parasites.

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS (P.P.S):

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

- c.1. Collect urine, lymph, skin scrapings and blood as well as fecal samples to investigate and diagnose the presence of different parasitic infections microscopically by applying different techniques including; fecal floatation, fecal sedimentation, blood thin /thick film and mite diagnosis.
- c.2. Interpreting the results after sample investigations to write reports for the clinicians for the correct treatment, prevention, and control program
- c.3.. Diagnose the different parasitic infection in different hosts by indirect methods like different serological tests,

#### 3- D: GENERAL AND TRANSFERABLE SKILLS (G.T.S):

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



- d.1. Communicate effectively with his professors, and collages.
- d.2. Utilize different sources of knowledge and information
- d.3. Use information technology to serve the professional practice.
- d.4. Manage time efficiently and work in groups.

#### 4 - COURSE CONTENTS:

Topic	No. of hours		
	Lectures	Practical	Total
1. Terminology and introduction into veterinary medical parasitology	10	0	10
2. Helminths	30	30	60
3. Arthropods	21	21	42
4. Protozoa	25	25	50
5. diagnostic and laboratory procedures applied in parasitology	10	20	30
Total	96	96	192

#### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library  
Making host parasites list for different animals.

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a4	b1 to b3		d1, d4
Practical sessions		b1 to b3	c1 to c3	d2, d4
Self-Learning activities				d2, d3, d4
Distance Teaching and Learning	a1 to a4	b1 to b3	c1 to c3	d1 to d4

\*Lectures and some practical topics may be offered face to face or via distance teaching and learning.

#### 6. METHODS FOR STUDENTS With limited capabilities:-

- Special handling in the laboratory with extra time if needed.

Ensure that all students with disabilities have equal access to educational opportunities and to help students to achieve academic and personal success

#### 7. STUDENT ASSESSMENT:-

<u>7.a Used methods</u>	Written examination	Oral examination	Practical examination	Activities
<u>7.b time</u>	At the end of the academic year	At the end of the academic year	At the end of the academic year	Allover the academic year
<u>7.c grads</u>	50	20	20	10



6.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a4	b1 to b3		d4
Practical exams			c1 to c3	d2, d3
Oral exams	a1 to a4	b1 to b3		d1
Student activities	a1, a4			d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Essential Books

- 1. Roberts, L. S. and J.J. Janovy. 2000. Foundations of Parasitology.5th Edition, W.C.B. Company, U.K.
- 2. Urquhart G. M., J. Armour, J. L. Duncan, A.M. Dunn, F. W. Jennings. 2000. Veterinary Parasitology, Longman Scientific Technical, U.K.
- 3. Levine, N. D. 1990. Veterinary Protozoology.Iowa State University Press, Ames, Iowa, USA.
- 4. Soulsby, E. J. L. 1986. Helminths, Arthropods and Protozoa of Domesticated Animals. The English Language Book Society Bailliere Tindall, London.
- 5. Georgi, J. R., M. E. Georgi and V. J. Theodorides. 1999. Parasitology for Veterinarians. 7th Ed. W.B. Saunder Company London.
- 6. Wall, R. and D. Shearer. 1997. Veterinary Entomology. Chapman and Hall.
- 7. Hendrix, C. M. 1998. Diagnostic Veterinary Parasitology.2nd Edition.Msoby.

### 8-2: Recmended books:

- Elsheikha, Hany M., and H. A. Khan. Essentials of veterinary parasitology. Caister Academic Press, 2011.
- Elsheikha, Hany, and Edward L. Jarroll, eds. Illustrated Dictionary of Parasitology in the Post-genomic Era. Caister Academic Press, 2017.
- Taylor, Mike A., R. L. Coop, and Richard L. Wall. Veterinary parasitology. John Wiley & Sons, 2015.

### 8-3: Egyptian Knowledge Bank:

- Skrjabin, K. I., et al. "Veterinary parasitology and parasitic diseases of the domestic animals." Veterinary parasitology and parasitic diseases of the domestic animals. (1934).
- Bowman, Dwight D. Georgis' Parasitology for Veterinarians E-Book. Elsevier Health Sciences, 2020.
- Zajac, Anne M., et al. Veterinary clinical parasitology. John Wiley & Sons, 2021..
- Kassai, Tibor. Veterinary helminthology. Acribia, SA, 2002.
- Kreier, Julius P., ed. Parasitic Protozoa: Volume 10. Academic Press, 2013.
- Rohde, Klaus, ed. Marine parasitology. Csiro publishing, 2005.
- Papadopoulos, Elias. Atlas of parasites in sheep. Grupo Asís Biomedica SL, 2021.

### Scientific Journals

1. Current research in parasitology & vector-borne diseases.
2. Veterinary parasitology: X.
3. Parasitology open.
4. Veterinary parasitology, regional studies and reports.



Assiut  
Faculty



5. Annals of parasitology.
6. International journal for parasitology. Parasites and wildlife.
7. ISRN parasitology. (International Scholarly Research Network Parasitology)
8. Tropical parasitology.
9. Journal of parasitology research.
10. Parasites & vectors.
11. The open parasitology journal.
12. Journal of parasitology.
13. Journal of vector borne diseases.
14. Trends in parasitology.
15. Iranian journal of parasitology.
16. Parasitology international.
17. The Korean journal of parasitology.
18. Acta parasitologica

#### Scientific websites

- **The Egyptian Knowledge Bank: <https://www.ekb.eg/web/guest/home>**
- [Alberta Agriculture, Food and Rural Development](#)  
Livestock diseases and parasites.
- [Arthropods and Protozoan Parasites](#)  
Arthropods and Protozoan Parasites Important to Vet Med
- [Ectoparasite Database](#)  
Treatments for ectoparasites. Covers species (avian, reptilian, small mammal), route of administration, etc. Last update 2002.
- [Fleas Factsheet](#)  
Provides a concise description of flea biology, products and some general strategies to eliminate fleas.
- [Guarding against Giardia Infectious Enteritis](#)
- [Iowa State Entomology Image Gallery](#)  
Pictures and information on everything from ants to stink bugs.
- [Medical Entomology](#)  
Iowa state entomology index with links to a wide variety of related entomology sites.
- [Ohio State University Acarology Laboratory](#)
- [Parasitology Research](#)  
Cryptosporidium/Coccidial research from Kansas State University, Biology division.
- [Tick ID](#)  
The Rhode Island Department of Health Lyme Disease tick identification site.
- [Ticks & Tick-Transmitted Diseases in Oklahoma](#)
- [UW Veterinary Parasitology](#)
- [Veterinary clinical parasitology images](#)  
Images and descriptions from Oklahoma State University.
- [Veterinary Entomology](#)  
Insects of veterinary importance.

**Course Coordinator**

**Dr. Nagwa Mohammed Kandel**

**Head of Department**

**Prof. Dr. Reda Elbastawisy  
Khalafalla**





**Kafshat University**  
Faculty



### Course Matrix for achievement of Intended Learning Outcomes

Topics	Hours	Knowledge & Understanding				Intellectual Skills			Practical & Professional Skills			General & Transferable Skills			
		1	2	3	4	1	2	3	1	2	3	1	2	3	4
1. terminology and introduction into veterinary medical parasitology	10	✓										✓	✓	✓	✓
2. Helminths	60		✓			✓	✓	✓	✓		✓	✓	✓	✓	✓
3. Arthropods	42	✓		✓		✓		✓				✓	✓	✓	✓
4. Protozoa	50	✓			✓	✓		✓	✓		✓	✓	✓	✓	✓
5. diagnostic and laboratory precedures applied in parasitology	30		✓	✓	✓		✓		✓	✓	✓	✓	✓	✓	✓



## COURSE SPECIFICATION (2021 / 2022)

### 1 - Basic Information:

Code number:197/1

Course title: **Physiology and biochemistry of parasites**

Academic Year: **Master of Veterinary Medicine Program**

Total teaching hours: 192 h

Lectures: 96 hrs. (48 weeks- 2hrs/week)

Practical:96 hrs. (48 weeks- 2hrs/week)

### 2 - OVERALL AIMS OF THE COURSE:

*By the end of this course, the student should acquire the concepts, principles and skills related to provide students with basic and fundamental knowledge, skills and positive attitude concerning physiology and biochemistry of parasites in different animals, birds and fish*

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING (K.U):

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

- a.1. Be familiar with the fundamental concepts of physiology and biochemistry of parasites
- a.2. Describe the physiology of helminths, arthropods, protozoa, (including; nutrition, digestion, absorption, excretion, gas exchange, reproduction, muscles, nervous system, movement /locomotion, appendages, etc)
- a.3. Explain the biochemistry of helminths, arthropods, protozoa that including neurotransmitter, toxins excreted, secretion, antigens, gas exchange, energy consumption, etc.

#### 3-B: INTELLECTUAL SKILLS (I.S):

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

- b.1. Organize the physiological and biochemical factors responsible for parasite's infectivity, virulence, defense mechanism and survival within the host and his immune response.
- b.2. Analyze the parasite-host interaction on physiological and biochemical base.
- b.3. Compare between physiology and biochemistry of different parasites .

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS (P.P.S):

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

- c.1. Diagnose the different chemical constituents of the parasite body and their secretions and toxins during the course of the infection in different hosts by direct and indirect methods.
- c.2. Select rational treatment and control programs for parasite population based on his/her knowledge of physiology and biochemistry of parasites.

#### 3- D: GENERAL AND TRANSFERABLE SKILLS (G.T.S):

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

- d.1. Communicate effectively with his professors, and collages.
- d.2. Utilize different sources of knowledge and information
- d.3. Use information technology to serve the professional practice.
- d.4. Manage time efficiently and work in groups.

### 4 - COURSE CONTENTS:

Topic	No. of hours		
	Lectures	Practical	Total



1.Introduction	10	0	10
2.Physiology of helminthes	28	32	60
3.Biochemistry of helminthes	10	10	20
4.Physiology of arthropods	6	6	12
5.Biochemistry of arthropods	28	32	60
6.Physiology of protozoa	4	6	10
7.Biochemistry of protozoa	10	10	20
Total	96	96	192

### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library concerning physiology and biochemistry of parasites

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a3	b1 to b3		d1, d4
Practical sessions		b1 to b3	c1 to c2	d2, d4
Self-Learning activities				d2, d3, d4
Distance Teaching and Learning	a1 to a3	b1 to b3	c1 to c2	d1 to d4

\*Lectures and some practical topics may be offered face to face or via distance teaching and learning.

### 6. METHODS FOR STUDENTS With limited capabilities:-

- Special handling in the laboratory with extra time if needed.

Ensure that all students with disabilities have equal access to educational opportunities and to help students to achieve academic and personal success

### 7. STUDENT ASSESSMENT:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	All over the academic year
<b>7.c grads</b>	50	20	20	10

6.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a3	b1 to b3		d4
Practical exams			c1 to c2	d2, d3



Oral exams	a1 to a3	b1 to b3		d1
Student activities	a1, a3			d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Essential Books

- 1. Roberts, L. S. and J.J. Janovy. 2000. Foundations of Parasitology.5th Edition, W.C.B. Company, U.K.
- 2. Urquhart G. M., J. Armour, J. L. Duncan, A.M. Dunn, F. W. Jennings. 2000. Veterinary Parasitology, Longman Scientific Technical, U.K.
- 3. Levine, N. D. 1990. Veterinary Protozoology.Iowa State University Press, Ames, Iowa, USA.
- 4. Soulsby, E. J. L. 1986. Helminths, Arthropods and Protozoa of Domesticated Animals. The English Language Book Society BailliereTindall, London.
- 5. Georgi, J. R., M. E. Georgi and V. J. Theodorides. 1999. Parasitology for Veterinarians. 7th Ed. W.B. Saunder Company London.
- 6. Wall, R. and D. Shearer. 1997. Veterinary Entomology. Chapman and Hall.
- 7. Hendrix, C. M. 1998. Diagnostic Veterinary Parasitology.2nd Edition.Msoby.

### 8-2: Recmended books:

- Van den Bossche, Hugo, ed. Comparative biochemistry of parasites. Elsevier, 2012.
- Elsheikha, Hany M., and H. A. Khan. Essentials of veterinary parasitology. Caister Academic Press, 2011.
- Elsheikha, Hany, and Edward L. Jarroll, eds. Illustrated Dictionary of Parasitology in the Post-genomic Era. Caister Academic Press, 2017.
- Taylor, Mike A., R. L. Coop, and Richard L. Wall. Veterinary parasitology. John Wiley & Sons, 2015.

### 8-3: Egyptian Knowledge Bank:

- Smyth, James Desmond, and Donald Peter McManus. The physiology and biochemistry of cestodes. Cambridge university press, 1989.
- Barrett, John. Biochemistry of parasitic helminths. MacMillan Publishers Ltd., 1981.
- Bryant, Christopher, and Carolyn A. Behm. Biochemical adaptation in parasites. Chapman and Hall Ltd, 1989.
- Von Brand, Theodor. Biochemistry of parasites. Elsevier, 2013.
- Skrjabin, K. I., et al. "Veterinary parasitology and parasitic diseases of the domestic animals." Veterinary parasitology and parasitic diseases of the domestic animals. (1934).
- Bowman, Dwight D. Georgis' Parasitology for Veterinarians E-Book. Elsevier Health Sciences, 2020.
- Zajac, Anne M., et al. Veterinary clinical parasitology. John Wiley & Sons, 2021.
- Kassai, Tibor. Veterinary helminthology. Acribia, SA, 2002.
- Kreier, Julius P., ed. Parasitic Protozoa: Volume 10. Academic Press, 2013.
- Papadopoulos, Elias. Atlas of parasites in sheep. Grupo Asís Biomedica SL, 2021.

### Scientific Journals

1. Current research in parasitology & vector-borne diseases.
2. Veterinary parasitology: X.
3. Parasitology open.
4. Journal of parasitology.
5. Journal of vector borne diseases.



Assiut  
Faculty



6. Trends in parasitology.
7. Iranian journal of parasitology.
8. Parasitology international.
9. The Korean journal of parasitology.
10. Acta parasitologica
11. Journal of veterinary parasitology
12. Parasitology research.
13. Parasitology today.
14. Tropical medicine and parasitology: official organ of Deutsche
15. Tropical biomedicine.
16. Turkiye parazitolojii dergisi
17. Veterinary parasitology.
18. Egyptian journal of bilharziasis

#### Scientific websites

- **The Egyptian Knowledge Bank:** <https://www.ekb.eg/web/guest/home>
- [Alberta Agriculture, Food and Rural Development](#)  
Livestock diseases and parasites.
- [Arthropods and Protozoan Parasites](#)  
Arthropods and Protozoon Parasites Important to Vet Med
- [Control Of Parasites In Companion Animals](#)  
The Companion Animal Parasite Council (CAPC) is an independent group of U.S. veterinary, governmental, and association leaders in the parasitology field.
- [Diagnosis of Veterinary Endoparasitic Infections](#)  
University of Pennsylvania program designeto aistudents, researchers, and clinicians in diagnosing parasitic infections.
- [Ectoparasite Database](#)  
Treatments for ectoparasites. Covers species (avian, reptilian, small mammal), route of administration, etc. Last update2002.
- [Iowa State Entomology Image Gallery](#)  
Pictures and information on everything from ants to stink bugs.
- [Medical Entomology](#)  
Iowa state entomology index with links to a wide variety of relateentomology sites.
- [Morbidity and Mortality Weekly Report \(MMWR\)](#)
- [Ohio State University Acarology Laboratory](#)
- [Parasitology Research](#)  
Cryptosporidium/Coccidial research from Kansas State University, Biology division.
- [Research In Veterinary Parasitology](#)
- [UW Veterinary Parasitology](#)
- [Veterinary clinical parasitology images](#)  
Images and descriptions from Oklahoma State University.
- [Veterinary Entomology](#)  
Insects of veterinary importance.

**Course Coordinator**

**Head of Department**

**Dr. Nagwa Mohammed Kandel**

**Prof. Dr. Reda Elbastawisy  
Khalafalla**





## COURSE SPECIFICATION (2021 / 2022)

### 1 - Basic Information:

Code No.: 198/1

Course title: Parasites of fish (طفيليات الأسماك)

Academic Year: **Master of Veterinary Medicine Program**

Total teaching hours: 144 hrs.

Lectures: 48 hrs. (48 weeks- 1hrs/week)

Practical: 96 hrs. (48 weeks- 2hrs/week)

### 2 - OVERALL AIMS OF THE COURSE:

*By the end of this course, the student should acquire the concepts, principles and skills related to the basic and fundamental knowledge, skills and positive attitude concerning Parasites of fish.*

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING (K.U):

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

- a.1. Define the fundamental concepts of Parasites of fish and with the technical vocabulary used in this field.
- a.2. Identify different species of monogenetic and digenetic trematodes and their direct life cycles (monogenean trematodes) and indirect life cycles (digenean trematodes) that need intermediate as well as their ability to induce diseases in fishes.
- a.3. Explain different species of Cestodes of fish and whether the fish are final or intermediate hosts. Also, the pathogenicity of these parasites and their effect on the fish farms and aquacultures
- a.4. Describe different species of nematodes and whether the fish are final or intermediate host for these nematodes.
- a.5. Summarize different species of arthropodes and their biological and morphological features with reference to their medical importance in transmitting diseases (arthropod borne diseases) to the affected fishes and identify different species of Acanthocephala by studying their morpho-biological features besides
- a.6. Discuss the ability of Protozoa to induce diseases in fish by studying their life cycles, intermediate hosts /vector, mode of infection transmission,
- a.7. Contrast different methods of diagnosis of fish parasites and control and prevention strategies to eliminate the fish parasites.

#### 3-B: INTELLECTUAL SKILLS (I.S):

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

- b.1. Organize the factors responsible for differentiating between infection and disease caused by various parasites.
- b.2. Analyze the parasite-drug interaction and parasite-host interaction (Immune inter-relations between Parasite and the host).
- b.3. Compare between the diagnostic stages of different parasites in fishes.

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS (P.P.S):

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

- c.1. Collect the diseased fish and samples (biopsy, skin scrapings, gills, died fish, blood, etc.) for laboratory investigation.
- c.2. Diagnose the different parasitic infection in fishes by direct microscopy and indirect methods (antigen-antibody reactions).



c.3. Select rational treatment and control programs for parasite population based on his/her knowledge of parasite biology.

### **3- D: GENERAL AND TRANSFERABLE SKILLS (G.T.S):**

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

- d.1. Communicate effectively with his professors, and collages.
- d.2. Utilize different sources of knowledge and information
- d.3. Use information technology to serve the professional practice.
- d.4. Manage time efficiently and work in groups.

### **4 - COURSE CONTENTS:**

Topic	No. of hours		
	Lectures	Practical	Total
1. Introduction	1	2	3
2. digenetic and monogenetic trematodes of fish	12	24	36
3. Cestodes of fish	12	24	36
4. Nematodes and Acanthocephala of fish	8	16	24
5. Arthropods of fish	4	8	12
6. Protozoa of fish	4	8	12
7. Diagnosis and Control of fish parasites	7	14	21
<b>Total</b>	<b>48</b>	<b>96</b>	<b>144</b>

### **5- TEACHING & LEARNING METHODS:**

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library  
Making individual reports about fish parasitic diseases common in Egypt

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a7	b1 to b3		d1, d4
Practical sessions		b1 to b3	c1 to c3	d2, d4
Self-Learning activities				d2, d3, d4
Distance Teaching and Learning	a1 to a7	b1 to b3	c1 to c3	d1 to d4

\*Lectures and some practical topics may be offered face to face or via distance teaching and learning.

### **6. METHODS FOR STUDENTS With limited capabilities:-**

- Special handling in the laboratory with extra time if needed.

Ensure that all students with disabilities have equal access to educational opportunities and to help students to achieve academic and personal success





## 7. STUDENT ASSESSMENT:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	<del>At the end of the academic year</del>
<b>7.c grads</b>	50	25	25	10

6.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a7	b1 to b3		d4
Practical exams			c1 to c3	d2, d3
Oral exams	a1 to a7	b1 to b3		d1
Student activities	a1, a7			d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Essential Books

- 1. Roberts, L. S. and J.J. Janovy. 2000. Foundations of Parasitology.5th Edition, W.C.B. Company, U.K.
- 2. Urquhart G. M., J. Armour, J. L. Duncan, A.M. Dunn, F. W. Jennings. 2000. Veterinary Parasitology, Longman Scientific Technical, U.K.
- 3. Levine, N. D. 1990. Veterinary Protozoology.Iowa State University Press, Ames, Iowa, USA.
- 4. Soulsby, E. J. L. 1986. Helminths, Arthropods and Protozoa of Domesticated Animals. The English Language Book Society BailliereTindall, London.
- 5. Georgi, J. R., M. E. Georgi and V. J. Theodorides. 1999. Parasitology for Veterinarians. 7th Ed. W.B. Saunder Company London.
- 6. Wall, R. and D. Shearer. 1997. Veterinary Entomology. Chapman and Hall.
- 7. Hendrix, C. M. 1998. Diagnostic Veterinary Parasitology.2nd Edition.Msoby.
- 8. Woo, Patrick TK, John F. Leatherland, and David W. Bruno, eds. *Fish diseases and disorders*. Vol. 3. CABI, 2006.

### 8-2: Recmended books:

- Grabda, Jadwiga. Marine fish parasitology: An outline. VCH Verlagsgesellschaft mbH, 1991.
- Moller, Heino, and Kerstin Anders. Diseases and parasites of marine fish. Verlag Heino Moller, 1983.
- Kabata, Zbigniew. Parasites and diseases of fish cultured in the tropics. Taylor & Francis Ltd., 1985.
- Paperna, Ilan. "Parasites, infections and diseases of freshwater fishes in Africa." CIFA Technical paper 7 (1980).

### 8-3: Egyptian Knowledge Bank:

- <http://www.EKB.eg> Egyptian Knowledge Bank



- Bowman, Dwight D. Georgis' Parasitology for Veterinarians E-Book. Elsevier Health Sciences, 2020.
- Zajac, Anne M., et al. Veterinary clinical parasitology. John Wiley & Sons, 2021.
- Rohde, Klaus, ed. Marine parasitology. Csiro publishing, 2005.

#### Scientific Journals

Veterinary parasitology: X.  
Veterinary parasitology, regional studies and reports.  
Annals of parasitology.  
Tropical parasitology.  
Journal of parasitology research.  
Journal of parasitology.  
Trends in parasitology.  
Iranian journal of parasitology.  
Parasitology international.  
The Korean journal of parasitology.  
Journal of veterinary parasitology  
Parasitology research.  
Parasitology today.  
Tropical medicine and parasitology: official organ of Deutsche  
Veterinary parasitology.  
Journal of fish diseases.  
Advances in parasitology.  
Experimental parasitology.

#### Scientific websites

- **The Egyptian Knowledge Bank: <https://www.ekb.eg/web/guest/home>**
- [Diagnosis of Veterinary Endoparasitic Infections](#)  
University of Pennsylvania program designed to aid students, researchers, and clinicians in diagnosing parasitic infections.
- [Medical Entomology](#)  
Iowa state entomology index with links to a wide variety of related entomology sites.
- [Parasitology Research](#)
- [Research In Veterinary Parasitology](#)  
it includes: a) development of an immunodiagnostic assay for larval stages of Cyathostomins; b) development of DNA probes to identify individual Cyathostomin species; c) the role of cytokines in parasite induced colitis; d) identification of stage specific genes that may be involved in reactivation and inhibition of larval stages; etc.
- [UW Veterinary Parasitology](#)
- [Veterinary clinical parasitology images](#)  
Images and descriptions from Oklahoma State University.

**Course Coordinator**

**Head of Department**

**Dr. Nagwa Mohammed Kandeel**

**Prof. Dr. Reda Elbastawisy  
Khalafalla**





**Kafrelsheikh University**  
Faculty of Veterinary Medicine



**Kafrelsheikh University**

**Faculty of Veterinary Medicine**

**Department of Pathology**

# **Program Specification for Master Degree**

**(2021 - 2022)**

**Program Title:**

**Master of The Veterinary Medicine**

**(Pathology)**



### **A- Administrative information:**

- 1- **Awarding Body:** Kafrelsheikh University
- 2- **Teaching Body:** Faculty of Veterinary Medicine
- 3- **Department(s) responsible:** pathology
- 4- **Program Title:** Master Degree in Veterinary Medicine (Pathology)
- 5- **Final award:** Master Degree
- 6- **Registration period:** 2-4 years
- 7- **Program Coordinator:**
- 8 - **External evaluator:**
- 9- **Date of revision:**
- 10-**Date of approval:**

### **B- Professional Information:**

#### **1-Program Aims**

*Upon successful completion of the program, the graduate will be able to:*

- Perform PM necropsy and write a conclusive pathological report describing the conditions and causes of disease, death or injury.
- Master professional skills in pathology field.
- Aware of different ways of self and continuous learning.
- Use appropriate technological means to serve the practice in pathology field.
- Participate in preparation and publication of a scientific paper from his/ her thesis in scientific periodicals.
- Present scientific results efficiently.
- Accept interrogation and judgment.

#### **2- Academic standards:**

**Academic reference standards (ARS) adopted by the faculty committee No 1 (14-9-2014)**

#### **3-Graduate attributes:**

*Upon successful completion of the program, the graduate has the ability for:*

- 1) Perfect application of scientific research basics and methodologies in pathology, and using its varied tools.
- 2) Application and use of analytical methods in detection of pathological causes of diseases.
- 3) Application of gained specialized knowledge and integrating them with the relevant knowledge in pathology.
- 4) Awareness with pathological problems and recent concepts concerning the pathogenesis of infectious and non-infectious diseases.
- 5) Identification of pathological problems and suggesting suitable and economic methods of diagnosis of animal affections.
- 6) Mastering the proper scope of a rate of specialized professional skills, and using appropriate technological means to serve the diagnosis of diseases caused by different



pathogens or by nutritional deficiency.

- 7) Effective communication with students, pathologists and animal owners and leading work team.
- 8) Decision making for suggesting the cause of disease.
- 9) Employ available resources efficiently in collecting macroscopical and microscopical findings.
- 10) Awareness with his role in society development and fighting environmental pollution and outbreaks in farm animals.
- 11) Reflection of the commitment to act with integrity, credibility and the rules of profession.
- 12) Academic and professional self- development and ability for life-long learning and progress by studying pathological cases.

#### **4-Intended Learning Outcomes (ILOs):**

##### **a-Knowledge and Understanding:**

*By the end of this program the graduate should be able to:*

- a.1. Identify basics of pathology and related fields.
- a.2. Describe the pathogenesis of diseases caused by different causative agents.
- a.3. Recognize scientific progress in the pathology field.
- a.4. Describe the legal and ethical basics of dealing with pathological cases in different animal.
- a.5. List the safety measures and basics of quality assurance in pathology lab.
- a.6. Apply basics and ethics of scientific research dealing with different animal diseases.

##### **b- Intellectual Skills**

*By the end of this program the graduate should be able to:*

- b.1. Analyze and judge the gross, microscopical and ultrastructural findings to reach the correct diagnosis
- b.2. Explain problems of diagnosis of pathological affection even in cases associated with rare data.
- b.3. Relate different knowledge with the microscopical findings to get appropriate interpretations of pathological cases.
- b.4. Identify, and interpret previous research finding in different branches of pathology fields in order to scientific research project planning.
- b.5. Assessing and evaluate risks during necropsy of animals dying from infectious diseases
- b.6. Explore new methods of tissue processing and staining in order to increase professional performance.
- b.7. Select appropriate intellectual strategy to deal with laboratory diagnostic problems.

##### **c- Practical Skills**

*By the end of this program the graduate should be able to:*

- c.1. Investigate recent techniques and tools necessary to diagnose and characterize causes of diseases by gross, microscopical and ultrastructural investigations.
- c.2. Prepare experimental design and analyze research project.
- c.3. Conduct essential laboratory skills that underpin techniques associated with sampling,



processing, staining and microscopical examination.

**d- General and Transferable Skills**

*By the end of this program, the graduate should be able to:*

- d.1. Incorporate effectively with his professors, colleagues and animal owner(s).
- d.2. Organize different resources of knowledge and information in scientific research and publications.
- d.3. Develop himself and identify his personal educational needs.
- d.4. Enhance information technology to serve the professional practice.
- d.5. Demonstrate an ability to learn independently for a career of lifelong learning.
- d.6. Demonstrate interpersonal skills and team working ability
- d.7. Manage time efficiently.
- d.8. Set tools and indicators for self assessment and continuous learning.

**5- Program structure**

**a) Program duration (years): Master degree from 2-4 years**

**b) Premaster courses – at least one academic year**

Course	Lecture (hours/week)	Practical (hours/week)
Fundamental (core) course	3	4
Research methodology	1	3
2-5 Elective Courses Offered by other departments and are selected from the list below according to thesis topic (10-12 hours)	5-6	5-6

**c) Master of Veterinary Medicine Thesis (at least one academic year)**

- All Master-degree students should prepare a master thesis.
- The department and the ethical committees must approve the protocol of the research.
- The thesis should include a review part and a research part.
- The thesis is supervised by one or more senior staff members of the department responsible for the program and may include other specialties according to the nature of the research.
- The thesis should be evaluated and approved by a committee of three professors including one of the supervisors and an external professor.

• *A number of subsidiary courses are selected from the following list according to the title of the research work*

Subject	Code	Course title	No of hours/week	
			Lecture	Practical Lab
Anatomy and embryology	101/1	1- Applied anatomy	2	2
	102/1	2- Anatomical techniques and surface anatomy	2	2



	103/1	<b>3- Osteology and arthrology</b>	2	2
	104/1	<b>4- Comparative digestive system</b>	2	2
	105/1	<b>5- Comparative uro-genital system</b>	2	2
	106/1	<b>6-Comparative respiratory system</b>	2	2
	107/1	<b>7- Comparative cardiovascular system</b>	2	2
	108/1	<b>8- Comparative nervous system and endocrine glands</b>	2	2
	109/1	<b>9- General and special embryology</b>	2	2
	110/1	<b>10- Avian anatomy</b>	1	2
<b>Histology</b>	111/1	<b>11- cytology and cytochemistry</b>	1	2
	112/1	<b>12- general histology</b>	2	2
	113/1	<b>13- Histology and histochemistry of blood, lymph and cardiovascular system.</b>	1	1
	114/1	<b>14- Comparative histology and histochemistry of body muscles, heart and blood vessels</b>	1	1
	115/1	<b>15- Comparative histology and histochemistry of respiratory system</b>	1	1
	116/1	<b>16-Comparative histology and histochemistry of digestive system</b>	2	2
	117/1	<b>17- Comparative histology and histochemistry of uro-genital system</b>	2	2
	118/1	<b>18- Comparative histology and histochemistry of nervous and endocrine systems</b>	2	2
	119/1	<b>19- Histology and histochemistry of special sensors</b>	1	2
	120/1	<b>20-Histology and histochemistry of skin, hooves, claws and Nails</b>	2	2
	121/1	<b>21- Avian histology</b>	2	2
	122/1	<b>22- Fish histology</b>	1	2
<b>Physiology</b>	123/1	<b>23- Physiology of mammalian endocrine and reproduction</b>	2	2
	124/1	<b>24- poultry physiology (advanced)</b>	2	2
	125/1	<b>25- physiology of muscle and nerve</b>	1	2
	126/1	<b>26- physiology of ruminants</b>	2	2
	127/1	<b>27- physiology of environment, adaptation and cell</b>	2	2
	128/1	<b>28- physiology of blood</b>	2	2
	129/1	<b>29- physiology of digestion, metabolism and energy</b>	2	2
	130/1	<b>30- Physiology in pollution</b>	1	2





	131/1	<b>31- Radioactive isotopes and biological uses</b>	2	2
	132/1	<b>32– Physiology of heights</b>	1	1
	133/1	<b>33-Fish physiology.</b>	1	2
<b>Biochemistry</b>	134/1	<b>34- Basics of biochemistry</b>	2	3
	135/1	<b>35- Metabolism</b>	2	2
	136/1	<b>36- Biochemistry of tissue and body fluids .</b>	2	2
	137/1	<b>37- Biochemistry of hormones and reproduction</b>	2	2
	138/1	<b>38- Feeding biochemistry</b>	2	2
	139/1	<b>39- Clinical biochemistry</b>	2	2
	140/1	<b>40- Avian biochemistry</b>	2	2
	141/1	<b>41- Microbial biochemistry</b>	2	2
	142/1	<b>42- Biochemistry of radiation</b>	1	2
	143/1	<b>43- Fish biochemistry</b>		
<b>Animal behavior and management</b>	144/1	<b>44- Behavior and management of ruminants ( specific courses in cattle, buffalo, sheep, camels and goats)</b>	2	3
	145/1	<b>45- Behavior and management of horses</b>	2	3
	146/1	<b>46- Behavior and management of pet animals</b>	1	2
	147/1	<b>47- Behavior and management of laboratory animals</b>	1	2
	148/1	<b>48- Behavior and management of wild animals</b>	2	2
	149/1	<b>49- Behavior and management of poultry</b>	2	2
	150/1	<b>50- Behavior and management of rabbit</b>	1	2
	151/1	<b>51- Behavior of experimental animals</b>	1	2
<b>Nutrition and clinical nutrition</b>	152/1	<b>52- Basics of animal nutrition</b>	2	2
	153/1	<b>53- feedstuff</b>	2	2
	154/1	<b>54- nutrition of farm animals and fish specific courses in ( cattle and buffalo nutrition – sheep and goat nutrition – camel nutrition- equine nutrition – fish nutrition)</b>	2	2
	155/1	<b>55- poultry and rabbit nutrition( advanced)</b>	2	2
	156/1	<b>56- wild animal nutrition</b>	1	2
	157/1	<b>57- laboratory animal nutrition</b>	1	2
	158/1	<b>58- feed additives</b>	1	2
	159/1	<b>59- feedstuff analysis</b>	2	2
	160/1	<b>60- Quality control of feed and feed factories</b>	2	2
	161/1	<b>61- Clinical nutrition and malnutrition</b>	2	2
	162/1	<b>62- Fish nutrition</b>	1	2
<b>Clinical pathology</b>	175/1	<b>75- Advanced clinical pathology</b>	2	2
	176/1	<b>76-Organ function tests and body and urine balance</b>	2	2



	177/1	<b>77- Clinical hematology and bone marrow examination</b>	1	2
<b>Bacteriology, immunology and mycology</b>				
	178/1	<b>78- General bacteriology(advanced)</b>	1	2
	179/1	<b>79-systemic bacteriology</b>	2	3
	182/1	<b>80- Advanced immunology</b>	2	2
	183/2	<b>81- Advanced mycology</b>	1	2
<b>Virology</b>				
	180/3	<b>82- General virology</b>	1	2
	181/4	<b>83-Systemic virology( specific courses)</b>	2	3
	182/5	<b>84- Advanced immunology</b>	2	2
<b>Mixed courses between Bacteriology and Virology</b>				
	184/1	<b>85- Microbiology of poultry</b>	2	2
	185/1	<b>86- Microbiology of ??????</b>	1	2
	186/1	<b>87- Microbiology of animal product</b>	2	2
	187/1	<b>88- Fish Microbiology</b>	1	2
<b>81- Advanced immunology</b>				
<b>Parasitology</b>				
	188/1	<b>89- Veterinary medical entomology and acarology</b>	2	2
	189/1	<b>90-helminthology</b>	2	2
	190/1	<b>91- protozoology</b>	2	2
	191/1	<b>92- Avian and rabbits parasitology</b>	2	2
	192/1	<b>93Malacology and its vet. Importance</b>	1	2
	193/1	<b>94- parasitic Immunology</b>	1	2
	194/1	<b>95- Clinical parasitology</b>	2	2
	195/1	<b>96-Wild life parasitology</b>	1	2
	196/1	<b>97-Special vet. Parasitology</b>	2	2
	197/1	<b>98- Physiology and biochemistry of parasites</b>	2	2
	198/1	<b>99- Fish parasitology</b>	1	2
<b>Pharmacology</b>				
	199/1	<b>100- Aeneral pharmacology ( advanced)</b>	2	2
	200/1	<b>101- pharmacology of autonomic nervous system and autocoid</b>	2	2
	201/1	<b>102- pharmacology of central nervous system</b>	2	2
	202/1	<b>103 pharmacology of anesthesia</b>	2	2
	203/1	<b>104- Systemic pharmacology</b>	2	2
	204/1	<b>105- pharmacology of metabolism</b>	2	2
	205/1	<b>106- pharmacology of hormones</b>	2	2
	206/1	<b>107-Chemotherapy</b>	2	2
	207/1	<b>108-Biological evolution of drug</b>	1	1
<b>Hygiene and control of milk and dairy products</b>				
	208/1	<b>108- Hygiene and control of milk and dairy products</b>	2	2
	209	<b>109- Microbiology of milk and dairy products</b>	2	2
	210/1	<b>110- Milk technology and preservation</b>	2	2
	211/1	<b>111- Food analysis</b>	2	2
	212/1	<b>112- Food poisoning</b>	1	2



	213/1	<b>113- Specific courses on sources of contamination, disturbances of milk production, milk born diseases, hygiene of table egg, edible fats and oils</b>	1	1
	214/1	<b>114- The sanitation of dairy plant</b>	2	2
<b>Control of meat hygiene and their products</b>	215/1	<b>115- Slaughter animal Hygiene</b>	1	2
	216/1	<b>116- Abattoir management and hygiene</b>	2	2
	217/1	<b>117- Hygienic control of meat and their product</b>	2	2
	218/1	<b>118 inspection of poultry meat.</b>	1	2
	219/1	<b>119- Food technology</b>	1	2
	220/1	<b>120- Microbiology of meat and fish meats and their product</b>	2	1
	221/1	<b>121- Chilled meal microbiology</b>	1	2
	222/1	<b>122- Analysis of meat and fish and their product</b>	1	2
	223/1	<b>123- Preservation of meat, poultry, fish and their products</b>	1	2
	224/1	<b>124- Sanitation affairs of meat and fish plants.</b>	2	2
<b>Internal medicine</b>	225/1	<b>125- advanced general medicine</b>	2	2
	226/1	<b>126- disease of ruminants( cattle, buffalo, camels, sheep and goats)</b>	3	3
	227/1	<b>127- diseases of equines</b>	2	2
	228/1	<b>128 diseases of pet animals</b>	2	2
	229/1	<b>129- diseases of wild animals</b>	2	2
	230/1	<b>130- diseases of metabolic disorders</b>	2	2
	231/1	<b>131- nutritional deficiency diseases</b>	2	2
	232/1	<b>132- Skin diseases</b>	1	2
	233/1	<b>133 - diseases of newly born animals</b>	2	2
	234/ 1	<b>134- Stress diseases during animals transport.</b>		
<b>Infectious diseases</b>	235/ 1	<b>135- Infectious diseases of cattle</b>	2	2
	236/ 1	<b>136- Infectious diseases of sheep and goat</b>	2	2
	237/ 1	<b>137- Infectious diseases camel</b>	2	2
	238/ 1	<b>138 Infectious diseases of equine</b>	2	2
	239/ 1	<b>139- Infectious diseases of pet animals</b>	2	2
	240/ 1	<b>140- Infectious diseases lab animals</b>	1	2
	241/ 1	<b>141- Infectious diseases of udder and newly born animals</b>	2	2
	242/ 1	<b>142- Infectious diseases buffaloes</b>	2	1
	243/1	<b>143- Infectious diseases of wild animals.</b>		
<b>Forensic medicine and toxicology</b>	244/1	<b>144- Forensic medicine and veterinary procedures</b>	2	2
	245/1	<b>145- general toxicology</b>	2	2
	246/1	<b>146- environmental toxicology</b>	2	2



	247/1	<b>147- forensic toxicology</b>	2	2
	248/1	<b>148- laboratory diagnostic toxicology</b>	2	2
	249/1	<b>149- Drug toxicology</b>		
<b>Theriogenology</b>	250/1	<b>150- Female infertility (special specific courses in ruminants- equine- pet animals)</b>	2	2
	251/1	<b>151- Male infertility (special specific courses in ruminants- equine- pet animals)</b>	2	2
	252/1	<b>152- Genital diseases.</b>		
	253/1	<b>153 - obstetrics (special specific courses in farm and pet Animals)</b>	2	2
	254/1	<b>153- reproduction and immunity</b>	1	2
	255/1	<b>155- artificial insemination in ruminants</b>	2	2
	256/1	<b>156- artificial insemination in equine</b>	2	2
	257/1	<b>157- artificial insemination in pet animals</b>	1	2
	258/1	<b>158- embryo transfer</b>	1	2
<b>Veterinary Surgery</b>	259/1	<b>159- General surgery (advanced)</b>	2	2
	260/1	<b>160- Special surgery( organs)</b>	2	3
	261/1	<b>161- surgery of eye, ear, nose and larynx</b>	2	2
	262/1	<b>162 digestive system surgery</b>	2	2
	263/1	<b>163- surgery of the limbs, hoof and claws</b>	2	2
	264/1	<b>164- experimental surgery</b>	2	2
	265/1	<b>165- anesthesiology</b>	1	1
	266/1	<b>166- radiology and ultrasonography</b>	2	2
<b>Poultry and rabbit diseases</b>	267/1	<b>167- bacterial diseases of poultry</b>	2	2
	268/1	<b>168- viral diseases of poultry</b>	2	2
	269/1	<b>169- fungal diseases of poultry</b>	2	2
	270/1	<b>170 parasitic diseases of poultry</b>	1	2
	271/1	<b>171 - nutritional diseases of poultry</b>	1	2
	272/1	<b>172-diseases of rabbit (advanced)</b>	2	2
	273/1	<b>173-Diseases of wild and migrating birds</b>	2	2
	274/1	<b>174- Preventive vaccines and their evaluation in poultry</b>	2	2
	275/1	<b>175- Laboratory diagnosis of poultry diseases.</b>		
<b>Animal and environmental hygiene</b>	276/1	<b>176- farm animal hygiene ( advanced)</b>	2	2
	277/1	<b>177- poultry hygiene ( advanced)</b>	2	2
	278/1	<b>178- environmental hygiene and pollution</b>	2	2
	279/1	<b>179- control of contagious diseases</b>	2	2
	280/1	<b>180- eradication of rodents and disease vector</b>	2	2
	281/1	<b>181- insecticides and public health</b>	2	2
	282/1	<b>182-hygiene of animal enclosures- specific courses in :- cattle houses – poultry houses –</b>	2	2



		<b>rabbit houses- pet animals house3s – experimental animals houses</b>		
	283/1	<b>183-disinfections and disinfectants</b>	2	2
	284/1	<b>184- veterinary epidemiology – specific courses in animal environment</b>	2	-
<b>Zoonoses</b>	285/1	<b>185- advanced zoonoses ( specific courses in bacterial and Mycotic diseases – viral diseases – parasitic diseases)</b>	2	2
	286/1	<b>186- role of rodents in transmission of zoonoses</b>	2	2
	287/1	<b>187- role of wild animals in transmission of zoonoses</b>	2	2
	288/1	<b>188- role of birds (special courses in: poultry, wild migrating or pets) in transmission of zoonoses</b>		
<b>Genetics and genetic engineering</b>	289/1	<b>189- Genetics of microorganisms .</b>	1	2
	290/1	<b>190- Genetic engineering( advanced)</b>	1	2
	291/1	<b>191- Cytological genetics</b>	1	-
	292/1	<b>192- Genetics of genuses.</b>	2	-
	293/1	<b>193- physiological genetics</b>	2	-
	294/1	<b>194- Chemical and radiological genetics.</b>	1	2
<b>Animal production</b>	295/1	<b>195- Animal breeding and improvement (advanced).</b>	2	-
	296/1	<b>196- Poultry breeding and improvement(advanced).</b>	2	-
	297/1	<b>197- Cattle and buffalo production (advanced).</b>	2	2
	298/1	<b>198- Sheep and goat production (advanced).</b>	2	2
	299/1	<b>199- Poultry production (advanced).</b>	2	2
	300	<b>200-Rabbit production (advanced).</b>	2	2
	301	<b>201-Improving by artificial insemination in poultry and rabbits.</b>	2	2
<b>Fish diseases and management</b>	302/1	<b>202- Biology of fish.</b>	2	2
	303/1	<b>203-Fish diseases (advanced)</b>	2	2
	304/1	<b>204-Fish farms.</b>	1	2
	305/1	<b>205-Fish breeding .</b>	2	2
<b>Economic and farms management</b>	306/1	<b>206- economics of animals and dairy production</b>	2	-
	307/1	<b>207- economics of poultry farms</b>	2	-
	308/1	<b>208-economics of fish farms</b>	2	-
	309/1	<b>209- feasibility studies</b>	2	-
	310/1	<b>210- farm management</b>	2	-
	311/1	<b>211- economics of beef production</b>	2	-



<b>Biostatistics</b>	312/1	212- <b>Biostatistics (advanced)</b>	2	-
	313/1	213- <b>Experimental design</b>	2	2
	314/1	214- <b>Computer and data processing</b>	2	1

## 6-Teaching and Learning Methods:

*The program features a variety of teaching approaches for different intended learning objectives including:*

- Lectures to gain knowledge and understanding skills
- Writing a review paper to gain the skills of self-learning and presentation
- Practical and lab sessions to gain practical skills
- Seminars

## 7- Students assessments:

The program depends on different assessment ways:

### a. Course assessment:

<b>1- Written examination</b>	<b>For assessment of knowledge, back calling and Intellectual skills</b>
<b>2- Practical examination</b>	<b>For assessment of practical and professional skill</b>
<b>3- Oral examination</b>	<b>For assessment of knowledge and Intellectual skills</b>
<b>4- Student activities</b>	<b>For assessment of knowledge and general and transferable skills</b>

### b. Master Thesis

- Annual reports adopted by the Faculty
- Finally, the assessment of thesis measure the individual student ability to work independently in the field specialization
- Final evaluation and approval by a judging committee of at least three professors including one or more of the supervisors and an external professor. This assesses the ability to write a review article, perform the needed practical steps and to present the results in tables and graphs. In addition, the skills of analysis of results and discussion with previous findings obtained by other authors are also assessed.

### *Assessment of program intended learning outcomes*

	<b>Tool or method</b>	<b>ILOs</b>
1-	Written	a1,2,3; b1,2,3



2-	Oral	a1,2,5; b2,3,4,6
3-	Practical	b1,7; c1-3
4-	Assignments	a1,2; b4; d1-8
5-	Thesis	a4-7; b4-7, c1-5, d1-8

### 8. Marking scale as follow:-

<b>Excellent</b>		> 90
<b>Very good</b>		>80
<b>Good</b>		>70
<b>Pass</b>		>60
<b>Fail</b>	<b>Weak</b>	45 to less than 60
	<b>very weak</b>	Less than 45

### 9. Program evaluation methods

<b>Evaluator</b>	<b>Tool</b>	<b>Sample</b>
Postgraduate Student	Questioners	<b>20%</b>
	meeting	<b>1</b>
Postgraduate alumni	Questioners	<b>5</b>
Stakeholders (employers)	Questioners	<b>10</b>
	Meeting	<b>1</b>
External evaluator/External examiner	Reports	<b>1</b>

### 10. Program Admission Requirements:

The Applicant must normally satisfy the faculty of veterinary medicine- kafrelsheikh University general entrance and requirement. The normal minimum entrance qualification for registration at the faculty on a master's program

- 1- Bachelor degree in Veterinary Medical Sciences of one of the Egyptian Universities or hold a degree in Veterinary Medical Sciences equivalent through the Supreme Council of Universities with general grade at least "Good" and at least grade "Very Good" in specialization.
- 2- Diploma of general grade at least "Good" and at least grade "Very Good" in specialization. The total number of study hours must be not less than 3 weekly in that specialization.
- 3- After he has passed the courses studied during premaster he must perform a research work in a subject approved by the faculty council at least for one year.



He must submit the results of this work in thesis that should be approved by the discussion committee.

## 11. Regulations for progression of program

- a) Registration period for the Master in veterinary medicine is at least 2 years after the approval date by the faculty council and it should not exceed a period of 4 years, an extension could be approved by the faculty council depending on the supervisor report that approved by the department council and postgraduate and research committee refers to the universities regulation law.
- b) The student should conduct the courses proposed by both department council and approved by postgraduate and research committee and faculty council and include, 2-5 courses of the postgraduates stated in article (28) in regulation law list and the student will entitled to apply for the exam only after meeting attendance rate for each courses.
- c) The student should pass written, practical and oral exams successfully in all courses, and the examination is held two times annually.
- d) The Faculty council should deprive the student from entering the exam if his attendance rate in the course is less than 75%.
- e) Failure or depriving from entering one or more course did not require reexamination of successful passed courses.
- f) The applicant should conduct an innovate research on the subject that has been registered for at least 2 years from the date of registration approved by the faculty council. And the faculty council depending on a request from the supervisor has the right to authorize the student to do scientific experiments at recognized scientific institute.
- g) The applicant should submit the thesis that accepted by the judging committee in an open discussion and the following policies should be met:
- h) Pass all courses.
- i) The applicant should submit 4 copies of his thesis concerned department council to form committee examining the thesis to be presented to the postgraduate studies committee and the faculty council, and in case of thesis approval by the department council, the applicant will submit 6 copies for the faculty library, 1 copy for public university library before introducing the report of examination committee to the post graduate studies committee and the faculty council.
- j) Registration will be during March and September of each year.
- k) The applicant should submit a request enrolment for the dean who forwards bit to the concerned department council to determine the research subject and the study program and then take calendar after complete documentation on the faculty council for approval.





- l) The thesis title should be identified before being submitted at least 2 months and the judging committee has the right to amend the title without prejudice the subject of research.
- m) The Faculty council has the right to suspend the student enrolment for a certain period if he has acceptable excuse preventing him from continuing his study or research, and his period will not counted within the period stated in article 25.
- n) The applicant should submit 5 hard copies and 10 electronic copies (CDs) of the thesis after its validity approved by the judging committee and head of department to be distributed to the committee members and faculty library and the judging committee can decide the exchange of the thesis with other universities or printing at the expense of the university.

**12. Registration will be cancelled in one of the following cases:**

1. If the supervisors report during the registration period is unsatisfactory (2 reports).
2. If he did not submit his thesis before the end of registration period.
3. If the judging committee rejected the thesis twice.

**13. Examination Regulations**

- a- Time of written exam, 3 hours for each course that has 3 hours or more for lecture / practical /week. **If has less than 3 hours/week, the time of exam, is 2 hours only.**
- b-The final degree of each course which has 3 hours (lecture and practical) per week is **100 and less than 3 hours is 50 degrees and divided into 50% for written exam, and 50% for practical and oral exam.**

**14. Program completion:**

- Successfully completion of the required courses and submission of a thesis.

**Program Coordinator**

**Prof. Dr.**

**Head of Department**

**Prof. Dr.**



## Matching program ILOs with ARS - Matrix

Program ILOs	ARS																							
	K&U (a)						I.S. (b)							P.P. (c)			G.T. (d)							
	1	2	3	4	5	6	1	2	3	4	5	6	7	1	2	3	1	2	3	4	5	6	7	8
<b>K&amp;U</b>	1	2	3	4	5	6																		
<b>I.S.</b>							1	2	3	4	5	6	7											
<b>P.P.</b>														1	2	3								
<b>G.T.</b>																	1	2	3	4	5	6	7	8







---

## ARS for Master in Veterinary Medical Medicine (Pathology)

### **1) Graduate attributes**

*The graduate should have the ability for:*

- 1) Perfect application of scientific research basics and methodologies in pathology, and using its varied tools.
- 2) Application and use of analytical methods in detection of pathological causes of diseases.
- 3) Application of gained specialized knowledge and integrating them with the relevant knowledge in pathology.
- 4) Awareness with pathological problems and recent concepts concerning the pathogenesis of infectious and non-infectious diseases.
- 5) Identification of pathological problems and suggesting suitable and economic methods of diagnosis of animal affections.
- 6) Mastering the proper scope of a range of specialized professional skills, and using appropriate technological means to serve the diagnosis of diseases caused by different pathogens or by nutritional deficiency.
- 7) Effective communication with students, pathologists and animal owners and leading work team.
- 8) Decision making for suggesting the cause of disease.
- 9) Employ available resources efficiently in collecting macroscopical and microscopical findings.
- 10) Awareness with his role in society development and fighting environmental pollution and outbreaks in farm animals.
- 11) Reflection of the commitment to act with integrity, credibility and the rules of profession.
- 12) Academic and professional self- development and ability for life-long learning and progress by studying pathological cases.

## A) Knowledge and understanding

<b>Adopted ARS</b>		<b>NARS (Master)</b>
	<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Theories and principles in the field of histopathology, histochemistry and related fields.	Theories and principles in the field of specialization and related fields.
2)	The host pathogen relationship and microbial pathogenesis and their impact on environment	Mutual effect between professional practice and its impact on environment
3)	Scientific progress in the field of veterinary pathology	Scientific progress in the field of specialization
4)	Legal and ethical basics in professional practice in the field of pathology	Legal and ethical basics in professional practice in the field of specialization
5)	Safety measures and basics of quality assurance in Pathology lab.	Principles and basics of quality assurance in the area of specialization
6)	Basics and ethics of scientific research especially that involving laboratory animals or virulent pathogenic strains of bacteria and viruses	Basics and ethics of scientific research

## B) Intellectual skills

<b>Adopted ARS</b>		<b>NARS (Master)</b>
	<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Analysis of macroscopical and microanatomical findings to reach the correct diagnosis	Analysis and judgment of information in the field of specialization and analog to solve problems.
2)	Diagnosis of causes of disease conditions even with rare information.	Solving professional problems even in scarcity of data.
3)	Development of creative approaches to solve technical problems or issues associated with researches projects.	Relating between different knowledge to solve professional problems.
4)	Design research plan in Pathology and publishing scientific papers	Preparing research plan in specialization and/ or writing scientific article on a research problem.
5)	Assessing risk during necropsy of animals dying from infectious diseases	Risk-assessment of professional practices in specialization.
6)	Development of plans to improve performance in Pathology practice with automation.	Planning for improvement of professional performance.

7)	Using appropriate intellectual strategy to deal with laboratory diagnostic problems.	Taking professional decisions in a variety of professional contexts.
----	--	--

### C) Professional and practical skills

<b>Adopted ARS</b>		<b>NARS (Master)</b>
	<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Using of recent techniques and tools necessary to diagnose and characterize causes of diseases by microscopical and ultrastructural investigations.	Mastering basic and recent professional skills in the field of specialization
2)	Application of the principles of good experimental design and analysis to their own research project	Writing and evaluating professional reports.
3)	Performing essential laboratory skills that underpin techniques associated with sampling, processing, staining and microscopical examination	Evaluating existing materials and methods in the area of specialization.

### D) General and transferable skill

<b>Adopted ARS</b>		<b>NARS (Master)</b>
	<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Communicating effectively with teaching staff, colleagues and the community.	Effective communication.
2)	Using information technology in scientific research and publications.	Utilizing information technology to serve development of professional practice.
3)	Demonstrating appropriate attitude towards teaching staff and colleagues.	Self-assessment and determination of personal educational needs.
4)	Identifying and use different sources of information and knowledge.	Using different resources to obtain knowledge and information.
5)	Using appropriate attitude and rules towards teaching staff and colleagues and use evidence based evaluations.	Establishing rules and indicators for assessment of the performance of others.
6)	Respecting the importance of team work.	Team working and leading a team in familiar professional contexts.
7)	Doing good control of timing.	Efficient time management.
8)	Performing continuous self-learning.	Self and continuous learning.

## ثانياً: برامج الماجستير

### ١- مواصفات الخريج

- خريج برنامج الماجستير في أي تخصص يجب أن يكون قادراً على:
١. إجادة تطبيق أساسيات و منهجيات البحث العلمي واستخدام أدواته المختلفة
  ٢. تطبيق المنهج التحليلي واستخدامه في مجال التخصص
  ٣. تطبيق المعارف المتخصصة و دمجها مع المعارف ذات العلاقة في ممارسته المهنية
  ٤. إظهار وعيا بالمشاكل الجارية و الرؤى الحديثة في مجال التخصص
  ٥. تحديد المشكلات المهنية و إيجاد حلول لها
  ٦. إتقان نطاق مناسب من المهارات المهنية المتخصصة، واستخدام الوسائل التكنولوجية المناسبة بما يخدم ممارسته المهنية
  ٧. التواصل بفاعلية و القدرة على قيادة فرق العمل
  ٨. اتخاذ القرار في سياقات مهنية مختلفة
  ٩. توظيف الموارد المتاحة بما يحقق أعلى استفادة و الحفاظ عليها
  ١٠. إظهار الوعي بدوره في تنمية المجتمع و الحفاظ على البيئة في ضوء المتغيرات العالمية و الإقليمية
  ١١. التصرف بما يعكس الالتزام بالنزاهة و المصداقية و الالتزام بقواعد المهنة
  ١٢. تنمية ذاته أكاديمياً و مهنياً و قادراً على التعلم المستمر

### ١٢- المعايير القياسية العامة

#### ١ المعرفة و الفهم

- بانتهاؤ دراسة برنامج الماجستير يجب ان يكون الخريج على فهم و دراية بكل من:
- أ- النظريات و الأساسيات المتعلقة بمجال التعلم وكذا في المجالات ذات العلاقة
  - ب- التأثير المتبادل بين الممارسة المهنية وانعكاسها علي البيئة
  - ت- التطورات العلمية في مجال التخصص
  - ث- المبادئ الأخلاقية و القانونية للممارسة المهنية في مجال التخصص
  - ج- مبادئ و أساسيات الجودة في الممارسة المهنية في مجال التخصص
  - ح- أساسيات وأخلاقيات البحث العلمي

#### ٢ المهارات الذهنية

- بانتهاؤ دراسة برنامج الماجستير يجب ان يكون الخريج قادراً على:
- أ- تحليل و تقييم المعلومات في مجال التخصص و القياس عليها لحل المشاكل
  - ب- حل المشاكل المتخصصة مع عدم توافر بعض المعطيات



- ت -الربط بين المعارف المختلفة لحل المشاكل المهنية  
ث -إجراء دراسة بحثية و /أو كتابة دراسة علمية منهجية حول مشكلة بحثية  
ج -تقييم المخاطر في الممارسات المهنية في مجال التخصص  
ح -التخطيط لتطوير الأداء في مجال التخصص  
خ -اتخاذ القرارات المهنية في سياقات مهنية متنوعة

### ٣ المهارات المهنية

- بانتهاء دراسة برنامج الماجستير يجب ان يكون الخريج قادرا على:  
أ -إتقان المهارات المهنية الأساسية و الحديثة في مجال التخصص  
ب -كتابة و تقييم التقارير المهنية  
ت -تقييم الطرق و الأدوات القائمة في مجال التخصص

### ٤ المهارات العامة و المنتقلة

- بانتهاء دراسة برنامج الماجستير يجب أن يكون الخريج قادرا على:  
أ -التواصل الفعال بأنواعه المختلفة  
ب -استخدام تكنولوجيا المعلومات بما يخدم الممارسة المهنية  
ت -التقييم الذاتي وتحديد احتياجاته التعليمية الشخصية  
ث -استخدام المصادر المختلفة للحصول على المعلومات و المعارف  
ج -وضع قواعد ومؤشرات تقييم أداء الآخرين  
ح -العمل في فريق ، وقيادة فرق في سياقات مهنية مختلفة  
خ -إدارة الوقت بكفاءة  
د -التعلم الذاتي و المستمر

**DEPARTMENT OF PATHOLOGY**  
**Basic Course specification**  
**(2021 - 2022)**

**1 - Basic Information:**

Code number:-

Course title: **Pathology**

Academic Year: *Master Program*

Total teaching hours: 336 hrs

Lectures: 144

Practical: 192

**2 - OVERALL AIMS OF THE COURSE:**

*To provide student with basic knowledge and skills concerning abnormal cellular structure either gross or microscopic associated with inflammation, growth disturbance and neoplasia, general disturbance in circulation and thrombosis and metabolic disorders, and their effect on cell morphology and structure.*

**3 - INTENDED LEARNING OUTCOMES (I. L. Os.):**

**3-A: KNOWLEDGE and UNDERSTANDING:**

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

**A1-Explain the steps of histopathological technique.**

**A2- describe the different cellular alterations associated with reversible and irreversible cell damages through distinguishing the hyperemia, hypostatic congestion, ischemia, anemia, hemorrhage, shock and postmortem changes**

**A3- Illustrate the apoptosis, necrosis and gangrene.**

**A4- Identify the disturbances in protein, fat, glycogen, minerals and pigments metabolism of cells**

**A5- State the abnormal changes due to inflammatory process and describe the types of inflammation and healing.**

**A6- compare the disturbances in cell growth and oncology.**

**A7- Discuss the immunopathology, epithelial tumor and non-epithelial tumor.**

**A8- Summarize the spread of neoplasia.**

**3-B: INTELLECTUAL SKILLS:**

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

**B1-Conclude the correlation between the circulatory disturbances and normal structure of the organs and create the ability to differentiate between normal and abnormal structure of the organs**

**B2- Judge the different types of hemodynamic changes.**

**B3- Assess the difference between necrosis and gangrene**

**B4- Formulate the different types of disturbances in cell metabolism.**

**B5- summarize the different types of disturbances in growth and spread of tumors.**

**B6- Develop a correlation between different types of the neoplasia and normal structure of the tissues.**

**B7- Create difference between the inflammation and normal structure of the tissues and differentiate between different types of inflammation.**

**3- C: PRACTICAL AND PROFESSIONAL SKILLS:**

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

**C1-Examine abnormal microscopic structure of different tissues and organs.**

**C2-Debate the circulatory disturbances and normal structure of the organs.**

- C3-Compare between the cell metabolism and normal structure of the organs.  
 C4-Investigate the abnormal microscopic structure of different tissues due to disturbance in circulation and cell metabolism.  
 C5- Categorize any abnormal structural changes in the body.  
 C6-Classify the different neoplastic lesions.  
 C7- Apply the histopathological technique.

### **3- D: GENERAL SKILLS:**

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

***D1- Coach and work in groups.***

***D2-Classify different duties***

***D3- Utilize computer and internet skills.***

***D4-Develop the ethical behaviors between students and staff members as well as among the students themselves.***

## **4 - COURSE CONTENTS:**

TOPIC	Total hours	Hours for lecture	Hours for practical
Histopathological Technique	25	10	15
Disturbances in Circulation	55	25	30
Disturbances in Cell Metabolism	60	25	35
Necrosis and Gangarene	50	20	30
Disturbances in Cell Growth	25	10	15
Oncology	65	30	35
Inflammation and Healing	56	24	32
Total	336	144	192

## **5- TEACHING & LEARNING METHODS:**

### **\*Lectures:**

using data show, white board and over head projector.

### **\*Practical and small group sessions:**

Practical training:Practical demonstrations, practice of skills, and discussions.

### **\* Self learning**

**Computer researches and faculty library visits to prepare essays and presentations.**

Histopathological Drawings.

Library researches.

Internet researches.

Discussion in the researches.

Preparation of scientific reports.

### **\* Audiovisual**

Television circle in the practical laboratory.

## 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:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination
<b>7.b time</b>	One examination at the end of the year	One examination at the end of the year	One examination at the end of the year
<b>7.c grads</b>	50	20	30

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: BASIC MATERIALS:

- *Practical Department Notes: available for students to purchase from the department.*
- Microscopes, slides, projector slides, Data show.

### 8-2: Recmended books:

- Walter and Israel(1996): general pathology ,6th.
- Jones, hunt and king (1997): veterinary pathology.
- Kevin A. Hahn (2002)Veterinary oncology, British Library Cataloguing-in-Publication Data, Butterworth–Heinemann, 225 Wildwood Avenue,Woburn, MA 01801-2041.
- Dijk, J E van; Gruys, E (Erik); Mouwen, J M V M. 2007 Color atlas of veterinary pathology : general morphological reactions of organs and tissues, 2nd ed. Edinburgh ; New York : Saunders Elsevier, 2007.
- James F. Zachary and M. Donald McGavin, 2011 Pathologic Basis of Veterinary Disease,Mosby, St Louis, 5th Revised edition.

### 8-3: SUGGESTED books:

- *Peter and robin (2000): pathology illustrated 5th edition.*

### 8.4: web sites and jouranls .....and so on

- *WWW.PubMed.com*
- *www.Vet.net.com*
- *Egyptian journal of comparative pathology*
- *Americanjournal of pathology.*
- *Journal of veterinary science*

## 9.1.Course content ILOs Matrex:

TOPIC	K.U (a)	LS (b)	P.P.S (c)	G.T.S (d)
Histopathological Technique	A1	----	C1,C7,C5	D1,D2,D3,D4
Disturbances in Circulation	A2	B1,B2	C1,C2,C4,C5	D1,D2,D3,D4

Disturbances in Cell Metabolism	A4	B4	C1,C3,C4,C5	D1,D2,D3,D4
Necrosis and Gangrene	A3	B3	C1,C5	D1,D2,D3,D4
Disturbances in Cell Growth	A6	B5	C1,C5	D1,D2,D3,D4
Oncology	A6, A7, A8	B5, B6	C1, C5, C6	D1, D2, D3, D4
Inflammation and Healing	A5	B7	C1, C5	D1, D2, D3, D4

## 9.2. Assessment Ilos matrix:

Methods	I.L.O.S Evaluation				Marks allocated
	Knowledge	Intellectual	Practical	general	
Written examination	A1,A2,A3,A4,A5,A6,A7,A8	B1,B2,B3,B4,B5,B6,B7		D1,D2,	50
Oral examination	A1,A2,A3,A4,A5,A6,A7,A8	B1,B2,B3,B4,B5,B6,B7		D4, D3	25
Practical examination			C1,C2,C3,C4,C5,C6,C7	D4	25

**Course Coordinator:**

*Dr. Waled Sobhy*

**Head of Department:**

*Prof. Dr. Ahmed Elsawak*

**DEPARTMENT OF PATHOLOGY**  
**Course specification**  
**(2021 - 2022)**

**1 - Basic Information:**

**Code number: 163/1**

**Course title: General Pathology and Oncology (Advanced).**

**Academic Year: Master programs**

**Total teaching hours: 192hrs**

Lectures: **96hrs**

Practical: **96 hrs**

**2 - OVERALL AIMS OF THE COURSE:**

**The student will be able to:**

- Define the basic principles of different disease pathogenesis
- Provide basic information about etiology, tissue response in the form of tumors, and the mechanisms of tumor development.

**3 - INTENDED LEARNING OUTCOMES (I. L. Os.):**

**3-A: KNOWLEDGE and UNDERSTANDING:**

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

- A1-** Define the basic principles of animal disease.
- A2-** Discuss the pathogenesis of different animal affections.
- A3-** Describe the gross and microscopic features of various pathological lesions.
- A4-** Recognize the basic terminology for various tumors.
- A5-** Differentiate the cellular alterations of different tumors.
- A6-** Identify the different types of tumors in various body organs and tissues.

**3-B: INTELLECTUAL SKILLS:**

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

- B1-** Illustrate the histological features of pathological processes in order to achieve proper diagnosis.
- B2-** Diagnose of pathological affection even in cases associated with rare data.
- B3-** Judge the different microscopical findings to get appropriate interpretations of pathological cases.
- B4-** Distinguish between benign and malignant tumors in emphasis to gross and microscopic criteria of malignancy.
- B5-** Analyze and evaluate subject-specific theories and principles related to diagnosis and differential diagnosis of the different lesions and tumors.
- B6-** Differentiate between tumors and tumor-like malformations.

**3- C: PRACTICAL AND PROFESSIONAL SKILLS:**

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

- C1-** Determine tissue specimens for pathological diagnosis and develop practical experience in the histological techniques.
- C2-** Examine tumors grossly or microscopically using medical terms of pathology and differentiate between the different types of tumors.
- C3-** Assign the macro- and microscopical findings and present them in a proper pathological report.

**3- D: GENERAL SKILLS:**

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

- D1-** Coach and work in groups.
- D2-** Classify different duties
- D3-** Utilize computer and internet skills.
- D4-** Develop the ethical behaviors between students and staff members as well as among the students themselves.

**4 - COURSE CONTENTS:**

TOPIC	Total hours	Hours for lecture	Hours for practical
-------	-------------	-------------------	---------------------

Disturbances of cell metabolism	44	22	22
Inflammation and Repair	34	17	17
Disturbances of Circulation	38	19	19
Disturbances of growth and Neoplasia	36	18	18
Molecular basis of Carcinogenesis	40	20	20
<b>Total</b>	<b>192</b>	<b>96</b>	<b>96</b>

## 5- TEACHING & LEARNING METHODS:

### \*Lectures:

using data show, white board and over head projector.

### \*Practical and small group sessions:

Practical training: Practical demonstrations, practice of skills, and discussions.

### \* Self learning

#### Computer researches and faculty library visits to prepare essays and presentations.

Histopathological Drawings.

Library researches.

Internet researches.

Discussion in the researches.

Preparation of scientific reports.

### \* Audiovisual

Television circle in the practical laboratory.

## 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:-

<u>7.a Used methods</u>	Written examination	Oral examination	Practical examination
<u>7.b time</u>	One examination at the end of the academic Year	One examination at the end of the academic Year	One examination at the end of the academic Year
<u>7.c grads</u>	50	25	25

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: BASIC MATERIALS:

- Practical Department Notes: available for students to purchase from the department.
- Microscopes, slides, projector slides, Data show.

### 8-2: Recmonded books:

- Basics of Oncology by Frederick O. Stephens and Karl Reinhard Aigner, Springer, USA, 2010.
- Robbins & Cotran Pathologic Basis of Disease. Vinay Kumar, Nelso Fausto, Abul Abbas. Saunders; 7 edition, USA, 2004.
- Fundamentals of Toxicologic Pathology. Wanda M. Haschek., Colin G. Rousseaux, Matthew A. Wallig. Academic Press; 2 edition, 2009, USA.

### 8-3: SUGGESTED books:

- Veterinary pathology Textbook. (By Thomas Carlyle Jones, Ronald Duncan Hunt and Norval W. King, - Wiley-Blackwell, U.S.A., 1997).

- Walter and Israel(1996): general pathology ,6th.
- veterinary pathology: Jones, hunt and king (1997).
- Pathology of demostic animals. academic press. Jobb, K.V.F. Keennedy,B.C. and PALMER, N,(1985)

#### **8.4: web sites and jouranls .....and so on**

- IVIS
- Environmental Protection Agency (EPA)
- Food and Drug Administration (FDA)
- PubMed
- Science direct

#### **9.1.Course content ILOs Matrex:**

TOPIC	K.U (a)	LS (b)	P.P.S (c)	G.T.S (d)
Disturbances of cell metabolism	A1,A2,A3,A4,A5,A6	B1,B3,B5,B6	C1,C2,C3	D1,D2,D3,D4
Inflammation and Repair	A2,A3,A5,A6	B1,B2,B4	C1,C2	D1,D2,D3,D4
Disturbances of Circulation	A1,A5,A6	B2,B4,B5	C2,C3	D1,D2,D3,D4
Disturbances of growth and Neoplasia	A1,A2,A3,A4,A5,A6	B3,B6	C1,C2,C3	D1,D2,D3,D4
Molecular basis of Carcinogenesis	A2,A6	B6	C2,C3	D1,D2,D3,D4

#### **9.2.Assessment Ilos matrix:**

Methods	I.L.O.S Evaluation				Marks allocated
	Knowledge	Intellectual	Practical	General	
Written examination	A1,A2,A3,A4,A5,A6	B1,B2,B3,B4,B5,B6		D3,D4	<b>50</b>
Oral examination	A1,A2,A3,A4,A5,A6	B1,B2, ,B4,B5		D4	<b>25</b>
Practical examination			C1,C2,C3	D1,D2,	<b>25</b>

**Course Coordinator:**

*Prof. Dr. Eman Abdelaziz*

**Head of Department:**

*Prof. Dr. Ahmed Elsawak*



**DEPARTMENT OF PATHOLOGY**  
**Course specification**  
**(2021 - 2022)**

**1 - Basic Information:**

**Code number: 164/1**

**Course title: Pathology of Microbial and Parasitic Animal Diseases**

**Academic Year: Master programs**

**Total teaching hours: 192hrs**

Lectures: **96hrs**

Practical: **96 hrs**

**2 - OVERALL AIMS OF THE COURSE:**

**Enable students to:**

- **Elucidate the pathogenesis of microbial and parasitic diseases**
- **Perform postmortem and histopathological examination of diseases caused by infective agents in different animal species.**

**3 - INTENDED LEARNING OUTCOMES (I. L. Os.):**

**3-A: KNOWLEDGE and UNDERSTANDING:**

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

**A1-** Discuss the pathogenesis of microbial and parasitic diseases in different animal species.

**A2-** Recognize macro- and microscopical findings of diseased animals in relation to their causative agents.

**A3-** List the microbial and parasitic diseases.

**A4-** Describe the gross and microscopic features of various pathological lesions.

**3-B: INTELLECTUAL SKILLS:**

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

**B1-** Investigate the histopathological lesions induced by microbial and parasitic diseases.

**B2-** Differentiate between the microbial or parasite disease on gross and microscopical pathological bases and other pathogens.

**B3-** Analyze the histopathological alterations in relation to the chronicity of the disease.

**B4-** Interpret the results of Post Mortum and histopathological examination.

**3- C: PRACTICAL AND PROFESSIONAL SKILLS:**

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

**C1-** Apply essential techniques in microbial and parasitic pathology and get experience in sampling, postmortem techniques and slide preparation.

**C2-** Examine grossly and microscopically between different infectious agents.

**C3-** Demonstrate the lesions both grossly or microscopically using medical terms of pathology and write them in a conclusive report.

**3- D: GENERAL SKILLS:**

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

**D1-** Coach and work in groups.

**D2-** Classify different duties

**D3-** Utilize computer and internet skills.

**D4-** Develop the ethical behaviors between students and staff members as well as among the students themselves.

#### 4 - COURSE CONTENTS:

TOPIC	Total hours	Hours for lecture	Hours for practical
General principles of microbial pathogenesis	12	6	6
Bacterial diseases	28	14	14
Viral diseases	36	18	18
Fungal diseases	28	14	14
Mycoplasmal diseases	16	8	8
Protozoa I diseases	36	18	18
Parasitic diseases	36	18	18
<b>Total</b>	<b>192</b>	<b>96</b>	<b>96</b>

#### 5- TEACHING & LEARNING METHODS:

**\*Lectures:**

using data show, white board and over head projector.

**\*Practical and small group sessions:**

Practical training: Practical demonstrations, practice of skills, and discussions.

**\* Self learning**

**Computer researches and faculty library visits to prepare essays and presentations.**

Histopathological Drawings.

Library researches.

Internet researches.

Discussion in the researches.

Preparation of scientific reports.

Audiovisual Television circle in the practical laboratory.

#### 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:-

<u>7.a Used methods</u>	Written examination	Oral examination	Practical examination
<u>7.b time</u>	One examination at the end of the academic Year	One examination at the end of the academic Year	One examination at the end of the academic Year
<u>7.c grads</u>	50	25	25

#### 8. LEARNING AND REFERENCE MATERIALS:

**8-1: BASIC MATERIALS:**

- Practical Department Notes: available for students to purchase from the department.
- Microscopes, slides, projector slides, Data show.

**8-2: Recmended books:**

- A Textbook of Veterinary Special Pathology Infectious Diseases of Livestock and Poultry. : A.K. Katiyar, J.L. Vegad. nternational Book Distributing Co (March 1, 2002)
- Pathology of domestic animals, 4th ed. by Jubb K.V.F., Kennedy P.G. and Palmer N. (1994).

**8-3: SUGGESTED books:**

- Robbins & Cotran Pathologic Basis of Disease. Vinay Kumar, Nelso Fausto, Abul Abbas. Saunders; 7 edition, USA, 2004

- Veterinary pathology Textbook. (By Thomas Carlyle Jones, Ronald Duncan Hunt and Norval W. King, - Wiley-Blackwell, U.S.A., 1997).

#### **8.4: web sites and journals .....and so on**

- PubMed
- Science direct
- Environmental Protection Agency (EPA)
- Food and Drug Administration (FDA)
- EPA: Integrated Risk Information System (IRIS)
- Egyptian Journal of Comparative Pathology and Clinical Pathology
- Pathologia Veterinaria
- American Journal of Pathology
- Journal of Pathology and Bacteriology
- Archive of Pathology
- Veterinary Record IVIS

#### **9.1.Course content ILOs Matrex:**

TOPIC	K.U (a)	I.S (b)	P.P.S (c)	G.T.S (d)
General principles of microbial pathogenesis	A1	B1	C2	D1,D2,D3,D4
Bacterial diseases	A1,A2,A3,A4	B2,B3	C1,C2,C3	D1,D2,D3,D4
Viral diseases	A2,A3,A4	B3,B4	C2,C3	D1,D2,D3,D4
Fungal diseases	A1,A2,A3,A4	B2,B3,B4	C3	D1,D2,D3,D4
Mycoplasmal diseases	A2,A3,A4	B1,B3	C2	D1,D2,D3,D4
Protozoa I diseases	A2,A3	B3,B4	C1,C3	D1,D2,D3,D4
Parasitic diseases	A1,A2,A3,A4	B1,B2,B3	C1,C3	D1,D2,D3,D4

#### **9.2.Assessment Ilos matrix:**

Methods	I.L.O.S Evaluation			general	Marks allocated
	Knowledge	Intellectual	Practical		
Written examination	A1,A2,A3,A4	B1,B2,B3		D1,D2,	<b>50</b>
Oral examination	A1,A2,A3,A4	B1,B2,B3,B4		D4	<b>25</b>
Practical examination			C1,C2,C3	D3,D4	<b>25</b>

**Course Coordinator:**

*Dr. Eman Abdelaziz*

**Head of Department:**

*Prof. Dr. Ahmed Elsayak*

**DEPARTMENT OF PATHOLOGY**  
**Course specification**  
**(2021 - 2022)**

**1 - Basic Information:**

**Code number: 165 /1**

**Course title: Pathology of nutritional deficiencies**

**Academic Year: Master programs**

**Total teaching hours: 144hrs**

Lectures: **48hr**

Practical: **96 hrs**

**2 - OVERALL AIMS OF THE COURSE:**

Upon successful completion of the course, the student will be able to:

- Elucidate mechanisms of action of nutritional deficiencies at the cellular levels.
- Weigh up the various pathological alteration caused by nutritional causes on different body systems.

**3 - INTENDED LEARNING OUTCOMES (I. L. Os.):**

**3-A: KNOWLEDGE and UNDERSTANDING:**

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

A1- Discuss the scientific progress in the field of Pathology of nutritional deficiencies.

A2- Describe principles of disease processes in different organs induced by nutritional deficiency.

A3- Recognize the macro- and microscopical alterations induced by malnutrition.

**3-B: INTELLECTUAL SKILLS:**

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

B1- Differentiate the histopathological lesions induced by nutritional deficiency from those caused by microbial agents and chemicals.

B2- Correlate the macro- and microscopical findings with the conditions of malnutrition.

B3- Analyze the microscopical findings to get appropriate interpretations of pathological cases.

B4- Characterize the mechanism of production of pathological changes by malnutrition.

**3- C: PRACTICAL AND PROFESSIONAL SKILLS:**

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

C1- Apply essential techniques in nutritional pathology and get experience in PM examination, sampling, and report writing.

C2- Examine the lesions both grossly or microscopically using medical terms of pathology and differentiate between the different types of lesions in the same category.

C3- Demonstrate the differences between tissue/organ appearance in health and malnutrition.

**3- D: GENERAL SKILLS:**

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

D1- Coach and work in groups.

D2- Classify different duties

D3- Utilize computer and internet skills.

D4- Develop the ethical behaviors between students and staff members as well as among the students themselves.

**4 - COURSE CONTENTS:**

TOPIC	Total hours	Hours for lecture	Hours for practical
-------	-------------	-------------------	---------------------

Disturbance in cell metabolism	21	7	14
Classification of nutritional diseases	24	8	16
Pathology of Vitamin Deficiencies	24	8	16
Pathology of Mineral deficiencies	21	7	14
Pathology of Protein deficiencies	24	8	16
Pathology of Fat deficiencies	15	5	10
Differential diagnosis of diseases induced by nutritional deficiencies.	15	5	10
<b>Total</b>	<b>144</b>	<b>48</b>	<b>96</b>

## 5- TEACHING & LEARNING METHODS:

### \*Lectures:

using data show, white board and over head projector.

### \*Practical and small group sessions:

Practical training: Practical demonstrations, practice of skills, and discussions.

### \* Self learning

**Computer researches and faculty library visits to prepare essays and presentations.**

Histopathological Drawings.

Library researches.

Internet researches.

Discussion in the researches.

Preparation of scientific reports.

### \* Audiovisual

Television circle in the practical laboratory.

## 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:-

<u>7.a Used methods</u>	Written examination	Oral examination	Practical examination
<u>7.b time</u>	One examination at the end of the academic Year	One examination at the end of the academic Year	One examination at the end of the academic Year
<u>7.c grads</u>	50	25	25

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: BASIC MATERIALS:

- Practical Department Notes: available for students to purchase from the department.
- Microscopes, slides, projector slides, Data show.

### 8-2: Recmended books:

- Pathology of domestic animals, 4th ed. by Jubb K.V.F., Kennedy P.G. and Palmer N. (1994).

### 8-3: SUGGESTED books:

- Robbins & Cotran Pathologic Basis of Disease. Vinay Kumar, Nelso Fausto, Abul Abbas. Saunders; 7 edition, USA, 2004

- Veterinary pathology Textbook. (By Thomas Carlyle Jones, Ronald Duncan Hunt and Norval W. King, - Wiley-Blackwell, U.S.A., 1997).

#### 8.4: web sites and journals .....and so on

- PubMed
- Science direct
- IVIS
- Environmental Protection Agency (EPA)
- Food and Drug Administration (FDA)
- EPA: Integrated Risk Information System (IRIS)
- Egyptian journal of comparative pathology
- American journal of pathology.
- Journal of veterinary science

### 9.1.Course content ILOs Matrex:

TOPIC	K.U (a)	I.S (b)	P.P.S (c)	G.T.S (d)
Disturbance in cell metabolism	A1,A2,A3	B1,B2,B3,B4	C1,C2,C3	D1,D2,D3,D4
Classification of nutritional diseases	A1	B1	C1,C3	D1,D2,D3,D4
Pathology of Vitamin Deficiencies	A2,A3	B2,B3,B4	C1,C2,C3	D1,D2,D3,D4
Pathology of Mineral deficiencies	A2,A3	B2,B3,B4	C1,C2	D1,D2,D3,D4
Pathology of Protein deficiencies	A3	B4	C3	D1,D2,D3,D4
Pathology of Fat deficiencies	A2	B3	C1, C3	D1,D2,D3,D4
Differential diagnosis of diseases induced by nutritional deficiencies.	A1,A2,A3	B3,B4	C3	D1,D2,D3,D4

### 9.2.Assessment Ilos matrix:

Methods	I.L.O.S Evaluation			general	Marks allocated
	Knowledge	Intellectual	Practical		
Written examination	A1,A2,A3	B1,B3,B4		D1,D2	50
Oral examination	A1,A2,A3	B1,B2,B3,B4		D4	20
Practical examination		B3	C1,C2,C3	D3,D4	30

**Course Coordinator:**

*Dr. Eman Abdelaziz*

**Head of Department:**

*Prof. Dr. Ahmed Elsawak*

**DEPARTMENT OF PATHOLOGY**  
**Course specification**  
**(2021 - 2022)**

**1 - Basic Information:**

**Code number: 166/1**

**Course title: Environmental Pathology**

**Academic Year: Master programs**

**Total teaching hours: 144hrs**

Lectures: **48hr**

Practical: **96 hrs**

**2 - OVERALL AIMS OF THE COURSE:**

Upon successful completion of the course, the student will be able to:

- Manifestations of toxic cell injury.
- Elucidate mechanisms of action of pollutants at the cellular levels.
- Weigh up the toxic insults of the pollutants on different body organ and tissues.

**3 - INTENDED LEARNING OUTCOMES (I. L. Os.):**

**3-A: KNOWLEDGE and UNDERSTANDING:**

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

A1- Discuss the basics of pathology including gross and microscopical alterations in relation to environmental pollutants.

A2- Define the pathogenesis of diseases caused by different environmental pollutants.

A3- Describe the toxic insult on different body organs and tissues at the macro- and microscopical level.

A4- Explain the mechanism toxic injury induced by pollutants on body organs.

**3-B: INTELLECTUAL SKILLS:**

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

B1- Correlate the gross and histopathological alterations in relation to dose and time of exposure to various pollutants.

B2- interpret the pathological affection even in cases associated with rare data.

B3- Relate different knowledge with the microscopical findings to get appropriate interpretations of pathological cases.

B4- Identify etiological agent on gross and microscopical pathological bases.

**3- C: PRACTICAL AND PROFESSIONAL SKILLS:**

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

C1- Perform essential techniques in environmental pathology.

C2- Examine the lesions both grossly or microscopically using medical terms of pathology and differentiate between the different types of lesions in the same category during exposure to pollutants.

C3- Apply the safety measures and basics of quality assurance to prevent environmental pollution.

**3- D: GENERAL SKILLS:**

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

D1- Coach and work in groups.

D2- Classify different duties

D3- Utilize computer and internet skills.

D4- Develop the ethical behaviors between students and staff members as well as among the students themselves.

**4 - COURSE CONTENTS:**

TOPIC	Total hours	Hours for lecture	Hours for practical
-------	-------------	-------------------	---------------------

Disturbance in cell metabolism	7	7	-
Manifestations of toxic cell Injury	5	5	-
Types and sources of environmental pollutants	5	5	-
Environmental carcinogenesis	25	5	20
Developmental toxicological Pathology	5	5	-
Pathology of different environmental pollutants	30	5	25
Effect of environmental pollutants on birds	22	5	17
Effect of environmental pollutants on fish	21	4	17
Environmental endocrine disruptors	12	4	8
Techniques in environmental Pathology	12	3	9
Total	<b>144</b>	<b>48</b>	<b>96</b>

## 5- TEACHING & LEARNING METHODS:

### \*Lectures:

using data show, white board and over head projector.

### \*Practical and small group sessions:

Practical training: Practical demonstrations, practice of skills, and discussions.

### \* Self learning

#### Computer researches and faculty library visits to prepare essays and presentations.

Histopathological Drawings.

Library researches.

Internet researches.

Discussion in the researches.

Preparation of scientific reports.

### \* Audiovisual

Television circle in the practical laboratory.

## 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:-

<u>7.a Used methods</u>	Written examination	Oral examination	Practical examination
<u>7.b time</u>	One examination at the end of the academic Year	One examination at the end of the academic Year	One examination at the end of the academic Year
<u>7.c grads</u>	50	20	30

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: BASIC MATERIALS:

- Practical Department Notes: available for students to purchase from the department.
- Microscopes, slides, projector slides, Data show.

### 8-2: Recmended books:

- Fundamentals of Toxicologic Pathology. Wanda M. Haschek., Colin G. Rousseaux, Matthew A. Wallig. Academic Press; 2 edition, 2009, USA.

### 8-3: SUGGESTED books:

- Robbins & Cotran Pathologic Basis of Disease. Vinay Kumar, Nelso Fausto, Abul Abbas. Saunders; 7



edition, USA, 2004

- **Veterinary pathology Textbook.** (By Thomas Carlyle Jones, Ronald Duncan Hunt and Norval W. King, - Wiley-Blackwell, U.S.A., 1997).
- **Pathology of domestic animals**, 4th ed. by Jubb K.V.F., Kennedy P.G. and Palmer N. (1994).

#### 8.4: web sites and journals .....and so on

- PubMed
- Science direct
- IVIS
- Environmental Protection Agency (EPA)
- Food and Drug Administration (FDA)
- EPA: Integrated Risk Information System (IRIS)
- Egyptian Journal of Comparative Pathology and Clinical Pathology
- Pathologia Veterinaria
- American Journal of Pathology
- Archive of Pathology
- Veterinary Record IVIS

### 9.1.Course content ILOs Matrex:

TOPIC	K.U (a)	IS (b)	P.P.S (c)	G.T.S (d)
Disturbance in cell metabolism	A1,A2,A3,A4	B1,B2,B3,B4	-	D1,D2,D3,D4
Manifestations of toxic cell Injury	A2,A3	B3,B4	-	D1,D2,D3,D4
Types and sources of environmental pollutants	A2,A4	B2	-	D1,D2,D3,D4
Environmental carcinogenesis	A3,A4	B1,B2	C1,C3	D1,D2,D3,D4
Developmental toxicological Pathology	A1,A3	B4	-	D1,D2,D3,D4
Pathology of different environmental pollutants	A1	-	C3	D1,D2,D3,D4
Effect of environmental pollutants on birds	A2,A3	B2,B4	C1,C2	D1,D2,D3,D4
Effect of environmental pollutants on fish	A2,A3	B2,B3	C1,C2	D1,D2,D3,D4
Environmental endocrine disruptors	A1	B2	C1,C3	D1,D2,D3,D4
Techniques in environmental Pathology	A4	B4	C1,C3	D1,D2,D3,D4

### 9.2.Assessment Ilos matrix:

Methods	I.L.O.S Evaluation			general	Marks allocated
	Knowledge	Intellectual	Practical		
Written examination	A1,A2,A3,A4	B1,B3,B4			<b>50</b>
Oral examination	A1,A2,A3,A4	B2,B4		D4	<b>20</b>
Practical examination		B2	C1,C2,C3	D1,D2,D3,D4	<b>30</b>

**Course Coordinator:**

**Dr. Nagwan El-Habashi**

**Head of Department:**

**Prof. Dr. Ahmed Elsawak**

**DEPARTMENT OF PATHOLOGY**  
**Course specification**  
**(2021 - 2022)**

**1 - Basic Information:**

**Code number: 167/1**

**Course title: Reproductive Pathology**

**Academic Year: Master programs**

**Total teaching hours: 144hrs**

Lectures: **48hr**

Practical: **96 hrs**

**2 - OVERALL AIMS OF THE COURSE:**

Upon successful completion of the course, the student will be able to:

- Elucidate mechanisms of affection of reproductive system in both male and female animals.
- Weigh up the toxic insults of the poison on reproductive organs and tissues.

**3 - INTENDED LEARNING OUTCOMES (I. L. Os.):**

**3-A: KNOWLEDGE and UNDERSTANDING:**

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

A1- Define the basics of pathology including gross and microscopical alterations in reproductive organs.

A2- Recognize basic terminology for morphologic alterations in reproductive system.

A3- Discuss the basic principles of pathology and the mechanisms of pathological alterations caused by infectious or non-infectious agents in the genital systems.

A4- Describe the diseased conditions in the genital system in both male & female animals.

**3-B: INTELLECTUAL SKILLS:**

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

B1- Analyze and judge the gross, microscopical and ultrastructural findings in genital organs to reach the correct diagnosis.

B2- Manage problems of diagnosis of reproductive diseases even in cases associated with rare data.

B3- Relate different knowledge with the microscopical findings to get appropriate interpretations of different reproductive diseases.

B4- Characterize risks during necropsy of animals dying from infectious reproductive diseases.

**3- C: PRACTICAL AND PROFESSIONAL SKILLS:**

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

C1- Apply recent techniques and tools necessary to diagnose and characterize different reproductive diseases by gross, microscopical and ultrastructural investigations.

C2- Provide a professional and conclusive pathological report on scientific bases.

C3- Practice essential laboratory skills that underpin techniques associated with sampling, processing, staining and microscopical examination.

**3- D: GENERAL SKILLS:**

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

D1- Coach and work in groups.

D2- Classify different duties

D3- Utilize computer and internet skills.

D4- Develop the ethical behaviors between students and staff members as well as among the students themselves.

**4 - COURSE CONTENTS:**

TOPIC	Total hours	Hours for lecture	Hours for practical
-------	-------------	-------------------	---------------------

Pathology of the males reproductive System	33	11	22
Pathology of the female reproductive System	36	12	24
Failure of Pregnancy including early embryonic mortality, abortion, stillbirth	39	13	26
Fetal Abnormalities	36	12	24
Total	144	48	96

## 5- TEACHING & LEARNING METHODS:

### \*Lectures:

using data show, white board and over head projector.

### \*Practical and small group sessions:

Practical training: Practical demonstrations, practice of skills, and discussions.

### \* Self learning

#### Computer researches and faculty library visits to prepare essays and presentations.

Histopathological Drawings.

Library researches.

Internet researches.

Discussion in the researches.

Preparation of scientific reports.

### \* Audiovisual

Television circle in the practical laboratory.

## 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:-

<u>7.a Used methods</u>	Written examination	Oral examination	Practical examination
<u>7.b time</u>	One examination at the end of the academic Year	One examination at the end of the academic Year	One examination at the end of the academic Year
<u>7.c grads</u>	50	20	30

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: BASIC MATERIALS:

- Practical Department Notes: available for students to purchase from the department.
- Microscopes, slides, projector slides, Data show.

### 8-2: Recmonded books:

- Pathology of domestic animals, 4th ed. by Jubb K.V.F., Kennedy P.G. and Palmer N. (1994).

### 8-3: SUGGESTED books:

- Robbins & Cotran Pathologic Basis of Disease. Vinay Kumar, Nelso Fausto, Abul Abbas. Saunders; 7 edition, USA, 2004
- Veterinary pathology Textbook. (By Thomas Carlyle Jones, Ronald Duncan Hunt and Norval W. King, - Wiley-Blackwell, U.S.A., 1997).

### 8.4: web sites and jouranls .....and so on

- PubMed
- Science direct
- IVIS
- Environmental Protection Agency (EPA)
- Food and Drug Administration (FDA)
- EPA: Integrated Risk Information System (IRIS)
- Egyptian Journal of Comparative Pathology and Clinical Pathology
- Pathologia Veterinaria
- American Journal of Pathology
- Archive of Pathology
- Veterinary Record IVIS

### 9.1.Course content ILOs Matrex:

TOPIC	K.U (a)	LS (b)	P.P.S (c)	G.T.S (d)
Pathology of the males reproductive System	A1,A2,A3,A4	B2,B3,B4	C1,C2,C3	D1,D2,D3,D4
Pathology of the female reproductive System	A3,A4	B1,B2	C2	D1,D2,D3,D4
Failure of Pregnancy including early embryonic mortality, abortion, stillbirth	A4	B3	C1, C3	D1,D2,D3,D4
Fetal Abnormalities	A2	-	C1, C3	D1,D2,D3,D4

### 9.2.Assessment Ilos matrix:

Methods	I.L.O.S Evaluation				Marks allocated
	Knowledge	Intellectual	Practical	General	
Written examination	A1,A2,A3,A4	B1,B2,B3,B4		D1,D2	50
Oral examination	A1,A2,A3	B1,B3		D4	20
Practical examination		B2	C1,C2,C3	D3,D4	30

**Course Coordinator:**

*Dr. Samah Salem*

**Head of Department:**

*Prof. Dr. Ahmed Elsawak*

**DEPARTMENT OF PATHOLOGY**  
**Course specification**  
**(2021 - 2022)**

**1 - Basic Information:**

**Code number: 168/1**

**Course title: Poultry Pathology**

**Academic Year: Master programs**

**Total teaching hours: 192hrs**

**Lectures: 96hrs**

**Practical: 96 hrs**

**2 - OVERALL AIMS OF THE COURSE:**

To provide student with basic knowledge and skills concerning normal structure of the different systems of different birds species (cytology, cell biology) and their diseases, an appropriate background covering microscopic examination and histogenesis of the different systems of different species of birds and their diseases.

Enable students to differentiate the normal structures of different systems of different species of birds and their diseases.

**3 - INTENDED LEARNING OUTCOMES (I. L. Os.):**

**3-A: KNOWLEDGE and UNDERSTANDING:**

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

**A1-** Describe normal structure of the different systems of different species of birds as well as pathological alterations developed in their diseases.

**A2-** Recognize the normal tissue of the different systems of different species of birds and their diseases.

**3-B: INTELLECTUAL SKILLS:**

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

**B1-** Develop a correlation between pathogenesis of pathological changes induced in systems of different species of birds by diseases, gross pathological changes and their clinical picture.

**B2-** Create difference between the pathological changes induced in systems of different species of birds by bacterial, viral and parasitic diseases.

**3- C: PRACTICAL AND PROFESSIONAL SKILLS:**

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

**C1-**Examine stained tissue slides obtained from diseases of birds under light and reading electron microscope.

**C2-**Compare between the pathological pictures of diseases in different species of birds.

**C3-**Identify the difference between pathological alterations induced in the bird diseases compared with the same changes in domestic animals.

**3- D: GENERAL SKILLS:**

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

**D1-** Coach and work in groups.

**D2-**Classify different duties

**D3-** Utilize computer and internet skills.

**D4-**Develop the ethical behaviors between students and staff members as well as among the students themselves.

#### 4 - COURSE CONTENTS:

TOPIC	Total hours	Hours for lecture	Hours for practical
Digestive system Diseases	44	22	22
Respiratory system Diseases	34	17	17
Urogenital system Diseases	38	19	19
Immune system Diseases	36	18	18
Endocrine system, nervous system, skin Diseases	40	20	20
Total	192	96	96

#### 5- TEACHING & LEARNING METHODS:

##### \*Lectures:

using data show, white board and over head projector.

##### \*Practical and small group sessions:

Practical training: Practical demonstrations, practice of skills, and discussions.

##### \* Self learning

**Computer researches and faculty library visits to prepare essays and presentations.**

Histopathological Drawings.

Library researches.

Internet researches.

Discussion in the researches.

Preparation of scientific reports.

##### \* Audiovisual

Television circle in the practical laboratory.

#### 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:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination
<b>7.b time</b>	One examination at the end of the academic Year	One examination at the end of the academic Year	One examination at the end of the academic Year
<b>7.c grads</b>	50	25	25

#### 8. LEARNING AND REFERENCE MATERIALS:

##### **8-1: BASIC MATERIALS:**

- Practical Department Notes: available for students to purchase from the department.
- Microscopes, slides, projector slides, Data show.

##### **8-2: Recmended books:**

- Walter and Israel(1996): general pathology ,6th.
- Jones, hunt and king (1997): veterinary pathology.
- Jobb, K.V.F. Kennedy, B.C. and PALMER, N,(1985) : Pathology of demostic animals. academic press.

- Dijk, J E van; Gruys, E (Erik); Mouwen, J M V M. 2007 Color atlas of veterinary pathology : general morphological reactions of organs and tissues, 2nd ed. Edinburgh ; New York : Saunders Elsevier, 2007.
- David E. Swayne, John R. Glisson, Larry R. McDougald, Lisa K. Nolan, David L. Suarez, Venugopal L. Nair(2013): Diseases of Poultry
- Quinn, P J; Markey, B K (Bryan K); Leonard, F C; FitzPatrick, E S; Fanning, S; Hartigan, P J. (2011) Veterinary microbiology and microbial disease, Second Edition. Chichester, West Sussex, UK : Wiley-Blackwell

### **8-3: SUGGESTED books:**

- Ivan Dinev: Diseases Of Poultry A Colour Atlas 2nd Edition

### **8.4: web sites and journals .....and so on**

- WWW.PubMed.com
- www.Vet.net.com
- Egyptian journal of comparative pathology
- American journal of pathology.
- Journal of veterinary science

## **9.1.Course content ILOs Matrex:**

TOPIC	K.U (a)	LS (b)	P.P.S (c)	G.T.S (d)
Digestive system Diseases	A1- A2	B1-B2	C1-C2-C3	D1-D2-D4
Respiratory system Diseases	A1- A2	B1,B2	C1-C2-C3	D1-D2-D3-D4
Urogenital system Diseases	A1- A2	B1,B2	C1-C2-C3	D1-D2-D4
Immune system Diseases	A1- A2	B1,B2	C1-C2-C3	D1-D2-D4
Endocrine system, nervous system, skin Diseases	A1- A2	B1,B2	C1-C2-C3	D1-D2-D4

## **9.2.Assessment Ilos matrix:**

Methods	I.L.O.S Evaluation				Marks allocated
	Knowledge	Intellectual	Practical	General	
Written examination	A1.A2.	B1.B2		D1,D2	<b>50</b>
Oral examination	A1.A2.	B1.B2		D4	<b>25</b>
Practical examination		B2	C1.C2.C3.	D3,D4	<b>25</b>

**Course Coordinator:**

***Dr. Nagwan El-Habashi***

**Head of Department:**

***Prof. Dr. Ahmed Elsawak***

**DEPARTMENT OF PATHOLOGY**  
**Course specification**  
**(2021 - 2022)**

**1 - Basic Information:**

**Code number: 169/1**

**Course title: Experimental Pathology**

**Academic Year: Master programs**

**Total teaching hours: 144hrs**

Lectures: **48hrs**

Practical: 96 hrs

**2 - OVERALL AIMS OF THE COURSE:**

**Upon successful completion of the course, the student will be able to:**

- Be aware with the pathogenesis of different infective agents in lab animals.
- Diagnose the infectious and non-infectious diseases of experimental animals (mouse, rat, rabbit, hamster and G. pig) by histopathological examination.

**3 - INTENDED LEARNING OUTCOMES (I. L. Os.):**

**3-A: KNOWLEDGE and UNDERSTANDING:**

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

**A1-** Discuss the basics of pathology including gross and microscopical alterations in experimental animals.

**A2-** Discuss the pathogenesis of diseases caused by different causative agents in lab animals.

**A3-** Express the scientific progress in the field of experimental Pathology.

**3-B: INTELLECTUAL SKILLS:**

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

**B1-** Differentiate the histopathological lesions induced in experimental animals by infectious diseases from those caused by metabolic disorders or chemicals.

**B2-** Manage problems of diagnosis of pathological affection even in cases associated with rare data.

**B3-** Relate different knowledge with the microscopical findings to get appropriate interpretations of pathological cases.

**B4-** Characterize risks during necropsy of experimental animals dying from infectious diseases.

**3- C: PRACTICAL AND PROFESSIONAL SKILLS:**

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

**C1-** Practice PM examination, sampling, and report writing and design an experiment for pathological investigations.

**C2-** Examine the lesions in experimental animals both grossly and microscopically to reach appropriate diagnosis.

**C3-** Apply essential laboratory skills that underpin techniques associated with sampling, processing, staining and microscopical examination.

**3- D: GENERAL SKILLS:**

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

**D1-** Coach and work in groups.

**D2-** Classify different duties

**D3-** Utilize computer and internet skills.

**D4-** Develop the ethical behaviors between students and staff members as well as among the students themselves.



#### 4 - COURSE CONTENTS:

TOPIC	Total hours	lecture	practical
Basics of pathology of experimental animals (rats, mice, hamster, guinea pig and rabbits)	3	3	-
Experimental pathology strategy in lab animals	20	5	15
Experimental animal genetics and genomics species, strains, and substrains	20	5	15
Immunologic idiosyncracies of experimental animals	20	5	15
Infections of laboratory animals: effects on research	2	2	-
Viral infections in experimental animals	8	3	5
Bacterial infections in experimental animals	15	5	10
Mycotic infections in experimental animals	10	2	8
Parasitic diseases in experimental animals	3	3	-
Nutritional and metabolic disorders in experimental animals	4	4	-
Behavioral disorders in experimental animals	9	-	9
Environment-related disease in experimental animals	10	3	7
Aging, degenerative, and miscellaneous disorders in experimental animals	3	3	-
Neoplasms in experimental animals	17	5	12
Total	144	48	96

#### 5- TEACHING & LEARNING METHODS:

##### \*Lectures:

using data show, white board and over head projector.

##### \*Practical and small group sessions:

Practical training: Practical demonstrations, practice of skills, and discussions.

##### \* Self learning

##### Computer researches and faculty library visits to prepare essays and presentations.

Histopathological Drawings.

Library researches.

Internet researches.

Discussion in the researches.

Preparation of scientific reports.

##### \* Audiovisual

Television circle in the practical laboratory.

#### 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:-

<u>7.a Used methods</u>	Written examination	Oral examination	Practical examination
<u>7.b time</u>	One examination at the end of the academic Year	One examination at the end of the academic Year	One examination at the end of the academic Year
<u>7.c grads</u>	50	20	30

#### 8. LEARNING AND REFERENCE MATERIALS:

##### 8-1: BASIC MATERIALS:

- Practical Department Notes: available for students to purchase from the department.

- Microscopes, slides, projector slides, Data show.

### **8-2: Recmended books:**

- Pathology of Laboratory Rodents and Rabbits. Dean H. Percy, Stephen W. Barthold. Wiley-Blackwell; 3 edition (2007).

### **8-3: SUGGESTED books:**

- Robbins & Cotran Pathologic Basis of Disease. Vinay Kumar, Nelso Fausto, Abul Abbas. Saunders; 7 edition, USA, 2004
- Veterinary pathology Textbook. (By Thomas Carlyle Jones, Ronald Duncan Hunt and Norval W. King, - Wiley-Blackwell, U.S.A., 1997).

### **8.4: web sites and jouranls .....and so on**

- Archive of Pathology
- Veterinary RecordIVIS
- PubMed
- Science direct
- IVIS
- Environmental Protection Agency (EPA)
- Food and Drug Administration (FDA)
- EPA: Integrated Risk Information System (IRIS)
- Egyptian Journal of Comparative Pathology and Clinical Pathology
- Pathologia Veterinaria
- American Journal of Pathology
- Journal of Pathology and Bacteriology

## **9.1.Course content ILOs Matrex:**

TOPIC	K.U (a)	I.S (b)	P.P.S (c)	G.T.S (d)
Basics of pathology of experimental animals (rats, mice, hamster, guinea pig and rabbits)	A3	B4	-	D1,D2,D3,D4
Experimental pathology strategy in lab animals	A1	B1	C3	D1,D2,D3,D4
Experimental animal genetics and genomics species, strains, and substrains	A2,A3	B2,B4	C1	D1,D2,D3,D4
Immunologic idiosyncracies of experimental animals	A3	B1,B2,B3	C2,C3	D1,D2,D3,D4
Infections of laboratory animals: effects on research	A2	B3	-	D1,D2,D3,D4
Viral infections in experimental animals	A1,A2A3	B2,B3,B4	C2,C3	D1,D2,D3,D4
Bacterial infections in experimental animals	A1,A2,A3	B1,B2,B3,B4	C1,C2,C3	D1,D2,D3,D4
Mycotic infections in experimental animals	A1,A2	B2,B4	C2	D1,D2,D3,D4
Parasitic diseases in experimental animals	A2	B4	-	D1,D2,D3,D4
Nutritional and metabolic disorders in experimental animals	A3	B2	-	D1,D2,D3,D4
Behavioral disorders in experimental animals	-	B1	C1	D1,D2,D3,D4
Environment-related disease in experimental animals	A1	B3	C2	D1,D2,D3,D4
Aging, degenerative, and miscellaneous disorders in experimental animals	A2	B2	-	D1,D2,D3,D4
Neoplasms in experimental animals	A1,A2,A3	B1,B2,B3,B4	C1,C2,C3	D1,D2,D3,D4

## **9.2.Assessment Ilos matrix:**

Methods	I.L.O.S Evaluation			general	Marks allocated
	Knowledge	Intellectual	Practical		
Written examination	A1,A2,A3	B1,B2,B3		D1,D2,	<b>50</b>
Oral examination	A1,A2,A3	B1,B2,B3,B4		D4	<b>20</b>

Practical examination		B3	C1,C2,C3	D3,D4	30
-----------------------	--	----	----------	-------	----

**Course Coordinator:**

*Dr. Walied Sobhi Kotb*

**Head of Department:**

*Prof. Dr. Ahmed Elsawak*

## DEPARTMENT OF PATHOLOGY

### Course specification

(2021 - 2022)

#### 1 - Basic Information:

Code number: 170(1)

Course title: **Toxicological Pathology**

Academic Year: Master programs

Total teaching hours: 192hrs

Lectures: 96hrs

Practical: 96 hrs

#### 2 - OVERALL AIMS OF THE COURSE:

Upon successful completion of the course, the student will be able to:

- ❖ *Manifestations of toxic cell injury.*
- ❖ *Elucidate mechanisms of action of poisons at the cellular levels.*

#### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

##### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- A1- Discuss the basics of pathology including gross and microscopical alterations caused by different toxins.
- A2- Discuss the pathogenesis of toxic agents in different animal species.
- A3- Recognize scientific progress in the field of toxopathology.
- A4- Recall basics and ethics of scientific research dealing with different animal toxins.

##### 3-B: INTELLECTUAL SKILLS:

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

- B1- Analyze the gross and histopathological alterations in relation to dose and time of exposure to various toxicants.
- B2- Manage risks during necropsy of animals dying from toxins.
- B3- Relate different knowledge with the microscopical findings to get appropriate interpretations of pathological cases.

##### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

- C1- Apply recent techniques and tools necessary to diagnose intoxication.
- C2- Provide a professional and conclusive pathological report on scientific bases.
- C3- Process dosing, sampling, labeling and preservation of samples and estimate the general and special toxic effects in-vivo and in-vitro. In addition, detecting metals and organic poisons in biological samples.

##### 3- D: GENERAL SKILLS:

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

- D1- Coach and work in groups.
- D2- Classify different duties
- D3- Utilize computer and internet skills.
- D4- Develop the ethical behaviors between students and staff members as well as among the students themselves.

#### 4 - COURSE CONTENTS:

TOPIC	Total hours	Hours for lecture	Hours for practical
Introduction to pathology,	22	11	-
Disorders of cell metabolism and homeostasis	34	17	24
Inflammation and repair	20	10	16
Immunology and immunopathology	18	9	-
Toxins and genetic disorders	20	10	-
Toxins causing neoplasia and carcinogenesis	22	11	20
Toxins and hematopoietic system	20	10	-
Pathological affections of toxins on the immune system	18	9	18
Pathological affections of toxins on different body organs	18	9	18
Total	192	96	96

#### 5- TEACHING & LEARNING METHODS:

**\*Lectures:**

using data show, white board and over head projector.

**\*Practical and small group sessions:**

Practical training: Practical demonstrations, practice of skills, and discussions.

**\* Self learning**

**Computer researches and faculty library visits to prepare essays and presentations.**

Histopathological Drawings.

Library researches.

Internet researches.

Discussion in the researches.

Preparation of scientific reports.

**\* Audiovisual**

Television circle in the practical laboratory.

#### 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:-

<u>7.a Use methods</u>	Written examination	Oral examination	Practical examination
<u>7.b dtime</u>	One examination at the end of the academic Year	One examination at the end of the academic Year	One examination at the end of the academic Year
<u>7.c grads</u>	50	25	25

#### 8. LEARNING AND REFERENCE MATERIALS:

**8-1: BASIC MATERIALS:**

- Practical Department Notes: available for students to purchase from the department.*
- Microscopes, slides, projector slides, Data show.

### **8-2: Recmended books:**

- Handbook of Toxicology: Derelanko, M.J. and Hollinger, M.A., 2nd ed., CRC Press , Boca Raton, 2002.
- Toxicology. Osweiler, G.D., The National Veterinary Medical Series for Independent StudyBlackwell Pub., 1996.

### **8-3: SUGGESTED books:**

- Principles and Methods of Toxicology: Hayes, A.W., 5th ed., CRC Press, New York, 2007.
- Introduction to toxicology. Timbrell, J., - 3rd ed., Taylor & Francis, USA, 2003.
- Casarett & Doull's Toxicology. The Basic Science of Poisons. Klaassen, C.D., 6th edition, McGraw-Hill, New York, 2001.

### **8.4: web sites and jouranls .....and so on**

- Archiv Toxicol. - Springerlink
- Bull. Environ. Contam. Toxicol. - Springerlink
- Environ. Toxicol. – Interscience
- Food Chem. Toxicol. - Elsevier
- Reprod. toxicol. - Elsevier
- Toxicol. Appl. Pharmacol. – Elsevier
- PubMed
- Science direct
- IVIS
- Environmental Protection Agency (EPA)
- Food and Drug Administration (FDA)
- EPA: Integrated Risk Information System (IRIS)

### **9.1.Course content ILOs Matrex:**

TOPIC	K.U (a)	I.S (b)	P.P.S (c)	G.T.S (d)
Introduction to pathology,	A4	B3	-	D1-D2-D4
Disorders of cell metabolism and homeostasis	A1,A2,A3	B1,B2,B3	C3	D1-D2-D3-D4
Inflammation and repair	A2,A3	B2,B3	C2	D1-D2-D3-D4
Immunology and immunopathology	A1	B1	-	D1-D2-D3-D4
Toxins and genetic disorders	A2,A4	B2	-	D1-D2-D3-D4
Toxins causing neoplasia and carcinogenesis	A1,A2,A3,A4	B1	C3	D1-D2-D3-D4
Toxins and hematopoietic system	A3	B1,B2	-	D1-D2-D4
Pathological affections of toxins on the immune system	A2	B3	C1	D1-D2-D4
Pathological affections of toxins on different body organs	A1,A2,A3,A4	B2	C2,C3	D1-D2-D4

## 9.2. Assessment Ilos matrix:

Methods	I.L.O.S Evaluation				Marks allocated
	Knowledge	Intellectual	Practical	general	
Written examination	A1,A2,A3,A4	B1,B2,B3		D1,D2	50
Oral examination	A1,A2,A3	B1,B2,B3		D4	25
Practical examination			C1,C2,C3	D3,D4	25

**Course Coordinator:**

*Dr. Samah Salem*

**Head of Department:**

*Prof. Dr. Ahmed Elsawak*

**DEPARTMENT OF PATHOLOGY**  
**Course specification**  
**(2021 - 2022)**

**1 - Basic Information:**

**Code number:** 171(1)

**Course title:** Surgical Pathology

**Academic Year:** Master programs

**Total teaching hours:** 192hrs

Lectures: 96hrs

Practical: 96 hrs

**2 - OVERALL AIMS OF THE COURSE:**

Upon successful completion of the course, the student will be able to:

- ❖ Recognize and evaluate pathological changes resulting from wounds and carcinogenesis.

**3 - INTENDED LEARNING OUTCOMES (I. L. Os.):**

**3-A: KNOWLEDGE and UNDERSTANDING:**

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

- A1-** Define the basics of surgical pathology and be aware with the basic terminology for accidental injuries and neoplastic growth.
- A2-** Discuss the pathogenesis of different lesions related to the field of surgical pathology.
- A3-** Recognize scientific progress in the field of surgical pathology.
- A4-** Identify the macro- and microscopical alterations induced by injuries and cancer.

**3-B: INTELLECTUAL SKILLS:**

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

- B1-** Analyze and judge the gross, microscopical and ultrastructural findings of different surgical lesions.
- B2-** Manage problems of diagnosis of surgical affection even in cases associated with rare data.
- B3-** Relate different knowledge with the microscopical findings to get appropriate interpretations of surgical lesions.
- B4-** Analyze new methods of tissue processing and staining in order to increase professional performance.

**3- C: PRACTICAL AND PROFESSIONAL SKILLS:**

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

- C1-** Apply accurate and effective PM examination of carcasses.
- C2-** Determine tissue specimens for pathological diagnosis of diseases.
- C3-** Demonstrate practical experience in the histological techniques.
- C4-** Provide the macro- and microscopical findings and present them in a proper pathological report.

**3- D: GENERAL SKILLS:**

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

- D1-** Coach and work in groups.
- D2-** Classify different duties
- D3-** Utilize computer and internet skills.
- D4-** Develop the ethical behaviors between students and staff members as well as among the students themselves.



#### 4 - COURSE CONTENTS:

TOPIC	Total hours	Hours for lecture	Hours for practical
Special Diagnostic Techniques in Surgical Pathology	48	24	24
Inflammation and Repair	48	24	24
Oncology	48	24	24
Surgical pathological affections in different body organs	48	24	24
Total	192	96	96

#### 5- TEACHING & LEARNING METHODS:

**\*Lectures:**

using data show, white board and over head projector.

**\*Practical and small group sessions:**

Practical training: Practical demonstrations, practice of skills, and discussions.

**\* Self learning**

**Computer researches and faculty library visits to prepare essays and presentations.**

Histopathological Drawings.

Library researches.

Internet researches.

Discussion in the researches.

Preparation of scientific reports.

**\* Audiovisual**

Television circle in the practical laboratory.

#### 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:-

<u>7.a Used methods</u>	Written examination	Oral examination	Practical examination
<u>7.b time</u>	One examination at the end of the academic Year	One examination at the end of the academic Year	One examination at the end of the academic Year
<u>7.c grads</u>	50	25	25

#### 8. LEARNING AND REFERENCE MATERIALS:

**8-1: BASIC MATERIALS:**

- *Practical Department Notes: available for students to purchase from the department.*
- Microscopes, slides, projector slides, Data show.

**8-2: Recmended books:**

- Differential Diagnosis in Surgical Pathology. Paolo Gattuso, MD, Vijaya B. Reddy, MD, Odile David, MD, Daniel J. Spitz, MD, and Meryl H. Haber, MD.

**8-3: SUGGESTED books:**

- Robbins & Cotran Pathologic Basis of Disease. Vinay Kumar, Nelso Fausto, Abul Abbas. Saunders; 7 edition, USA, 2004
- Veterinary pathology Textbook. (By Thomas Carlyle Jones, Ronald Duncan Hunt and Norval

W. King, - Wiley-Blackwell, U.S.A., 1997).

- Pathology of domestic animals, 4th ed. by Jubb K.V.F., Kennedy P.G. and Palmer N. (1994)

#### **8.4: web sites and journals .....and so on**

- PubMed
- Science direct
- IVIS
- Environmental Protection Agency (EPA)
- Food and Drug Administration (FDA)
- EPA: Integrated Risk Information System (IRIS)
- J. of comparative pathology
- Vet. Record
- Am.J.of vet.pathology
- Am.J.of vet.med. association
- Teratog. Carcinogen. Mutagen.
- Toxicol. Pathol
- Veterinary RecordIVIS

#### **9.1.Course content ILOs Matrex:**

TOPIC	K.U (a)	IS (b)	P.P.S (c)	G.T.S (d)
Special Diagnostic Techniques in Surgical Pathology	A1,A2,A3,A4	B1,B2,B3,B4	C1,C3	D1-D2-D3-D4
Inflammation and Repair	A2,A3,A4	B2,B3	C1,C2,C3	D1-D2-D3-D4
Oncology	A2,A3	B1	C4	D1-D2-D3-D4
Surgical pathological affections in different body organs	A1,A2	B2,B3	C3	D1-D2-D3-D4

#### **9.2.Assessment Ilos matrix:**

Methods	I.L.O.S Evaluation				Marks allocated
	Knowledge	Intellectual	Practical	general	
Written examination	A1,A2,A3,A4	B1,B2,B3,B4		D1,D2	<b>50</b>
Oral examination		B4	C1,C2,C3,C4	D4	<b>25</b>
Practical examination	A1,A2,A3,A4	B1,B4		D3,D4	<b>25</b>

**Course Coordinator:**

*Dr. Walied Sbhi Kotb*

**Head of Department:**

*Prof. Dr. Ahmed Elsawak*

**DEPARTMENT OF PATHOLOGY**  
**Course specification**  
**(2021 - 2022)**

**1 - Basic Information:**

**Code number: 172/1**

**Course title: Lab. Animal Pathology**

**Academic Year: Master programs**

**Total teaching hours: 96 hrs**

Lectures: **48hrs**

Practical: **48 hrs**

**2 - OVERALL AIMS OF THE COURSE:**

Upon successful completion of the course, the student will be able to:

- Be aware with the pathogenesis of different infective agents in lab animals.
- Diagnose the infectious and non-infectious diseases of experimental animals (mouse, rat, rabbit, hamster and G. pig) by histopathological examination.

**3 - INTENDED LEARNING OUTCOMES (I. L. Os.):**

**3-A: KNOWLEDGE and UNDERSTANDING:**

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

**A1-** Discuss the basics of pathology including gross and microscopical alterations in experimental animals.

**A2-** Discuss the pathogenesis of diseases caused by different causative agents in lab animals.

**A3-** Express the scientific progress in the field of experimental Pathology.

**3-B: INTELLECTUAL SKILLS:**

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

**B1-** Differentiate the histopathological lesions induced in experimental animals by infectious diseases from those caused by metabolic disorders or chemicals.

**B2-** Manage problems of diagnosis of pathological affection even in cases associated with rare data.

**B3-** Relate different knowledge with the microscopical findings to get appropriate interpretations of pathological cases.

**B4-** Characterize risks during necropsy of experimental animals dying from infectious diseases.

**3- C: PRACTICAL AND PROFESSIONAL SKILLS:**

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

**C1-** Practice PM examination, sampling, and report writing and design an experiment for pathological investigations.

**C2-** Examine the lesions in experimental animals both grossly and microscopically to reach appropriate diagnosis.

**C3-** Apply essential laboratory skills that underpin techniques associated with sampling, processing, staining and microscopical examination.

**3- D: GENERAL SKILLS:**

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

**D1-** Coach and work in groups.

**D2-** Classify different duties

**D3-** Utilize computer and internet skills.

**D4-** Develop the ethical behaviors between students and staff members as well as among the students themselves.

#### 4 - COURSE CONTENTS:

TOPIC	Total hours	Hours for lecture	Hours for practical
Basics of pathology of experimental animals (rats, mice, hamster, guinea pig and rabbits)	3	3	-
Experimental pathology strategy in lab animals	13	5	8
Experimental animal genetics and genomics species, strains, and substrains	13	5	8
Immunologic idiosyncracies of experimental animals	13	5	8
Bacterial, viral, parasiti and mycotic infections in experimental animals	12	5	7
Nutritional and metabolic disorders in experimental animals	5	5	-
Behavioral disorders in experimental animals	10	5	5
Environment-related disease in experimental animals	10	5	5
Aging, degenerative, and miscellaneous disorders in experimental animals	5	5	-
Neoplasms in experimental animals	12	5	7
Total	96	48	48

#### 5- TEACHING & LEARNING METHODS:

##### \*Lectures:

using data show, white board and over head projector.

##### \*Practical and small group sessions:

Practical training: Practical demonstrations, practice of skills, and discussions.

##### \* Self learning

**Computer researches and faculty library visits to prepare essays and presentations.**

Histopathological Drawings.

Library researches.

Internet researches.

Discussion in the researches.

Preparation of scientific reports.

##### \* Audiovisual

Television circle in the practical laboratory.

#### 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:-

<u>7.a Used methods</u>	Written examination	Oral examination	Practical examination
<u>7.b time</u>	One examination at the end of the academic Year	One examination at the end of the academic Year	One examination at the end of the academic Year
<u>7.c grads</u>	25	10	15

#### 8. LEARNING AND REFERENCE MATERIALS:

##### 8-1: BASIC MATERIALS:

- **Practical Department Notes:** available for students to purchase from the department.
- **Microscopes, slides, projector slides, Data show.**

### **8-2: Recmended books:**

- **Pathology of Laboratory Rodents and Rabbits.** Dean H. Percy, Stephen W. Barthold. Wiley-Blackwell; 3 edition (2007).

### **8-3: SUGGESTED books:**

- **Robbins & Cotran Pathologic Basis of Disease.** Vinay Kumar, Nelso Fausto, Abul Abbas. Saunders; 7 edition, USA, 2004
- **Veterinary pathology Textbook.** (By Thomas Carlyle Jones, Ronald Duncan Hunt and Norval W. King, - Wiley-Blackwell, U.S.A., 1997).

### **8.4: web sites and jouranls .....and so on**

- Archive of Pathology
- Veterinary RecordIVIS
- PubMed
- Science direct
- IVIS
- Environmental Protection Agency (EPA)
- Food and Drug Administration (FDA)
- EPA: Integrated Risk Information System (IRIS)
- Egyptian Journal of Comparative Pathology and Clinical Pathology
- Pathologia Veterinaria
- American Journal of Pathology
- Journal of Pathology and Bacteriology

## **9.1.Course content ILOs Matrex:**

TOPIC	K.U (a)	LS (b)	P.P.S (c)	G.T.S (d)
Basics of pathology of experimental animals (rats, mice, hamster, guinea pig and rabbits)	A3	B4	-	D1,D2,D3,D4
Experimental pathology strategy in lab animals	A1	B1	C3	D1,D2,D3,D4
Experimental animal genetics and genomics species, strains, and substrains	A2,A3	B2,B4	C1	D1,D2,D3,D4
Immunologic idiosyncracies of experimental animals	A3	B1,B2,B3	C2,C3	D1,D2,D3,D4
Bacterial, viral, parasiti and mycotic infections in experimental animals	A1,A2A3	B1,B2,B3,B4	C1,C2,C3	D1,D2,D3,D4
Nutritional and metabolic disorders in experimental animals	A3	B2	-	D1,D2,D3,D4
Behavioral disorders in experimental animals	-	B1	C1	D1,D2,D3,D4
Environment-related disease in experimental animals	A1	B3	C2	D1,D2,D3,D4
Aging, degenerative, and miscellaneous disorders in experimental animals	A2	B2	-	D1,D2,D3,D4
Neoplasms in experimental animals	A1,A2,A3	B1,B2,B3,B4	C1,C2,C3	D1,D2,D3,D4

## **9.2.Assessment Ilos matrix:**

Methods	I.L.O.S Evaluation			general	Marks allocated
	Knowledge	Intellectual	Practical		
Written examination	A1,A2,A3	B1,B2,B3		D1,D2	25
Oral examination	A1,A2,A3	B1,B2,B3,B4		D4	10
Practical examination		B3	C1,C2,C3	D3,D4	15

**Course Coordinator:**

*Dr. Walied Sobhi Kotb*

**Head of Department:**

*Prof. Dr. Ahmed Elsawak*

**DEPARTMENT OF PATHOLOGY**  
**Course specification**  
**(2021 - 2022)**

**1 - Basic Information:**

**Code number: 173/1**

**Course title: Genetical Pathology**

**Academic Year: Master programs**

**Total teaching hours: 96 hrs**

Lectures: **48hrs**

Practical: **48 hrs**

**2 - OVERALL AIMS OF THE COURSE:**

Upon successful completion of the course, the student will be able to:

- Be aware with the pathogenesis of different genetic lesions.
- Diagnose genetic diseases by histopathological examination.

**3 - INTENDED LEARNING OUTCOMES (I. L. Os.):**

**3-A: KNOWLEDGE and UNDERSTANDING:**

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

A1- Discuss the basics of pathology including gross and microscopical alterations in genetic lesions.

A2- Discuss the pathogenesis of diseases caused by different genetic factors.

**3-B: INTELLECTUAL SKILLS:**

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

B1- Differentiate the histopathological lesions by genetic diseases from those caused by metabolic disorders or chemicals.

B2- Relate different knowledge with the microscopical findings to get appropriate interpretations of pathological cases.

**3- C: PRACTICAL AND PROFESSIONAL SKILLS:**

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

C1- Practice PM examination, sampling, and report writing and design an experiment for pathological investigations.

C2- Examine the lesions both grossly and microscopically to reach appropriate diagnosis.

C3- Apply essential laboratory skills that underpin techniques associated with sampling, processing, staining and microscopical examination.

**3- D: GENERAL SKILLS:**

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

D1- Coach and work in groups.

D2- Classify different duties

D3- Utilize computer and internet skills.

D4- Develop the ethical behaviors between students and staff members as well as among the students themselves.

#### 4 - COURSE CONTENTS:

TOPIC	Total hours	Hours for lecture	Hours for practical
Basics of pathology	21	6	15
Genomic imperfections	9	9	-
Errors in histogenesis	6	6	-
Congenital abnormalities	21	6	15
Innate resistance to diseases	9	9	-
Genetics and tumor formation	30	12	18
Total	96	48	48

#### 5- TEACHING & LEARNING METHODS:

**\*Lectures:**

using data show, white board and over head projector.

**\*Practical and small group sessions:**

Practical training: Practical demonstrations, practice of skills, and discussions.

**\* Self learning**

**Computer researches and faculty library visits to prepare essays and presentations.**

Histopathological Drawings.

Library researches.

Internet researches.

Discussion in the researches.

Preparation of scientific reports.

**\* Audiovisual**

Television circle in the practical laboratory.

#### 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:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination
<b>7.b time</b>	One examination at the end of the academic Year	One examination at the end of the academic Year	One examination at the end of the academic Year
<b>7.c grads</b>	25	10	15

#### 8. LEARNING AND REFERENCE MATERIALS:

**8-1: BASIC MATERIALS:**

- *Practical Department Notes: available for students to purchase from the department.*
- Microscopes, slides, projector slides, Data show.

**8-2: Recmended books:**

- Muri,s Text Book of Pathology 2001

**8-3: SUGGESTED books:**



- Veterinary pathology Textbook. (By Thomas Carlyle Jones, Ronald Duncan Hunt and Norval W. King, - Wiley-Blackwell, U.S.A., 1997).

#### **8.4: web sites and journals .....and so on**

- Archive of Pathology
- Veterinary Record/IVIS
- PubMed
- Science direct
- IVIS
- Egyptian Journal of Comparative Pathology and Clinical Pathology
- Pathologia Veterinaria
- American Journal of Pathology
- Journal of Pathology and Bacteriology

#### **9.1.Course content ILOs Matrex:**

TOPIC	K.U (a)	LS (b)	P.P.S (c)	G.T.S (d)
Basics of pathology	A1,A2	B1	C1,C2,C3	D1,D2,D3,D4
Genomic imperfections	A2	B2	-	D1,D2,D3,D4
Errors in histogenesis	A2	-	-	D1,D2,D3,D4
Congenital abnormalities	A1,A2	B1,B2	C1,C2,C3	D1,D2,D3,D4
Innate resistance to diseases	A2	-	-	D1,D2,D3,D4
Genetics and tumor formation	A1,A2	B2	C1,C2,C3	D1,D2,D3,D4

#### **9.2.Assessment Ilos matrix:**

Methods	I.L.O.S Evaluation				Marks allocated
	Knowledge	Intellectual	Practical	general	
Written examination	A1,A2	B1,B2		D1,D2	<b>25</b>
Oral examination	A1,A2	B1,B2		D4	<b>10</b>
Practical examination		B1,B2	C1,C2,C3	D3,D4	<b>15</b>

**Course Coordinator:**

*Dr. Walied Sobhi Kotb*

**Head of Department:**

*Prof. Dr. Ahmed Elsawak*

**DEPARTMENT OF PATHOLOGY**  
**Course specification**  
**(2021 - 2022)**

**1 - Basic Information:**

**Code number: 174/1**

**Course title: Fish Pathology**

**Academic Year: Master programs**

**Total teaching hours: 144hrs**

Lectures: **48hr**

Practical: **96 hrs**

**2 - OVERALL AIMS OF THE COURSE:**

To provide student with basic knowledge *and skills* concerning normal structure of the different systems of different species of fish (cytology, cell biology) and their diseases, an appropriate background covering microscopic examination and histogenesis of the different systems of different species of fish and their diseases.

Enable students to differentiate the normal structures of different systems of different species of fish and their diseases.

**3 - INTENDED LEARNING OUTCOMES (I. L. Os.):**

**3-A: KNOWLEDGE and UNDERSTANDING:**

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

A1- Describe normal structure of the different systems of different species of fish, cytology and cell biology and their diseases.

A2- Identify the normal tissue of the different systems of different species of fish and their diseases.

**3-B: INTELLECTUAL SKILLS:**

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

B1- Develop a correlation between pathogenesis of pathological changes induced in systems of different species of fish by diseases, gross pathological changes and their clinical picture.

B2- Create difference between the pathological changes induced in systems of different species of fish by bacterial, viral and parasitic diseases.

**3- C: PRACTICAL AND PROFESSIONAL SKILLS:**

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

C1-Examine stained tissue slides obtained from diseases of fish under light and reading electron microscope.

C2-Compare between the pathological pictures of diseases in different species of fish.

C3-Identify the difference between pathological alterations induced in the fish diseases compared with the same changes in domestic animals.

**3- D: GENERAL SKILLS:**

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

D1- Coach and work in groups.

D2-Classify different duties

D3- Utilize computer and internet skills.

D4-Develop the ethical behaviors between students and staff members as well as among the students themselves.

#### 4 - COURSE CONTENTS:

TOPIC	Total hours	Hours for lecture	Hours for practical
Digestive system Diseases	33	11	22
Respiratory system Diseases	24	8	16
Genital system Diseases	30	10	20
Immune system Diseases	27	9	18
Sense organs, skin diseases	30	10	20
Total	144	48	96

#### 5- TEACHING & LEARNING METHODS:

**\*Lectures:**

using data show, white board and over head projector.

**\*Practical and small group sessions:**

Practical training: Practical demonstrations, practice of skills, and discussions.

**\* Self learning**

**Computer researches and faculty library visits to prepare essays and presentations.**

Histopathological Drawings.

Library researches.

Internet researches.

Discussion in the researches.

Preparation of scientific reports.

**\* Audiovisual**

Television circle in the practical laboratory.

#### 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:-

<u>7.a Used methods</u>	Written examination	Oral examination	Practical examination
<u>7.b time</u>	One examination at the end of the academic Year	One examination at the end of the academic Year	One examination at the end of the academic Year
<u>7.c grads</u>	50	20	30

#### 8. LEARNING AND REFERENCE MATERIALS:

**8-1: BASIC MATERIALS:**

- **Practical Department Notes:** available for students to purchase from the department.
- **Microscopes, slides, projector slides, Data show.**

**8-2: Recmended books:**

- **Walter and Israel(1996):** general pathology ,6th.
- **Dijk, J E van; Gruys, E (Erik); Mouwen, J M V M. 2007** Color atlas of veterinary pathology : general morphological reactions of organs and tissues, 2nd ed.Edinburgh ; New York : Saunders Elsevier, 2007.
- **Quinn, P J; Markey, B K (Bryan K); Leonard, F C; FitzPatrick, E S; Fanning, S; Hartigan, P J. (2011)** Veterinary microbiology and microbial disease, Second Edition.
- **Chichester, West Sussex, UK : Wiley-Blackwell**

- Ronald J. Roberts(2012)Fish Pathology, Fourth Edition Copyright © 2012 Blackwell Publishing Ltd

### **8-3: SUGGESTED books:**

Hugh Ferguson, Ellen Bjerkas(2006) Systemic Pathology of Fish: A Text and Atlas of Normal Tissue Responses in Teleosts, and Their Responses in Disease.

### **8.4: web sites and jouranls .....and so on**

- WWW.PubMed.com
- www.Vet.net.com
- Egyptian journal of comparative pathology
- Americanjournal of pathology.
- Journal of veterinary science

### **9.1.Course content ILOs Matrex:**

TOPIC	K.U (a)	LS (b)	P.P.S (c)	G.T.S (d)
Digestive system Diseases	A1- A2	B1-B2	C1-C2-C3	D1-D2-D4
Respiratory system Diseases	A1- A2	B1,B2	C1-C2-C3	D1-D2-D3-D4
Genital system Diseases	A1- A2	B1,B2	C1-C2-C3	D1-D2-D4
Immune system Diseases	A1- A2	B1,B2	C1-C2-C3	D1-D2-D4
Sense organs, skin diseases	A1- A2	B1,B2	C1-C2-C3	D1-D2-D4

### **9.2.Assessment Ilos matrix:**

Methods	Knowledge	I.L.O.S Evaluation			Marks allocated
		Intellectual	Practical	general	
Written examination	A1.A2.	B1.B2		D1,D2	<b>50</b>
Oral examination	A1.A2.	B1.B2		D4	<b>20</b>
Practical examination		B2	C1.C2.C3.	,D3,D4	<b>30</b>

**Course Coordinator:**

*Dr. Nagwan El-Habashi*

**Head of Department:**

*Prof. Dr. Ahmed Elsawak*



**Kafrelsheikh University**  
Faculty of Veterinary Medicine



**Kafrelsheikh University**

**Faculty of Veterinary Medicine**

**Physiology Department**

# **Program Specification for Master Degree**

**(2021 - 2022)**

**Program Title:**

**Master of The Veterinary Science**

**(Physiology)**



## **A Administrative Information**

- 1. Awarding body:-** Kafrelsheikh University
- 2. Teaching body:** Faculty of Veterinary Medicine
- 3. Department(s) responsible:** Physiology
- 4. Program Title:** Master of Veterinary Medical Sciences in physiology
- 5. Final award:** Master Degree
- 6. Registration period:** 2-4 years
- 7. Program Coordinator:** Professor Dr. Michel Fahmy Saad

## **B- Professional information:**

### **1-Educational aims of the program**

- To provide the graduates with the advanced veterinary medical knowledge and skills essential for the master of physiology and necessary for further training and practice in the field of physiology. Also, provides graduates the opportunity to develop communication and teaching skills and the experience of scientific research.
- To evolve the ability of graduates to be involved in recent techniques and research tools in the field of physiology.
- To provide the graduates with the most recent knowledge in science and applied physiology.
- To reveal an awareness of the connections between disciplines and to evolve the ability to engage with scientific literature. Also, to review and present their own research data for the promotion of the animal health.
- To permit graduates to develop practical research project.
- To qualify graduates to achieve competency in modern laboratory and practical technology.

### **2- Academic standards:**

**Academic reference standards (ARS) adopted by the faculty committee No (1) 14-9-2014)**

#### **3-Graduate attributes:**

*Upon successful completion of the program, the graduate has the ability to:*

*At the end of the program, graduate must be able to:*



- 1) Apply the gained specific knowledge in professional practice.
- 2) Identify the professional problems and suggest solutions of the focus area.
- 3) Apply and use analytical methods in the area of Animal Physiology.
- 4) Apply efficiently the basics and methodologies of scientific research with the use of its different tools.
- 5) Communicate effectively and lead work team through professional scale.
- 6) Make decision under different professional situations
- 7) Use of the available resources efficiently
- 8) Be aware with the ongoing problems and modern concepts in the area Animal Physiology.
- 9) Be aware with his role in society development and community preservation.
- 10) Reflect the commitment to act with integrity, credibility, and the rules of profession
- 11) Realize the importance of self and life-long learning and progress.
- 12) Master an appropriate domain in specialized professional skills and use modern technology to serve professional practice.

#### **4-Programme outcomes [intended learning outcomes (ILOs)]**

##### **a. Knowledge and understanding:**

*On successful completion of this program, postgraduate will be able to:*

- a.1. Describe the normal basic physiological standards of different animals and related fields .
- a.2. Identify the basic laboratory regulations and recognize its impacts on the adjacent environment
- a.3. Realize with modern applied methodologies in the field of physiology.
- a.4. Realize the legal and ethical basics in the field of laboratory safety.
- a.5. Be aware with the principles and basics of quality assurance in the area of practical physiology.
- a.6. Recognize the basics and ethics of research on animal model at physiology lab.

##### **b. Intellectual skills:**

*At the end of the program, graduate must be able to:*

- b.1.** Interpret the information about different biological functions and correlate between different systems in animal body.
- b.2.** Find clues for problems in physiology even in scarcity of resources via Contact with professional experts.
- b.3.** Relate between different knowledge to solve professional problems in physiology field.



- b.4.** Participate in preparing research plan in in physiology and/ or write scientific article on a research problem.
- b.5.** interpret recent physiological research areas and correlate between them.
- b.6.** Plan for improvement of professional performance.
- b.7.** Make professional decisions in a variety of professional contexts with the ability to meet new challenges.

**c) Practical and professional skills:**

*At the end of the programme, graduate must be able to:*

- c.1.** Master basic and recent professional skills in endocrinology, animal reproduction, hematology, immunology, digestion and metabolism, neurology, musculoskeletal system and other physiology branches.
- c.2.** Evaluate existing materials and methods in the area of experimental physiology and analysis to their own research project and evaluating physiological reports.
- c.3.** Perform experiments in physiology and analyze different methods and correlate between them.
- c.4.** Write, conclude and evaluate a professional and conclusive report about experimental animals in research design.

**d. General and transferable skills:**

*At the end of the programme, graduate must be able to:*

- d.1.** Communicate effectively with his professors, collages and animal owner(s).
- d.2.** Utilize different sources of knowledge and information.
- d.3.** Assess himself and identify his personal educational needs.
- d.4.** Demonstrate interpersonal skills and team working ability
- d.5.** Demonstrate an ability to learn independently for a career of lifelong learning.
- d.6.** Use information technology to serve the professional practice.
- d.7.** Manage time efficiently.
- d.8.** Set tools and indicators for assessment of the performance of others.

**5-Program structure:**

**a) Program duration (years):** Master degree from 2-4 years

**b) Premaster courses – at least one academic year**

Course	Lecture	Practical
--------	---------	-----------





	(hours/week)	(hours/week)
Fundamental (core) course	3	4
Research methodology	1	3
2-5 Elective Courses Offered by other departments and are selected from the list below according to thesis topic (10-12 hours)	5-6	5-6

c) Master of Veterinary Medicine Thesis (at least one academic year)

- All master-degree students should prepare a master thesis.
- The department and the ethical committees must approve the protocol of the research.
- The thesis should include a review part and a research part.
- The thesis is supervised by one or more senior staff members of the department responsible for the program and may include other specialties according to the nature of the research.
- The thesis should be evaluated and approved by a committee of three professors including one of the supervisors and an external professor.

- The elective courses are selected from the list below according to thesis topic:

Subject	Code	Course title	No of hours/week	
			Lecture	Practical Lab
Anatomy and embryology	101/1	<b>1- Applied anatomy</b>	2	2
	102/1	<b>2- Anatomical techniques and surface anatomy</b>	2	2
	103/1	<b>3- Osteology and arthrology</b>	2	2
	104/1	<b>4- Comparative digestive system</b>	2	2
	105/1	<b>5- Comparative uro-genital system</b>	2	2
	106/1	<b>6- Comparative respiratory system</b>	2	2
	107/1	<b>7- Comparative cardiovascular system</b>	2	2
	108/1	<b>8- Comparative nervous system and endocrine glands</b>	2	2
	109/1	<b>9- General and special embryology</b>	2	2
	110/1	<b>10- Avian anatomy</b>	1	2
Histology	111/1	<b>11- cytology and cytochemistry</b>	1	2
	112/1	<b>12- general histology</b>	2	2



	113/1	<b>13- Histology and histochemistry of blood, lymph and cardiovascular system.</b>	1	1
	114/1	<b>14- Comparative histology and histochemistry of body muscles, heart and blood vessels</b>	1	1
	115/1	<b>15- Comparative histology and histochemistry of respiratory system</b>	1	1
	116/1	<b>16-Comparative histology and histochemistry of digestive system</b>	2	2
	117/1	<b>17- Comparative histology and histochemistry of uro-genital system</b>	2	2
	118/1	<b>18- Comparative histology and histochemistry of nervous and endocrine systems</b>	2	2
	119/1	<b>19- Histology and histochemistry of special sensors</b>	1	2
	120/1	<b>20-Histology and histochemistry of skin, hooves, claws and Nails</b>	2	2
	121/1	<b>21- Avian histology</b>	2	2
	122/1	<b>22- Fish histology</b>	1	2
<b>Biochemistry</b>	134/1	<b>34- Basics of biochemistry</b>	2	3
	135/1	<b>35- Metabolism</b>	2	2
	136/1	<b>36- Biochemistry of tissue and body fluids .</b>	2	2
	137/1	<b>37- Biochemistry of hormones and reproduction</b>	2	2
	138/1	<b>38- Feeding biochemistry</b>	2	2
	139/1	<b>39- Clinical biochemistry</b>	2	2
	140/1	<b>40- Avian biochemistry</b>	2	2
	141/1	<b>41- Microbial biochemistry</b>	2	2
	142/1	<b>42- Biochemistry of radiation</b>	1	2
	143/1	<b>43- Fish biochemistry</b>		
<b>Animal behavior and management</b>	144/1	<b>44- Behavior and management of ruminants ( specific courses in cattle, buffalo, sheep, camels and goats)</b>	2	3
	145/1	<b>45- Behavior and management of horses</b>	2	3
	146/1	<b>46- Behavior and management of pet animals</b>	1	2
	147/1	<b>47- Behavior and management of laboratory animals</b>	1	2
	148/1	<b>48- Behavior and management of wild animals</b>	2	2
	149/1	<b>49- Behavior and management of poultry</b>	2	2
	150/1	<b>50- Behavior and management of rabbit</b>	1	2
	151/1	<b>51- Behavior of experimental animals</b>	1	2



Nutrition and clinical nutrition	152/1	<b>52- Basics of animal nutrition</b>	2	2
	153/1	<b>53- feedstuff</b>	2	2
	154/1	<b>54- nutrition of farm animals and fish specific courses in ( cattle and buffalo nutrition – sheep and goat nutrition – camel nutrition- equine nutrition – fish nutrition)</b>	2	2
	155/1	<b>55- poultry and rabbit nutrition( advanced)</b>	2	2
	156/1	<b>56- wild animal nutrition</b>	1	2
	157/1	<b>57- laboratory animal nutrition</b>	1	2
	158/1	<b>58- feed additives</b>	1	2
	159/1	<b>59- feedstuff analysis</b>	2	2
	160/1	<b>60- Quality control of feed and feed factories</b>	2	2
	161/1	<b>61- Clinical nutrition and malnutrition</b>	2	2
162/1	<b>62- Fish nutrition</b>	1	2	
Pathology	163/1	<b>63- General pathology and neoplasm( progressive)</b>	2	2
	164/1	<b>64-pathology of microbial and parasitic diseases in animal</b>	2	2
	165/1	<b>65- pathology of bad nutrition</b>	1	2
	166/1	<b>66- pathology of environmental pollution</b>	1	2
	167/1	<b>67- pathology of reproductive diseases</b>	1	2
	168/1	<b>68- Avian pathology</b>	2	2
	169/1	<b>69-Experimental pathology</b>	2	2
	170/1	<b>70- toxins pathology</b>	2	2
	171/1	<b>71- surgical pathology</b>	2	2
	172/1	<b>72- Pathology of experimental animals.</b>		
	173/1	<b>73- Pathology of genetics</b>		
	174/1	<b>74-- Fish pathology</b>	2	2
Clinical pathology	175/1	<b>75- Advanced clinical pathology</b>	2	2
	176/1	<b>76-Organ function tests and body and urine balance</b>	2	2
	177/1	<b>77- Clinical hematology and bone marrow examination</b>	1	2
Bacteriology, immunology and mycology	178/1	<b>78- General bacteriology(advanced)</b>	1	2
	179/1	<b>79-systemic bacteriology</b>	2	3
	182/1	<b>80- Advanced immunology</b>	2	2
	183/2	<b>81- Advanced mycology</b>	1	2
Virology	180/3	<b>82- General virology</b>	1	2
	181/4	<b>83-Systemic virology( specific courses)</b>	2	3
	182/5	<b>84- Advanced immunology</b>	2	2
Mixed courses between Bacteriology and	184/1	<b>85- Microbiology of poultry</b>	2	2
	185/1	<b>86- Microbiology of ??????</b>	1	2
	186/1	<b>87- Microbiology of animal product</b>	2	2



<b>Virology</b>	187/1	<b>88- Fish Microbiology</b>	1	2
		<b>81- Advanced immunology</b>	2	2
<b>Parasitology</b>	188/1	<b>89- Veterinary medical entomology and acarology</b>	2	2
	189/1	<b>90-helminthology</b>	2	2
	190/1	<b>91- protozoology</b>	2	2
	191/1	<b>92- Avian and rabbits parasitology</b>	2	2
	192/1	<b>93Malacology and its vet. Importance</b>	1	2
	193/1	<b>94- parasitic Immunology</b>	1	2
	194/1			
	195/1			
	196/1		-	-
	197/1	<b>98- Physiology and biochemistry of parasites</b>	2	2
	198/1	<b>99- Fish parasitology</b>	1	2
<b>Pharmacology</b>	199/1	<b>100- Aeneral pharmacology ( advanced)</b>	2	2
	200/1	<b>101- pharmacology of autonomic nervous system and autocoid</b>	2	2
	201/1	<b>102- pharmacology of central nervous system</b>	2	2
	202/1	<b>103 pharmacology of anesthesia</b>	2	2
	203/1	<b>104- Systemic pharmacology</b>	2	2
	204/1	<b>105- pharmacology of metabolism</b>	2	2
	205/1	<b>106- pharmacology of hormones</b>	2	2
	206/1	<b>107-Chemotherapy</b>	2	2
	207/1	<b>108-Biological evolution of drug</b>	1	1
<b>Hygiene and control of milk and dairy products</b>	208/1	<b>108- Hygiene and control of milk and dairy products</b>	2	2
	209	<b>109- Microbiology of milk and dairy products</b>	2	2
	210/1	<b>110- Milk technology and preservation</b>	2	2
	211/1	<b>111- Food analysis</b>	2	2
	212/1	<b>112- Food poisoning</b>	1	2
	213/1	<b>113- Specific courses on sources of contamination, disturbances of milk production, milk born diseases, hygiene of table egg, edible fats and oils</b>	1	1
	214/1	<b>114- The sanitation of dairy plant</b>	2	2
<b>Control of meat hygiene and their products</b>	215/1	<b>115- Slaughter animal Hygiene</b>	1	2
	216/1	<b>116- Abattoir management and hygiene</b>	2	2
	217/1	<b>117- Hygienic control of meat and their product</b>	2	2
	218/1	<b>118 inspection of poultry meat.</b>	1	2
	219/1	<b>119- Food technology</b>	1	2
	220/1	<b>120- Microbiology of meat and fish meats and their product</b>	2	1



	221/1	<b>121- Chilled meal microbiology</b>	1	2
	222/1	<b>122- Analysis of meat and fish and their product</b>	1	2
	223/1	<b>123- Preservation of meat, poultry, fish and their products</b>	1	2
	224/1	<b>124- Sanitation affairs of meat and fish plants.</b>	2	2
<b>Internal medicine</b>	225/1	<b>125- advanced general medicine</b>	2	2
	226/1	<b>126- disease of ruminants( cattle, buffalo, camels, sheep and goats)</b>	3	3
	227/1	<b>127- diseases of equines</b>	2	2
	228/1	<b>128 diseases of pet animals</b>	2	2
	229/1	<b>129- diseases of wild animals</b>	2	2
	230/1	<b>130- diseases of metabolic disorders</b>	2	2
	231/1	<b>131- nutritional deficiency diseases</b>	2	2
	232/1	<b>132- Skin diseases</b>	1	2
	233/1	<b>133 - diseases of newly born animals</b>	2	2
	234/ 1	<b>134- Stress diseases during animals transport.</b>		
<b>Infectious diseases</b>	235/ 1	<b>135- Infectious diseases of cattle</b>	2	2
	236/ 1	<b>136- Infectious diseases of sheep and goat</b>	2	2
	237/ 1	<b>137- Infectious diseases camel</b>	2	2
	238/ 1	<b>138 Infectious diseases of equine</b>	2	2
	239/ 1	<b>139- Infectious diseases of pet animals</b>	2	2
	240/ 1	<b>140- Infectious diseases lab animals</b>	1	2
	241/ 1	<b>141- Infectious diseases of udder and newly born animals</b>	2	2
	242/ 1	<b>142- Infectious diseases buffaloes</b>	2	1
	243/1	<b>143- Infectious diseases of wild animals.</b>		
<b>Forensic medicine and toxicology</b>	244/1	<b>144- Forensic medicine and veterinary procedures</b>	2	2
	245/1	<b>145- general toxicology</b>	2	2
	246/1	<b>146- environmental toxicology</b>	2	2
	247/1	<b>147- forensic toxicology</b>	2	2
	248/1	<b>148- laboratory diagnostic toxicology</b>	2	2
	249/1	<b>149- Drug toxicology</b>		
<b>Theriogenology</b>	250/1	<b>150- Female infertility (special specific courses in ruminants- equine- pet animals)</b>	2	2
	251/1	<b>151- Male infertility (special specific courses in ruminants- equine- pet animals)</b>	2	2
	252/1	<b>152- Genital diseases.</b>		
	253/1	<b>153 - obstetrics (special specific courses in farm and pet Animals)</b>	2	2
	254/1	<b>153- reproduction and immunity</b>	1	2



	255/1	<b>155- artificial insemination in ruminants</b>	2	2
	256/1	<b>156- artificial insemination in equine</b>	2	2
	257/1	<b>157- artificial insemination in pet animals</b>	1	2
	258/1	<b>158- embryo transfer</b>	1	2
<b>Veterinary Surgery</b>	259/1	<b>159- General surgery (advanced)</b>	2	2
	260/1	<b>160- Special surgery( organs)</b>	2	3
	261/1	<b>161- surgery of eye, ear, nose and larynx</b>	2	2
	262/1	<b>162 digestive system surgery</b>	2	2
	263/1	<b>163- surgery of the limbs, hoof and claws</b>	2	2
	264/1	<b>164- experimental surgery</b>	2	2
	265/1	<b>165- anesthesiology</b>	1	1
	266/1	<b>166- radiology and ultrasonography</b>	2	2
<b>Poultry and rabbit diseases</b>	267/1	<b>167- bacterial diseases of poultry</b>	2	2
	268/1	<b>168- viral diseases of poultry</b>	2	2
	269/1	<b>169- fungal diseases of poultry</b>	2	2
	270/1	<b>170 parasitic diseases of poultry</b>	1	2
	271/1	<b>171 - nutritional diseases of poultry</b>	1	2
	272/1	<b>172-diseases of rabbit (advanced)</b>	2	2
	273/1	<b>173-Diseases of wild and migrating birds</b>	2	2
	274/1	<b>174- Preventive vaccines and their evaluation in poultry</b>	2	2
	275/1	<b>175- Laboratory diagnosis of poultry diseases.</b>		
<b>Animal and environmental hygiene</b>	276/1	<b>176- farm animal hygiene ( advanced)</b>	2	2
	277/1	<b>177- poultry hygiene ( advanced)</b>	2	2
	278/1	<b>178- environmental hygiene and pollution</b>	2	2
	279/1	<b>179- control of contagious diseases</b>	2	2
	280/1	<b>180- eradication of rodents and disease vector</b>	2	2
	281/1	<b>181- insecticides and public health</b>	2	2
	282/1	<b>182-hygiene of animal enclosures- specific courses in :- cattle houses – poultry houses – rabbit houses- pet animals house3s – experimental animals houses</b>	2	2
	283/1	<b>183-disinfections and disinfectants</b>	2	2
	284/1	<b>184- veterinary epidemiology – specific courses in animal environment</b>	2	-
<b>Zoonoses</b>	285/1	<b>185- advanced zoonoses ( specific courses in bacterial and Mycotic diseases – viral diseases – parasitic diseases)</b>	2	2
	286/1	<b>186- role of rodents in transmission of zoonoses</b>	2	2
	287/1	<b>187- role of wild animals in transmission of zoonoses</b>	2	2
	288/1	<b>188- role of birds (special courses in: poultry,</b>		



		wild migrating or pets) in transmission of zoonoses		
<b>Genetics and genetic engineering</b>	289/1	<b>189- Genetics of microorganisms .</b>	1	2
	290/1	<b>190- Genetic engineering( advanced)</b>	1	2
	291/1	<b>191- Cytological genetics</b>	1	-
	292/1	<b>192- Genetics of genuses.</b>	2	-
	293/1	<b>193- physiological genetics</b>	2	-
	294/1	<b>194- Chemical and radiological genetics.</b>	1	2
<b>Animal production</b>	295/1	<b>195- Animal breeding and improvement (advanced).</b>	2	-
	296/1	<b>196- Poultry breeding and improvement(advanced).</b>	2	-
	297/1	<b>197- Cattle and buffalo production (advanced).</b>	2	2
	298/1	<b>198- Sheep and goat production (advanced).</b>	2	2
	299/1	<b>199- Poultry production (advanced).</b>	2	2
	300	<b>200-Rabbit production (advanced).</b>	2	2
	301	<b>201-Improving by artificial insemination in poultry and rabbits.</b>	2	2
<b>Fish diseases and management</b>	302/1	<b>202- Biology of fish.</b>	2	2
	303/1	<b>203-Fish diseases (advanced)</b>	2	2
	304/1	<b>204-Fish farms.</b>	1	2
	305/1	<b>205-Fish breeding .</b>	2	2
<b>Economic and farms management</b>	306/1	<b>206- economics of animals and dairy production</b>	2	-
	307/1	<b>207- economics of poultry farms</b>	2	-
	308/1	<b>208-economics of fish farms</b>	2	-
	309/1	<b>209- feasibility studies</b>	2	-
	310/1	<b>210- farm management</b>	2	-
	311/1	<b>211- economics of beef production</b>	2	-
<b>Biostatistics</b>	312/1	<b>212- Biostatistics (advanced)</b>	2	-
	313/1	<b>213- Experimental design</b>	2	2
	314/1	<b>214- Computer and data processing</b>	2	1

## 6-Teaching and Learning:

The program features a variety of teaching approaches for different intended learning objectives, including a combination of lectures, seminars, presentation, practical lab assignments, research work and library work leading to write thesis. Teaching staff specifically refer to reference



studies in physiology illustrate important theoretical, ethical, methodological and practical issues to the students.

**7- Students assessments:**

The program depends on different assessment ways:

**a. Course assessment:**

<b>1- Written examination</b>	<b>For assessment of knowledge, back calling and Intellectual skills</b>
<b>2- Practical examination</b>	<b>For assessment of practical and professional skill</b>
<b>3- Oral examination</b>	<b>For assessment of knowledge and Intellectual skills</b>

**b. Master Thesis**

- Annual reports adopted by the Faculty

Finally, the assessment of thesis measure the individual student ability to work independently in the field specialization

- Final evaluation and approval by a judging committee of at least three professors including one or more of the supervisors and an external professor. This assesses the ability to write a review article, perform the needed practical steps and to present the results in tables and graphs. In addition, the skills of analysis of results and discussion with previous findings obtained by other authors are also assessed.

*Assessment of program intended learning outcomes*

<b>Tool or method</b>	<b>ILOs</b>
Written	a.1, a.2, b1, b2,b3
Oral	a.1, a.2, b1, b2,b3
Practical	c1,c2;
Thesis	a3-a6;b4 –b7; c3-4; d1-8

**8. Marking scale as follow:-**

<b>Excellent</b>	> 90
<b>Very good</b>	>80
<b>Good</b>	>70





<b>Pass</b>		>60
<b>Fail</b>	<b>Weak</b>	45 to less than 60
	<b>very weak</b>	Less than 45

### 9. Program evaluation methods

Evaluator	Tool	Sample
Postgraduate Student	Questioners	20%
	meeting	1
Postgraduate alumni	Questioners	5
Stakeholders (employers)	Questioners	10
	Meeting	1
External evaluator/External examiner	Reports	1

### 10. Program Admission Requirements:

The Applicant must normally satisfy the faculty of veterinary medicine- kafrelsheikh University general entrance and requirement. The normal minimum entrance qualification for registration at the faculty on a master's program

- 1- Bachelor degree in Veterinary Medical Sciences of one of the Egyptian Universities or hold a degree in Veterinary Medical Sciences equivalent through the Supreme Council of Universities with general grade at least "Good" and at least grade "Very Good" in specialization.
- 2- Diploma of general grade at least "Good" and at least grade "Very Good" in specialization. The total number of study hours must be not less than 3 weekly in that specialization.
- 3- After he has passed the courses studied during premaster he must perform a research work in a subject approved by the faculty council at least for one year. He must submit the results of this work in thesis that should be approved by the discussion committee.

### 11. Regulations for progression of program

- a) Registration period for the Master in veterinary medicine is at least 2 years after the approval date by the faculty council and it should not exceed a period of 4 years, an extension could be approved by the faculty council depending on the supervisor report that approved by the department council and postgraduate and research committee refers to the universities regulation law.
- b) The student should conduct the courses proposed by both department council and approved by postgraduate and research committee and faculty council and include, 2-5 courses of the postgraduates stated in article (28) in regulation law



list and the student will be entitled to apply for the exam only after meeting attendance rate for each course.

- c) The student should pass written, practical and oral exams successfully in all courses, and the examination is held two times annually.
- d) The Faculty council should deprive the student from entering the exam if his attendance rate in the course is less than 75%.
- e) Failure or depriving from entering one or more course did not require reexamination of successful passed courses.
- f) The applicant should conduct an innovative research on the subject that has been registered for at least 2 years from the date of registration approved by the faculty council. And the faculty council depending on a request from the supervisor has the right to authorize the student to do scientific experiments at recognized scientific institute.
- g) The applicant should submit the thesis that accepted by the judging committee in an open discussion and the following policies should be met:
  - h) Pass all courses.
  - i) The applicant should submit 4 copies of his thesis concerned department council to form committee examining the thesis to be presented to the postgraduate studies committee and the faculty council, and in case of thesis approval by the department council, the applicant will submit 6 copies for the faculty library, 1 copy for public university library before introducing the report of examination committee to the post graduate studies committee and the faculty council.
  - j) Registration will be during March and September of each year.
  - k) The applicant should submit a request enrolment for the dean who forwards it to the concerned department council to determine the research subject and the study program and then take calendar after complete documentation on the faculty council for approval.
  - l) The thesis title should be identified before being submitted at least 2 months and the judging committee has the right to amend the title without prejudice the subject of research.
  - m) The Faculty council has the right to suspend the student enrolment for a certain period if he has acceptable excuse preventing him from continuing his study or research, and his period will not counted within the period stated in article 25.
  - n) The applicant should submit 5 hard copies and 10 electronic copies (CDs) of the thesis after its validity approved by the judging committee and head of



department to be distributed to the committee members and faculty library and the judging committee can decide the exchange of the thesis with other universities or printing at the expense of the university.

**12. Registration will be cancelled in one of the following cases:**

1. If the supervisors report during the registration period is unsatisfactory (2 reports).
2. If he did not submit his thesis before the end of registration period.
3. If the judging committee rejected the thesis twice.

**13. Examination Regulations**

**a-** Time of written exam, 3 hours for each course that has 3 hours or more for lecture / practical /week. **If has less than 3 hours/week, the time of exam, is 2 hours only.**

**b-**The final degree of each course which has 3 hours (lecture and practical) per week is **100 and less than 3 hours is 50 degrees and divided into 50% for written exam, and 50% for practical and oral exam.**

**14. Program completion:**

- Successfully completion of the required courses and submission of a thesis.

**Program Coordinator**

**Prof. Dr. Mishel Fahmy saad**

**Head of Department**

**Prof.Dr. Shawky Abdelhady Mahmoud**



## Matching program ILOs with ARS - Matrix

Program ILOs	ARS																											
	K&U (a)						I.S. (b)							P.P. (c)				G.T. (d)										
	1	2	3	4	5	6	1	2	3	4	5	6	7	1	2	3	4	1	2	3	4	5	6	7	8			
K&U	1	2	3	4	5	6																						
.I.S							1	2	3	4	5	6	7															
.P.P														1	2	3	4											
.G.T																		1	2	3	4	5	6	7	8			





Kafrelsheikh University  
Faculty of Veterinary Medicine  
Department of Physiology



## ARS for Master in Veterinary Medical Sciences (Physiology)

### 1) Graduate attributes

*The graduate should have the ability for:*

- 1) Apply the gained specific knowledge in professional practice.
- 2) Identify the professional problems and suggest solutions of the focus area.
- 3) Apply and use analytical methods in the area of specialization.
- 4) Apply efficiently the basics and methodologies of scientific research with the use of its different tools.
- 5) Communicate effectively and lead work team through professional scale.
- 6) Make decision under different professional situations
- 7) Use of the available resources efficiently
- 8) Be aware with the ongoing problems and modern concepts in the area of specialization.
- 9) Be aware with his role in society development and community preservation.
- 10) Reflect the commitment to act with integrity, credibility, and the rules of profession
- 11) Realize the importance of self and life-long learning and progress.
- 12) Master an appropriate domain in specialized professional skills and use modern technology to serve professional practice.

### A) Knowledge and understanding

Adopted ARS		NARS (Master)	
	<i>By the end of this program the graduate should understand and accommodate the following:</i>		<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Theories and principles in the field of Animal physiology and related fields.		Theories and principles in the field of specialization and related fields.
2)	The impact of physiological practice on Veterinary profession in general and in special.		Mutual effect between professional practice and its impact on environment

3)	Scientific progress in the field of physiology	Scientific progress in the field of specialization
4)	The basics and principles of quality assurance in the area of physiology	Legal and ethical basics in professional practice in the field of specialization
5)	Basics and ethics of scientific physiological research.	Principles and basics of quality assurance in the area of specialization
6)	Legal and ethical basics in the field of physiology.	Basics and ethics of scientific research

## B) Intellectual skills

Adopted ARS		NARS (Master)
	<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Interpreting the obtained data in the master experimental work to get the ideal information and relate different knowledge with the research results.	Analysis and judgment of information in the field of specialization and analog to solve problems.
2)	Solving problems in physiology even in rarity of resources through contact with professional anatomical experts.	Solving professional problems even in scarcity of data.
3)	Combining between physiology and related knowledge to solve professional anatomical problems.	Relating between different knowledge to solve professional problems.
4)	Contributing to preparing research plan in physiology and/ or write scientific article on an anatomical problem.	Preparing research plan in specialization and/ or writing scientific article on a research problem.
5)	Evaluating risks of professional practices in physiology and their possible consequences.	Risk-assessment of professional practices in specialization.
6)	Planning for improvement of professional dissecting performance.	Planning for improvement of professional performance.
7)	Making professional decisions in a variety of professional physiological cases with the ability to meet new challenges.	Taking professional decisions in a variety of professional contexts.

## C) Professional and practical skills

Adopted ARS		NARS (Master)
	<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and accommodate the following:</i>





1)	Using of recent techniques in endocrinology, animal reproduction, hematology, immunology, digestion and metabolism, neurology, musculoskeletal system and other branches of Physiology	Mastering basic and recent professional skills in the field of specialization
2)	Application of the principles of good experimental design and analysis to their own research project and evaluating physiological reports	Writing and evaluating professional reports.
3)	Planning a research project in the field of veterinary physiology using suitable materials and methods in the area of specialization.	Evaluating existing materials and methods in the area of specialization.
4)	Using modern technological means to serve animal laboratory diagnosis for different physiological parameters	

#### D) General and transferable skill

Adopted ARS		NARS (Master)
	<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Communicating effectively with teaching staff, colleagues and the community.	Effective communication.
2)	Using information technology in scientific research and publications.	Utilizing information technology to serve development of professional practice.
3)	Demonstrating appropriate attitude towards teaching staff and colleagues.	Self-assessment and determination of personal educational needs.
4)	Identifying and use different sources of information and knowledge.	Using different resources to obtain knowledge and information.
5)	Using appropriate attitude and rules towards teaching staff and colleagues and use evidence based evaluations.	Establishing rules and indicators for assessment of the performance of others.
6)	Respecting the importance of team work.	Team working and leading a team in familiar professional contexts.
7)	Doing good control of timing.	Efficient time management.
8)	Performing continuous self-learning.	Self and continuous learning.

## ثانيا :برامج الماجستير

### ١- مواصفات الخريج

- خريج برنامج الماجستير في أي تخصص يجب أن يكون قادرا على:
١. إجادة تطبيق أساسيات و منهجيات البحث العلمي واستخدام أدواته المختلفة
  ٢. تطبيق المنهج التحليلي واستخدامه في مجال التخصص
  ٣. تطبيق المعارف المتخصصة و دمجها مع المعارف ذات العلاقة في ممارسته المهنية
  ٤. إظهار وعيا بالمشاكل الجارية و الرؤى الحديثة في مجال التخصص
  ٥. تحديد المشكلات المهنية و إيجاد حلول لها
  ٦. إتقان نطاق مناسب من المهارات المهنية المتخصصة، واستخدام الوسائل التكنولوجية المناسبة بما يخدم ممارسته المهنية
  ٧. التواصل بفاعلية و القدرة على قيادة فرق العمل
  ٨. اتخاذ القرار في سياقات مهنية مختلفة
  ٩. توظيف الموارد المتاحة بما يحقق أعلى استفادة و الحفاظ عليها
  ١٠. إظهار الوعي بدوره في تنمية المجتمع و الحفاظ على البيئة في ضوء المتغيرات العالمية و الإقليمية
  ١١. التصرف بما يعكس الالتزام بالنزاهة و المصادقية و الالتزام بقواعد المهنة
  ١٢. تنمية ذاته أكاديميا و مهنيا و قادرا على التعلم المستمر

### ١٢ - المعايير القياسية العامة

#### ١ المعرفة و الفهم

- بانتهاج دراسة برنامج الماجستير يجب ان يكون الخريج على فهم و دراية بكل من:
- أ- النظريات و الأساسيات المتعلقة بمجال التعلم وكذا في المجالات ذات العلاقة
  - ب- التأثير المتبادل بين الممارسة المهنية وانعكاسها علي البيئة
  - ت- التطورات العلمية في مجال التخصص
  - ث- المبادئ الأخلاقية و القانونية للممارسة المهنية في مجال التخصص
  - ج- مبادئ و أساسيات الجودة في الممارسة المهنية في مجال التخصص
  - ح- أساسيات و أخلاقيات البحث العلمي

#### ٢ المهارات الذهنية

بانتهاج دراسة برنامج الماجستير يجب ان يكون الخريج قادرا على:



- أ- تحليل و تقييم المعلومات في مجال التخصص و القياس عليها لحل المشاكل  
ب- حل المشاكل المتخصصة مع عدم توافر بعض المعطيات  
ت- الربط بين المعارف المختلفة لحل المشاكل المهنية  
ث- إجراء دراسة بحثية و /أو كتابة دراسة علمية منهجية حول مشكلة بحثية  
ج- تقييم المخاطر في الممارسات المهنية في مجال التخصص  
ح- التخطيط لتطوير الأداء في مجال التخصص  
خ- اتخاذ القرارات المهنية في سياقات مهنية متنوعة
- ٣ المهارات المهنية**

- بانتهاء دراسة برنامج الماجستير يجب ان يكون الخريج قادرا على:  
أ- إتقان المهارات المهنية الأساسية و الحديثة في مجال التخصص  
ب- كتابة و تقييم التقارير المهنية  
ت- تقييم الطرق و الأدوات القائمة في مجال التخصص
- ٤ المهارات العامة و المنتقلة**

- بانتهاء دراسة برنامج الماجستير يجب أن يكون الخريج قادرا على:  
أ- التواصل الفعال بأنواعه المختلفة  
ب- استخدام تكنولوجيا المعلومات بما يخدم الممارسة المهنية  
ت- التقييم الذاتي و تحديد احتياجاته التعليمية الشخصية  
ث- استخدام المصادر المختلفة للحصول على المعلومات و المعارف  
ج- وضع قواعد و مؤشرات تقييم أداء الآخرين  
ح- العمل في فريق ، وقيادة فرق في سياقات مهنية مختلفة  
خ- إدارة الوقت بكفاءة  
د- التعلم الذاتي و المستمر

## Course specification (2021 / 2022)

### 1 - Basic Information:

**Course title:** Basic Physiology.

**Code:** -----

**Academic Year:** Master Degree of Veterinary Medicine (Physiology).

**Total teaching hours:** 336 hrs.

Lectures: 144 hrs. (48 weeks- 3hrs/week)

Practical: 192 hrs. (48 weeks- 3hrs/week)

### 2 - OVERALL AIMS OF THE COURSE:

*By the end of this course, the student should acquire the concepts, principles and skills related to: physiology of blood and lymphatic, Respiratory and Urinary systems in different animals and reproductive physiology which serves as the basis for production and mechanisms that regulate the reproduction in male and female, lactation, avian and fish physiology.*

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE AND UNDERSTANDING:

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

- a.1. Define the basic terms in the fields of animal physiology, endocrine and reproduction
- a.2. Describe different body cells functions of poultry, fish., and ruminants
- a.3. Define of different physiological expressions for high altitude and pollution
- a.4. Explain and illustrate the relationship between different functions blood, muscles, digestion and adaptation

#### 3-B: INTELLECTUAL SKILLS:

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

- b1. Interpret of reference values of each of body functions.
- b2- discriminate abnormal animals and increase its productivity and reproductively.
- b3. Analyze the results and reach specific conclusion.

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

- c1. Perform mean of collection and storage of various body fluid samples.
- c2. Design of physiological experiments.
- c3. Apply different body function tests.
- c4. Diagnose of different body function tests.

#### 3- D: GENERAL SKILLS:

*By the end of studying the course, the graduate should be able:*

- d1. Coach and work in group.
- d2. Classify different duties.
- d3. Utilize computer and internet skills.
- d4. Develop the ethical behaviors between students and staff members as well as among the students themselves.

#### 4 - COURSE CONTENTS:

Topic	No. of hours		
	Lecture	Practical	Total
Physiology of endocrine glands and reproduction in mammals	14	24	38
Poultry Physiology	14	24	38
Physiology of Muscles & Nerves	16	24	40
Physiology of Ruminants	16	24	40
Physiology of Blood	16	26	42
Physiology of Digestion and metabolism	16	18	34
Fish Physiology	16	18	34
Physiology of adaptation and environment	16	18	34
Physiology of pollutions	10	8	18
Physiology of high altitudes	10	8	18
total	144	192	336

#### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library

Making individual reports about Animal physiology

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a5	b1 to b4		d1, d4
Practical sessions		b1 to b4	c1 to c5	d2, d4
Self-Learning activities				d2, d3, d4
Distance Teaching and Learning	a1 to a5	b1 to b4	c1 to c5	d1 to d4

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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.

#### 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:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	Allover the academic year
<b>7.c grads</b>	50	20	20	10

7. Student Assessment				
Intended Learning Outcomes Covered				
6.1. Methods	KU	IS	PPS	GTS
Written exams	a1 to a5	b1 to b4		d4
Practical exams			c1 to c5	d2, d3
Oral exams	a1 to a5	b1 to b4		d1
Student activities	a1, a5,			d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Essential Books

- Animal Physiology. Richard W Hill , Gordon A Wyse , Margaret Anderson (4th Ed)  
ISBN: 9781605357379 Edition: 4 Paperback Oct 2017
- Principles of Animal Physiology (2016) 3rd edition. Christopher D. Moyes, Patricia M. Schulte
- Principles of Animal Physiology (2018) 3rd edition, Christopher D. Moyes, Patricia M. Schulte
- Eckert Animal Physiology: Mechanisms and Adaptations (1997) 4<sup>th</sup> Ed, David Randall , Warren Burggren
- Functional Anatomy and Physiology of Domestic Animals, (2017) 5th Edition, William O. Reece, Eric W. Rowe
- Cunningham's Textbook of Veterinary Physiology, 6th Edition - January 3, 2019
- Dukes' Physiology of Domestic Animals, (2015) 13th Edition, William O. Reece (Editor), , Jesse P. Goff , Etsuro E. Uemura
- COMPARATIVE ANIMAL PHYSIOLOGY (2020) 1st Edition, by Philip C. Withers Anatomy and Physiology of Farm Animals, 8th Edition, Anna Dee Fails, Christianne Magee
- Essentials of Animal Physiology, (2007) S. C. Rastogi
- Equine Exercise Physiology (2002), David Marlin, Kathryn J. Nankervis
- Guyton and Hall Textbook of Medical Physiology (Guyton Physiology) (2022) 14th Edition, by John E. Hall PhD , Michael E. Hall MD MSc.
- Sturkie's Avian Physiology (2015) • Sixth Edition • 2015
- The Physiology of Fishes (2016), By Suzanne Currie, David H. Evans

### 8-2: Recmonded books:

- Ruchebusch, Y., Phaneuf, I. and Dunlop, R. (1991) Physiology of small and large Animals. B.C. Decker, Inc, Philadelphia, Hamilton.
- Swenson M.J, Reece, W.O. and Comstock (1993) Duke's Physiology of Domestic Animals. 11th edition, publishing Associates a division of Cornell University press. Ithaca and London.
- Gummingham, J. (1992) Text book of Veterinary Physiology. W.B. Saunders Company, Toronto, Montreal, Tokyo.
- Guyton, A. (1991) Text book of Medical physiology. 8th, W.B. Saunders Company.
- Ganong, W.F. (1989) Review of Medical Physiology. 9th (Middle East edition) Appleton and Lang.
- 8.2.f- Periodicals, Web Sites, ... etc.

### **8-3: Egyptian Knowledge Bank:**

- Animal Physiology, Beaver, BV and Höglund, DL. 2016. Academic Press, Elsevier Inc.
- Animal Physiology: An Environmental Perspective, by Patrick J. Butler, J. Anne Brown, et al. | Sep 23, 2020. Academic Press, Elsevier Inc.
- Principles of Animal Physiology, by Christopher Moyes and Patricia Schulte | Jan 15, 2015. Academic Press, Elsevier Inc.
- Animal Physiology: From Genes to Organisms, by Lauralee Sherwood, Hillar Klandorf, et al. | Jan 1, 2012. Academic Press, Elsevier Inc.
- Anatomy and Physiology of Farm Animals, by Anna Dee Fails and Christianne Magee | Jul 11, 2018. Academic Press, Elsevier Inc.
- Veterinary Anatomy Coloring Book: Animal Anatomy and Veterinary Physiology Coloring Book Vet Tech, Summer Sparks | Sep 22, 2020. Academic Press, Elsevier Inc.
- Functional Anatomy and Physiology of Domestic Animals, by William O. Reece and Eric W. Rowe | Aug 14, 2017, Academic Press, Elsevier Inc.
- Introduction to Animal and Veterinary Anatomy and Physiology, by Victoria Aspinall and Melanie Cappello | Dec 12, 2019. Academic Press, Elsevier Inc.
- Eckert Animal Physiology: Mechanisms and Adaptations, by David Randall | Nov 1, 2001, Academic Press, Elsevier Inc.
- Animal Physiology: Adaptation and Environment, by Knut Schmidt-Nielsen | Apr 10, 1997. Academic Press, Elsevier Inc.
- Das, DN. Paul, D. and Mondal, S. 2022. Emerging Issues in Climate Smart Livestock Production. Biological Tools and Techniques. Academic Press, Elsevier Inc.
- Avian (Poultry) Production: 2nd Revised and Enlarged Edition, by D. Sapkota, D. Narahari, J.D. Mahanta, 2017.
- Poultry Health: A Guide for Professionals, by Paul Barrow, Venugopal Nair, Susan Baigent, Robert Atterbury, Michael Clark, 2021.
- Poultry Science, 5th Edition, by Colin G. Scanes, Karen D. Christensen, 2019.

### **8.4. Scientific Journals**

- Animals
- Animal physiology and biochemistry
- Cells
- Life science
- Fish physiology and biochemistry
- Stress
- Biomedicine
- Animal reproduction science
- Aquaculture

- Veterinary sciences
- Scientific report
- .frontier in veterinary science
- Journal of Animal Science.
- Livestock Production Science.
- British Journal of Animal Science.
- Egyptian Poultry Science
- Poultry Science Association
- American journal of poultry science
- British Poultry Science
- International journal of Poultry Science.
- Journal of Applied Poultry Research

### 8.5. Scientific websites

- The Egyptian Knowledge Bank: <https://www.ekb.eg/web/guest/home>
- <https://animalphys4e.sinauer.com/>
- <https://teachmephysiology.com/>
- <https://www.nature.com/subjects/animal-physiology>
- <https://sites.msudenver.edu/haysc/biology-courses/animal-physiology-bio-3360/>
- <https://www.acsedu.com/Courses/animal-biology-animal-husbandry-i-599.aspx>
- <https://animalphys4e.sinauer.com/quiz/>
- <https://askabiologist.asu.edu/explore/animal-physiology>
- <https://www.sinauer.com/media/wysiwyg/tocs/AnimalPhysiology3.pdf>
- <https://www.sciencedirect.com/topics/agricultural-and-biological-sciences/animal-physiology>
- <https://library.ivytech.edu/c.php?g=869309&p=6239318>
- DeLaval Dairy Supply. <http://www.delaval.com/en/-/Dairy-knowledge-and-advice/>
- Lactation Biology: <http://classes.aces.uiuc.edu/ansci308/index.html>
- Heat Detection and Timing of Insemination for Cattle. Penn State, College of Agricultural Sciences, Cooperative Extension. <https://extension.psu.edu/heat-detection-and-timing-of-insemination-for-cattle> accessed 08/09/2017.
- National Dairy Database: <http://www.inform.umd.edu:8080/edres/topic/agr/ndd>
- The Babcock Institute: <http://babcock.cals.wisc.edu>
- WWW Virtual Library for Dairy Production\* (Oklahoma). <http://www.ansi.okstate.edu/library/dairy/>
- US Dairy Export Council: <http://www.usdec.org/about/whoweare.htm>
- The International Dairy Federation (IDF): <http://www.fil-idf.org/>
- Managing of dairy heifers: <http://www3.das.psu.edu/dcn/calfmgt/385/index.html>
- Management Practices Associated with High-Producing U.S. Dairy Herds (USDA): [http://www.aphis.usda.gov/vs/ceah/cahm/Dairy\\_Cattle/drymgmt.htm](http://www.aphis.usda.gov/vs/ceah/cahm/Dairy_Cattle/drymgmt.htm)
- A beginners guide to raising sheep <http://www.sheep101.info/201/feedwaterequip.html>
- <http://www.thepoultrysite.com/>

**Course Coordinator:**

**Dr. Mustafa Shukry Atta**

**Head of Department:**

**Prof. dr. Shawky Abdelhady Mahmoud**





## Course specification (2021 / 2022)

### 1 - Basic Information:

Code number: 123/1

Course title: **Physiology of mammalian endocrine glands and reproduction**

Academic Year: **Master of Veterinary Medicine Program**

Total teaching hours: 192 hrs.

Lectures: 96 hrs. (48 weeks- 2hrs/week)

Practical: 96 hrs. (48 weeks- 2hrs/week)

### 2 - OVERALL AIMS OF THE COURSE:

*By the end of this course, the student should acquire the concepts, principles and skills related to veterinary endocrinology and reproduction and the hormone nature, types of hormones, hormonal cycle, types of hormone receptors and hormone functions.*

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING: :

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

- a1- Describe the location and structure of each endocrine glands.
- a2- Explain the functional relationships of hypothalamus and pituitary gland.
- a3- Identify the hormones hormonal cycle and mechanism of action.
- a4- Discuss pancreatic , adrenal hormones and abnormal levels of secretion.
- a5 List physiology of thyroid and parathyroid.
- a6- Recognize the molecular mechanism of Pineal gland Local hormones.
- a7- Define the basic knowledge about the male and female reproductive systems physiology, regulation and the endocrine factors that participate in normal sexual drive and fertility and the factors that may cause dysfunctions, infertility or sterility

#### 3-B: INTELLECTUAL SKILLS:

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

- b1- deal with ethical and professional issues pertaining to large and small animal production.
- b2- compare the physiological effects and mechanism of action of hormones regulating body functions.
- b3- evaluate the subjects related to endocrinology and reproduction in the form of seminars, reports and presentations.
- b4- Interpret any endocrine and reproductive situation concerning the endocrine or the reproductive systems in the animal body.
- b5- Analyze different hormones in animal body and interpret the disorders.

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

- c.1. Perform techniques for hormone level measurement.
- c.2. Determine semen analysis.
- c.3. Use methods of estrus detection

#### 3- D: GENERAL SKILLS:

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

D1-Coach and work in group.

D2-Classify different duties.

D3-Utilize computer and internet skills.

D4-Develop the ethical behaviors between students and staff members as well as among the students themselves.

#### 4 - COURSE CONTENTS:

TOPIC	Total hours	Hours for lecture	Hours for practical
Hormone cycle and mechanism of hormonal action	10	10	-
Hypothalamus and Pituitary gland	60	30	30
Thyroid gland and Parathyroid gland	45	22	23
The pancreases and the adrenal gland	24	16	8
Pineal gland Local hormones	15	5	10
Endocrine of function of ovaries and uterus	23	8	15
Endocrine of tastes, normal sexual drive and fertility and ster	15	5	10
Total	192	96	96

#### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library

Making individual reports about Physiology of mammalian endocrine glands and reproduction

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures *	a1 to a7	b1 to b5		d1, d4
Practical sessions		b1 to b5	c1 to c3	d2, d4
Self-Learning activities				d2, d3, d4
Distance Teaching and Learning	a1 to a7	b1 to b5	c1 to c3	d1 to d4

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	Allover the academic year
<b>7.c grads</b>	50	20	20	10

7.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a7	b1 to b5		d4
Practical exams			c1 to c3	d2, d3
Oral exams	a1 to a6	b1 to b5		d1
Student activities				d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Essential Books

- Animal Physiology. Richard W Hill , Gordon A Wyse , Margaret Anderson (4th Ed) ISBN: 9781605357379 Edition: 4 Paperback Oct 2017
- Principles of Animal Physiology (2018) 3rd edition, Christopher D. Moyes, Patricia M. Schulte
- Eckert Animal Physiology: Mechanisms and Adaptations (1997) 4<sup>th</sup> Ed, David Randall , Warren Burggren
- Functional Anatomy and Physiology of Domestic Animals, (2017) 5th Edition, William O. Reece, Eric W. Rowe
- Cunningham's Textbook of Veterinary Physiology, 6th Edition - January 3, 2019
- Dukes' Physiology of Domestic Animals, (2015) 13th Edition, William O. Reece (Editor), , Jesse P. Goff , Etsuro E. Uemura
- COMPARATIVE ANIMAL PHYSIOLOGY (2020) 1st Edition, by Philip C. Withers Anatomy and Physiology of Farm Animals, 8th Edition, Anna Dee Fails, Christianne Magee
- Essentials of Animal Physiology, (2007) S. C. Rastogi
- Equine Exercise Physiology (2002), David Marlin, Kathryn J. Nankervis
- Guyton and Hall Textbook of Medical Physiology (Guyton Physiology) (2022) 14th Edition, by John E. Hall PhD , Michael E. Hall MD MSc.

- Sturkie's Avian Physiology (2015)• Sixth Edition • 2015
- The Physiology of Fishes (2016), By Suzanne Currie, David H. Evans

### **8-2: Recmended books:**

- Ruchebusch,Y., Phaneuf, I. and Dunlop,R (1991) Physiology of small and large Animals. B.C.Decker ,Inc, Philadelphia, Hamilton.
- Swensonm M.J, Reece, W.O. and Comstock (1993) Duke's Physiology of Domestic Animals. 11th edition, publishing Associates a division of Cornell University press. Ithaca and London.
- Gunningham, J. (1992) Text book of Veterinary Physiology. W.B. Saundero Company, Toronto, Montreal, Tokyo.
- Guyton, A. (1991) Text book of Medical physiology. 8th, W.B. Saundero Company.
- - Ganong, W.F. (1989) Review of Medical Physiology. 9th (Middle East edition) Appleton and Lang.
- 8.2.f- Periodicals, Web Sites, ... etc.

### **8-3: Egyptian Knowledge Bank:**

- Animal Physiology,Beaver, BV and Höglund, DL. 2016. Academic Press, Elsevier Inc.
- Animal Physiology: An Environmental Perspective,by Patrick J. Butler, J. Anne Brown, et al. | Sep 23, 2020. Academic Press, Elsevier Inc.
- Principles of Animal Physiology ,by Christopher Moyes and Patricia Schulte | Jan 15, 2015. Academic Press, Elsevier Inc.
- Animal Physiology: From Genes to Organisms,by Lauralee Sherwood ,Hillar Klandorf, et al. | Jan 1, 2012. Academic Press, Elsevier Inc
- Anatomy and Physiology of Farm Animals,by Anna Dee Fails and Christianne Magee | Jul 11, 2018. Academic Press, Elsevier Inc.
- Veterinary Anatomy Coloring Book: Animal Anatomy and Veterinary Physiology Coloring Book Vet Tech, Summer Sparks | Sep 22, 2020. Academic Press, Elsevier Inc
- Functional Anatomy and Physiology of Domestic Animals.by William O. Reece and Eric W. Rowe | Aug 14, 2017, Academic Press, Elsevier Inc
- Introduction to Animal and Veterinary Anatomy and Physiology,by Victoria Aspinall and Melanie Cappello | Dec 12, 2019. Academic Press, Elsevier Inc
- Eckert Animal Physiology: Mechanisms and Adaptations,by David Randall | Nov 1, 2001, Academic Press, Elsevier Inc
- Animal Physiology: Adaptation and Environment.by Knut Schmidt-Nielsen | Apr 10, 1997. Academic Press, Elsevier Inc.
- Das, DN. Paul, D. and Mondal, S. 2022. Emerging Issues in Climate Smart Livestock Production. Biological Tools and Techniques. Academic Press, Elsevier Inc.
- Avian (Poultry) Production: 2nd Revised and Enlarged Edition, by D. Sapkota, D. Narahari, J.D. Mahanta, 2017.
- Poultry Health: A Guide for Professionals, by Paul Barrow, Venugopal Nair, Susan Baigent, Robert Atterbury, Michael Clark, 2021.
- Poultry Science, 5th Edition, by Colin G. Scanes, Karen D. Christensen, 2019.

### **8.4. Scientific Journals**

- Animals
- Animal physiology and biochemistry
- Cells
- Life science
- Stress



- Biomedicine
- Animal reproduction science
- Veterinary sciences
- Scientific report
- .frontier in veterinary science
- Journal of Animal Science.
- Livestock Production Science.
- British Journal of Animal Science.

#### 8.5. Scientific websites

- The Egyptian Knowledge Bank: <https://www.ekb.eg/web/guest/home>
- <https://animalphys4e.sinauer.com/>
- <https://teachmephysiology.com/>
- <https://www.nature.com/subjects/animal-physiology>
- <https://sites.msudenver.edu/haysc/biology-courses/animal-physiology-bio-3360/>
- <https://www.acsedu.com/Courses/animal-biology-animal-husbandry-i-599.aspx>
- <https://animalphys4e.sinauer.com/quiz/>
- <https://askabiologist.asu.edu/explore/animal-physiology>
- <https://www.sinauer.com/media/wysiwyg/tocs/AnimalPhysiology3.pdf>
- <https://www.sciencedirect.com/topics/agricultural-and-biological-sciences/animal-physiology>
- <https://library.ivytech.edu/c.php?g=869309&p=6239318>

**Course Coordinator:**

Dr/ Mustafa Shukry

**Head of Department:**

Prof.Dr/ Shawky Abdelhady Mahmoud



## Course specification (2021 / 2022)

### 1 - Basic Information:

**Code number:** 125/1

**Course title:** Physiology of Muscles & Nerves

**Academic Year:** Master Degree of Veterinary Medicine

**Total teaching hours:** 192 hrs.

Lectures: 96 hrs.

Practical: 96 hrs.

### 2 - OVERALL AIMS OF THE COURSE:

*By the end of this course, the student should acquire the concepts, principles and skills related to physiology of nervous system and excitable tissues.*

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- a1- Define the causes of resting membrane potential
- a2- Recognize the excitability of the nerve.
- a3- identify the mechanism of muscle contraction.
- a4- describe the basic knowledge reflex action
- a5- realize the information and types of muscles and its contraction.
- a6- Recite the basic knowledge about some applications on muscle contraction.

#### 3-B: INTELLECTUAL SKILLS:

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

- b1- -Interpret any Muscular situation concerning the muscle and nervous systems in the animal body.
- b2- Analyze data about coordination of movement

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

- c1- Perform the muscle contraction through applying of different stimuli
- c2- Assess the different muscular dysfunction
- c3- analyze the rate of impulse transmission through muscle and nerve.

#### 3- D: GENERAL SKILLS:

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

- d1- Coach and work in group.
- d2- Classify different duties.
- d3- Utilize computer and internet skills.
- d4- Develop the ethical behaviors between students and staff members as well as among the students themselves.

### 4 - COURSE CONTENTS:

TOPIC	No of hours		
	Total hours	lecture	practical
Autonomic nervous system	20	20	-
excitability and action potential	40	15	25
Reflex action	46	16	30



Type of muscle	17	12	5
type of Muscle contractions and mechanism	48	18	30
Clinical application on muscle contraction	21	15	6
Total	192	96	96

## 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library

Making individual reports about Physiology of Muscles& Nerves

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a6	b1 to b2		d1, d4
Practical sessions		b1 to b5	c1 to c3	d2, d4
Self-Learning activities				d2, d3, d4
Distance Teaching and Learning	a1 to a6	b1 to b2	c1 to c3	d1 to d4

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	All over the academic year
<b>7.c grads</b>	50	20	20	10

7.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a6	b1 to b2		d4
Practical exams			c1 to c3	d2, d3
Oral exams	a1 to a6	b1 to b2		d1
Student activities				d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional

skills; GTS, general and transferable skills.

## **8. LEARNING AND REFERENCE MATERIALS:**

### **8-1: Essential Books**

- Animal Physiology. Richard W Hill , Gordon A Wyse , Margaret Anderson (4th Ed)  
ISBN: 9781605357379 Edition: 4 Paperback Oct 2017
- Principles of Animal Physiology (2018) 3rd edition, Christopher D. Moyes, Patricia M. Schulte
- Eckert Animal Physiology: Mechanisms and Adaptations (1997) 4<sup>th</sup> Ed, David Randall , Warren Burggren
- Functional Anatomy and Physiology of Domestic Animals, (2017) 5th Edition, William O. Reece, Eric W. Rowe
- Cunningham's Textbook of Veterinary Physiology, 6th Edition - January 3, 2019
- Dukes' Physiology of Domestic Animals, (2015) 13th Edition, William O. Reece (Editor), , Jesse P. Goff , Etsuro E. Uemura
- COMPARATIVE ANIMAL PHYSIOLOGY (2020) 1st Edition, by Philip C. Withers Anatomy and Physiology of Farm Animals, 8th Edition, Anna Dee Fails, Christianne Magee
- Essentials of Animal Physiology, (2007) S. C. Rastogi
- Equine Exercise Physiology (2002), David Marlin, Kathryn J. Nankervis
- Guyton and Hall Textbook of Medical Physiology (Guyton Physiology) (2022) 14th Edition, by John E. Hall PhD , Michael E. Hall MD MSc.
- Sturkie's Avian Physiology (2015) • Sixth Edition • 2015
- The Physiology of Fishes (2016), By Suzanne Currie, David H. Evans

### **8-2: Recommended books:**

- Ruchebusch, Y., Phaneuf, I. and Dunlop, R (1991) Physiology of small and large Animals. B.C. Decker, Inc, Philadelphia, Hamilton.
- Swenson M.J, Reece, W.O. and Comstock (1993) Duke's Physiology of Domestic Animals. 11th edition, publishing Associates a division of Cornell University press. Ithaca and London.
- Gunningham, J. (1992) Text book of Veterinary Physiology. W.B. Saunders Company, Toronto, Montreal, Tokyo.
- Guyton, A. (1991) Text book of Medical physiology. 8th, W.B. Saunders Company.
- - Ganong, W.F. (1989) Review of Medical Physiology. 9th (Middle East edition) Appleton and Lang.
- 8.2.f- Periodicals, Web Sites, ... etc.

### **8-3: Egyptian Knowledge Bank:**

- Animal Physiology, Beaver, BV and Höglund, DL. 2016. Academic Press, Elsevier Inc.
- Animal Physiology: An Environmental Perspective, by Patrick J. Butler, J. Anne Brown, et al. | Sep 23, 2020. Academic Press, Elsevier Inc.
- Principles of Animal Physiology , by Christopher Moyes and Patricia Schulte | Jan 15, 2015. Academic Press, Elsevier Inc.
- Animal Physiology: From Genes to Organisms, by Lauralee Sherwood , Hillar Klandorf, et al. | Jan 1, 2012. Academic Press, Elsevier Inc
- Anatomy and Physiology of Farm Animals, by Anna Dee Fails and Christianne Magee | Jul 11, 2018. Academic Press, Elsevier Inc.
- Veterinary Anatomy Coloring Book: Animal Anatomy and Veterinary Physiology Coloring Book Vet Tech, Summer Sparks | Sep 22, 2020. Academic Press, Elsevier Inc



- Functional Anatomy and Physiology of Domestic Animals.by William O. Reece and Eric W. Rowe | Aug 14, 2017, Academic Press, Elsevier Inc
- Introduction to Animal and Veterinary Anatomy and Physiology,by Victoria Aspinall and Melanie Cappello | Dec 12, 2019. Academic Press, Elsevier Inc
- Eckert Animal Physiology: Mechanisms and Adaptations,by David Randall | Nov 1, 2001, Academic Press, Elsevier Inc
- Animal Physiology: Adaptation and Environment.by Knut Schmidt-Nielsen | Apr 10, 1997. Academic Press, Elsevier Inc.
- Das, DN. Paul, D. and Mondal, S. 2022. Emerging Issues in Climate Smart Livestock Production. Biological Tools and Techniques. Academic Press, Elsevier Inc.
- Avian (Poultry) Production: 2nd Revised and Enlarged Edition, by D. Sapkota, D. Narahari, J.D. Mahanta, 2017.
- Poultry Health: A Guide for Professionals, by Paul Barrow, Venugopal Nair, Susan Baigent, Robert Atterbury, Michael Clark, 2021.
- Poultry Science, 5th Edition, by Colin G. Scanes, Karen D. Christensen, 2019.

#### 8.4. Scientific Journals

- Animals
- Animal physiology and biochemistry
- Cells
- Life science
- Veterinary sciences
- Scientific report
- .frontier in veterinary science
- Journal of Animal Science.

#### 8.5. Scientific websites

- The Egyptian Knowledge Bank: <https://www.ekb.eg/web/guest/home>
- <https://animalphys4e.sinauer.com/>
- <https://teachmephysiology.com/>
- <https://www.nature.com/subjects/animal-physiology>
- <https://sites.msudenver.edu/haysc/biology-courses/animal-physiology-bio-3360/>
- <https://www.acsedu.com/Courses/animal-biology-animal-husbandry-i-599.aspx>
- <https://animalphys4e.sinauer.com/quiz/>
- <https://askabiologist.asu.edu/explore/animal-physiology>
- <https://www.sinauer.com/media/wysiwyg/tocs/AnimalPhysiology3.pdf>

**Course Coordinator:**

Dr/ Mustafa Shukry

**Head of Department:**

Prof.Dr/ Shawky Abdelhady Mahmoud



## Course specification (2021 / 2022)

### 1 - Basic Information:

Code number: **127/1**

Course title: **Physiology of Environment, Adaptation and Cell**

Academic Year: **Master Degree of Veterinary Medicine**

Total teaching hours: 192 hrs.

Lectures: 96 hrs.

Practical: 96 hr

### 2 - OVERALL AIMS OF THE COURSE:

*By the end of this course, the student should acquire the concepts, principles and skills concerning the ability of an animal to cope with new environments and capacity to respond to environmental variables and maintain body equilibrium (homeostasis) and the severity (intensity and duration) of an environmental change relative to the animal's capacity and different responses of animals to cold stress.*

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- a1- Identify the environment and negative Feedback Process
- a2-Describe the mechanism of adaptation cold, heat and high altitude environment.
- a3-Identify the response of the hypothyseal-adrenal axis, which results in an immediate increase in sympathetic activity to prepare the animal for "fight or flight.
- a4-Realize the mechanism of different glands in the adaptation to desert life.
- a5- Designate the basic knowledge about the Environment-Animal Interface and genetic capacity.

#### 2-B: INTELLECTUAL SKILLS:

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

- b1- Interpret the environment animal interface and the sensitivity and response of animals to disruption
- b2- Evaluate different stress in animal body and interpret the disorders.

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

- c.1. Perform methods for body fluids sampling from different animal species.
- c.2. Asses body Physiological parameters related to environmental adaptation.
- c.3. Determine the effect of different solutions on cell membrane (erythrocyte osmotic fragility test).

#### 3- D: GENERAL SKILLS:

*By the end of studying the course, the graduate should be able:*

- d1-Coach and work in group.
- d2-Classify different duties.
- d3-Utilize computer and internet skills.
- d4-Develop the ethical behaviors between students and staff members as well as among the students themselves.

#### 4 - COURSE CONTENTS:

TOPIC	No of hours		
	Total hours	Total hours	Total hours
Environment-Animal interface	16	12	4
The negative Feedback Process	22	14	8
Physical response to environment	30	10	20
Environmental animal sensitivity	16	8	8
The Cold Environment	10	2	8
Acute Responses to Cold	12	4	8
Adaptive Responses to Cold	24	12	12
genetic capacity to adaptation	8	8	-
response of the hypophyseal-adrenal axis to stress	22	6	16
Stress conditions in the animals	20	12	8
Factors affecting adaptation	12	8	4
<b>Total</b>	<b>192</b>	<b>96</b>	<b>96</b>

#### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library

Making individual reports about Physiology of environment, adaptation and cell

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a6	b1 to b2		d1, d4
Practical sessions		b1 to b5	c1 to c3	d2, d4
Self-Learning activities				d2, d3, d4
Distance Teaching and Learning	a1 to a6	b1 to b2	c1 to c3	d1 to d4

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	Allover the academic year
<b>7.c grads</b>	50	20	20	10

7. Student Assessment				
Intended Learning Outcomes Covered				
7.1. Methods	KU	IS	PPS	GTS
Written exams	a1 to a6	b1 to b2		d4
Practical exams			c1 to c3	d2, d3
Oral exams	a1 to a6	b1 to b2		d1
Student activities				d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Essential Books

- Animal Physiology, Richard W Hill , Gordon A Wyse , Margaret Anderson (4th Ed) ISBN: 9781605357379 Edition: 4 Paperback Oct 2017
- Principles of Animal Physiology (2018) 3rd edition, Christopher D. Moyes, Patricia M. Schulte
- Eckert Animal Physiology: Mechanisms and Adaptations (1997) 4<sup>th</sup> Ed, David Randall , Warren Burggren
- Functional Anatomy and Physiology of Domestic Animals, (2017) 5th Edition, William O. Reece, Eric W. Rowe
- Cunningham's Textbook of Veterinary Physiology, 6th Edition - January 3, 2019
- Dukes' Physiology of Domestic Animals, (2015) 13th Edition, William O. Reece (Editor), , Jesse P. Goff , Etsuro E. Uemura
- COMPARATIVE ANIMAL PHYSIOLOGY (2020) 1st Edition, by Philip C. Withers Anatomy and Physiology of Farm Animals, 8th Edition, Anna Dee Fails, Christianne Magee
- Essentials of Animal Physiology, (2007) S. C. Rastogi
- Equine Exercise Physiology (2002), David Marlin, Kathryn J. Nankervis
- Guyton and Hall Textbook of Medical Physiology (Guyton Physiology) (2022) 14th Edition, by John E. Hall PhD , Michael E. Hall MD MSc.
- Sturkie's Avian Physiology (2015) • Sixth Edition • 2015
- The Physiology of Fishes (2016), By Suzanne Currie, David H. Evans

### 8-2: Recmended books:

- Ruchebusch, Y., Phaneuf, I. and Dunlop, R (1991) Physiology of small and large Animals. B.C. Decker , Inc, Philadelphia, Hamilton.
- Swenson M.J, Reece, W.O. and Comstock (1993) Duke's Physiology of Domestic Animals. 11th edition, publishing Associates a division of Cornell University press. Ithaca and London.

- Gumningham, J. (1992) Text book of Veterinary Physiology. W.B. Saundero Company, Toronto, Montreal, Tokyo.
- Guyton, A. (1991) Text book of Medical physiology. 8th, W.B. Saundero Company.
- - Ganong, W.F. (1989) Review of Medical Physiology. 9th (Middle East edition) Appleton and Lang.
- 8.2.f- Periodicals, Web Sites, ... etc.

### **8-3: Egyptian Knowledge Bank:**

- Animal Physiology, Beaver, BV and Höglund, DL. 2016. Academic Press, Elsevier Inc.
- Animal Physiology: An Environmental Perspective, by Patrick J. Butler, J. Anne Brown, et al. | Sep 23, 2020. Academic Press, Elsevier Inc.
- Principles of Animal Physiology ,by Christopher Moyes and Patricia Schulte | Jan 15, 2015. Academic Press, Elsevier Inc.
- Animal Physiology: From Genes to Organisms, by Lauralee Sherwood , Hillar Klandorf, et al. | Jan 1, 2012. Academic Press, Elsevier Inc
- Anatomy and Physiology of Farm Animals, by Anna Dee Fails and Christianne Magee | Jul 11, 2018. Academic Press, Elsevier Inc.
- Veterinary Anatomy Coloring Book: Animal Anatomy and Veterinary Physiology Coloring Book Vet Tech, Summer Sparks | Sep 22, 2020. Academic Press, Elsevier Inc
- Functional Anatomy and Physiology of Domestic Animals. by William O. Reece and Eric W. Rowe | Aug 14, 2017, Academic Press, Elsevier Inc
- Introduction to Animal and Veterinary Anatomy and Physiology, by Victoria Aspinall and Melanie Cappello | Dec 12, 2019. Academic Press, Elsevier Inc
- Eckert Animal Physiology: Mechanisms and Adaptations, by David Randall | Nov 1, 2001, Academic Press, Elsevier Inc
- Animal Physiology: Adaptation and Environment. by Knut Schmidt-Nielsen | Apr 10, 1997. Academic Press, Elsevier Inc.
- Das, DN. Paul, D. and Mondal, S. 2022. Emerging Issues in Climate Smart Livestock Production. Biological Tools and Techniques. Academic Press, Elsevier Inc.
- Avian (Poultry) Production: 2nd Revised and Enlarged Edition, by D. Sapkota, D. Narahari, J.D. Mahanta, 2017.
- Poultry Health: A Guide for Professionals, by Paul Barrow, Venugopal Nair, Susan Baigent, Robert Atterbury, Michael Clark, 2021.
- Poultry Science, 5th Edition, by Colin G. Scanes, Karen D. Christensen, 2019.

### **8.4. Scientific Journals**

- Animals
- Animal physiology and biochemistry
- Cells
- Life science
- Fish physiology and biochemistry
- Stress
- Biomedicine
- Animal reproduction science
- Aquaculture
- Veterinary sciences
- Scientific report
- .frontier in veterinary science

### **8.5. Scientific websites**

- The Egyptian Knowledge Bank: <https://www.ekb.eg/web/guest/home>
- <https://animalphys4e.sinauer.com/>





- <https://teachmephysiology.com/>
- <https://www.nature.com/subjects/animal-physiology>
- <https://sites.msudenver.edu/haysc/biology-courses/animal-physiology-bio-3360/>
- <https://www.acsedu.com/Courses/animal-biology-animal-husbandry-i-599.aspx>
- <https://animalphys4e.sinauer.com/quiz/>
- <https://askabiologist.asu.edu/explore/animal-physiology>
- <https://www.sinauer.com/media/wysiwyg/tocs/AnimalPhysiology3.pdf>
- <https://www.sciencedirect.com/topics/agricultural-and-biological-sciences/animal-physiology>
- <https://library.ivytech.edu/c.php?g=869309&p=6239318>
- DeLaval Dairy Supply. <http://www.delaval.com/en/-/Dairy-knowledge-and-advice/>
- Lactation Biology: <http://classes.aces.uiuc.edu/ansci308/index.html>
- Heat Detection and Timing of Insemination for Cattle. Penn State, College of Agricultural Sciences, Cooperative Extension. <https://extension.psu.edu/heat-detection-and-timing-of-insemination-for-cattle> accessed 08/09/2017.

**Course Coordinator:**

Dr/ Mustafa Shukry

**Head of Department:**

Prof.Dr/ Shawky Abdelhady Mahmoud

### Course Matrix for achievement of Intended Learning Outcomes

Topics	Hours	Knowledge & Understanding(a)					Intellectual Skills(b)				Practical & Professional Skills©					General & Transferable Skills(d)			
		1	2	3	4	5	1	2	3	4	1	2	3	4	5	1	2	3	4
Environment-Animal interface	16	✓				✓	✓	✓		✓			✓			✓	✓	✓	✓
The negative Feedback Process	22	✓					✓	✓		✓						✓	✓	✓	✓
Physiological response to environment	30	✓		✓			✓		✓	✓		✓	✓				✓	✓	✓
Environmental animal sensitivity	16	✓			✓		✓		✓	✓		✓	✓	✓	✓		✓	✓	✓
The Cold Environment	10	✓	✓				✓	✓	✓	✓		✓	✓	✓	✓		✓	✓	✓
Acute Responses to heat	12	✓	✓						✓	✓		✓	✓	✓	✓		✓	✓	✓
Adaptive Responses to high altitude	24	✓	✓						✓	✓				✓			✓	✓	✓
genetic capacity to adaptation	8	✓				✓											✓	✓	✓
response of the hypophyseal-adrenal axis to stress	22	✓		✓													✓	✓	✓
Desert life	20	✓			✓												✓	✓	✓
Factors affecting adaptation	12	✓															✓	✓	✓

## Course specification (2021 / 2022)

### 1 - Basic Information:

Code: 128/1

Course title: Physiology of blood

Academic Year: Master Degree of Veterinary Medicine

Total teaching hours: 192 hrs.

Lectures: 96 hrs.

Practical: 96 hrs.

### 2 - OVERALL AIMS OF THE COURSE:

*By the end of this course, the student should acquire the concepts, principles and skills related to Blood and blood forming elements and Composition of body fluids*

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- a1-Describe the general functions and properties of body fluid, blood components and plasma..
- a2-Explain factors affecting RBCs and hematopoiesis
- a3-Categorize different types of anemia
- a4- Identify the basic knowledge about thrombocytes and coagulation
- a5- Recognize the basic information of WBCs and immunity

#### 2-B: INTELLECTUAL SKILLS:

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

- b1- deal with ethical and professional issues of small and large animals.
- b2- evaluate their own research data precisely and develop new approaches to solve their research questions.
- b3- Differentiate between different types of anemia.
- b4 - interpret the complete blood report and to determine the most of disease that effect on blood parameters and blood component.

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

- c1- perform essential laboratory skills concerning advanced techniques associated with hematological research.
- c2- collect and examine blood samples.
- c3- select and perform relevant statistical techniques concerning their own research.
- c4-Analyze electrolyte level in blood samples.

#### 3- D: GENERAL SKILLS:

*By the end of studying the course, the graduate should be able:*

- d1-Coach and work in group.
- d2-Classify different duties.
- d3-Utilize computer and internet skills.
- d4-Develop the ethical behaviors between students and staff members as well as among the students themselves.

### 4 - COURSE CONTENTS:

TOPIC	No of hours		
	Total hours	lecture	practical
Blood components	50	40	10
Composition and function of body fluids and plasma	27	12	15
General functions of blood	25	15	10
Leukocytes and immunity	18	8	10
Erythrocytes (function, morphology, structure, erythropoiesis, fate)	15	-	15
Thrombocytes and blood coagulation	30	10	20
Anemia and diseases of blood	27	11	16
Total	192	96	96

## 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library  
Making individual reports about Physiology blood

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a5	b1 to b4		d1, d4
Practical sessions		b1 to b4	c1 to c4	d2, d4
Self-Learning activities				d2, d3, d4
Distance Teaching and Learning	a1 to a5	b1 to b4	c1 to c4	d1 to d4

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	All over the academic year
<b>7.c grads</b>	50	20	20	10

7. Student Assessment				
Intended Learning Outcomes Covered				
7.1. Methods	KU	IS	PPS	GTS
Written exams	a1 to a5	b1 to b4		d4
Practical exams			c1 to c4	d2, d3
Oral exams	a1 to a5	b1 to b4		d1
Student activities				d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Essential Books

- Animal Physiology. Richard W Hill , Gordon A Wyse , Margaret Anderson (4th Ed)  
ISBN: 9781605357379 Edition: 4 Paperback Oct 2017
- Principles of Animal Physiology(2018) 3rd edition, Christopher D. Moyes, Patricia M. Schulte
- Eckert Animal Physiology: Mechanisms and Adaptations (1997) 4<sup>th</sup> Ed, David Randall ,Warren Burggren
- Functional Anatomy and Physiology of Domestic Animals,(2017) 5th Edition, William O. Reece, Eric W. Rowe
- Cunningham's Textbook of Veterinary Physiology,6th Edition - January 3, 2019
- Dukes' Physiology of Domestic Animals, (2015)13th Edition, William O. Reece (Editor), , Jesse P. Goff , Etsuro E. Uemura
- COMPARATIVE ANIMAL PHYSIOLOGY (2020)1st Edition, by Philip C. Withers Anatomy and Physiology of Farm Animals, 8th Edition, Anna Dee Fails, Christianne Magee
- Essentials of Animal Physiology,(2007) S. C. Rastogi
- Equine Exercise Physiology (2002),David Marlin, Kathryn J. Nankervis
- Guyton and Hall Textbook of Medical Physiology (Guyton Physiology) (2022)14th Edition, by John E. Hall PhD , Michael E. Hall MD MSc.

### 8-2: Recmended books:

- Ruchebusch,Y., Phaneuf, I. and Dunlop,R (1991) Physiology of small and large Animals. B.C. Decker ,Inc, Philadelphia, Hamilton.
- Swensonm M.J, Reece, W.O. and Comstock (1993) Duke's Physiology of Domestic Animals. 11th edition, publishing Associates a division of Cornell University press. Ithaca and London.

- Gumningham, J. (1992) Text book of Veterinary Physiology. W.B. Saundero Company, Toronto, Montreal, Tokyo.
- Guyton, A. (1991) Text book of Medical physiology. 8th, W.B. Saundero Company.
- - Ganong, W.F. (1989) Review of Medical Physiology. 9th (Middle East edition) Appleton and Lang.

### **8-3: Egyptian Knowledge Bank:**

- Animal Physiology, Beaver, BV and Höglund, DL. 2016. Academic Press, Elsevier Inc.
- Animal Physiology: An Environmental Perspective, by Patrick J. Butler, J. Anne Brown, et al. | Sep 23, 2020. Academic Press, Elsevier Inc.
- Principles of Animal Physiology ,by Christopher Moyes and Patricia Schulte | Jan 15, 2015. Academic Press, Elsevier Inc.
- Animal Physiology: From Genes to Organisms, by Lauralee Sherwood , Hillar Klandorf, et al. | Jan 1, 2012. Academic Press, Elsevier Inc
- Anatomy and Physiology of Farm Animals, by Anna Dee Fails and Christianne Magee | Jul 11, 2018. Academic Press, Elsevier Inc.
- Veterinary Anatomy Coloring Book: Animal Anatomy and Veterinary Physiology Coloring Book Vet Tech, Summer Sparks | Sep 22, 2020. Academic Press, Elsevier Inc
- Functional Anatomy and Physiology of Domestic Animals. by William O. Reece and Eric W. Rowe | Aug 14, 2017, Academic Press, Elsevier Inc
- Introduction to Animal and Veterinary Anatomy and Physiology, by Victoria Aspinall and Melanie Cappello | Dec 12, 2019. Academic Press, Elsevier Inc
- Eckert Animal Physiology: Mechanisms and Adaptations, by David Randall | Nov 1, 2001, Academic Press, Elsevier Inc.
- Animal Physiology: Adaptation and Environment. by Knut Schmidt-Nielsen | Apr 10, 1997. Academic Press, Elsevier Inc.
- Das, DN. Paul, D. and Mondal, S. 2022. Emerging Issues in Climate Smart Livestock Production. Biological Tools and Techniques. Academic Press, Elsevier Inc.

### **8.4. Scientific Journals**

- Animals
- Animal physiology and biochemistry
- Cells
- Life science
- Fish physiology and biochemistry
- Stress
- Biomedicine
- Aquaculture
- Veterinary sciences
- Scientific report
- .frontier in veterinary science
- Journal of Animal Science.

### **8.5. Scientific websites**

- The Egyptian Knowledge Bank: <https://www.ekb.eg/web/guest/home>
- <https://animalphys4e.sinauer.com/>
- <https://teachmephysiology.com/>
- <https://www.nature.com/subjects/animal-physiology>
- <https://sites.msudenver.edu/haysc/biology-courses/animal-physiology-bio-3360/>
- <https://www.acsedu.com/Courses/animal-biology-animal-husbandry-i-599.aspx>



Kafrelsheikh University  
Faculty of Veterinary Medicine



- <https://animalphys4e.sinauer.com/quiz/>
- <https://askabiologist.asu.edu/explore/animal-physiology>
- <https://www.sinauer.com/media/wysiwyg/tocs/AnimalPhysiology3.pdf>
- <https://www.sciencedirect.com/topics/agricultural-and-biological-sciences/animal-physiology>
- <https://library.ivytech.edu/c.php?g=869309&p=6239318>
- DeLaval Dairy Supply. <http://www.delaval.com/en/-/Dairy-knowledge-and-advice/>
- Lactation Biology: <http://classes.aces.uiuc.edu/ansci308/index.html>
- Heat Detection and Timing of Insemination for Cattle. Penn State, College of Agricultural Sciences, Cooperative Extension. <https://extension.psu.edu/heat-detection-and-timing-of-insemination-for-cattle> accessed 08/09/2017.

**Course Coordinator:**

Dr/ Mustafa Shukry

**Head of Department:**

Prof.Dr/ Shawky Abdelhady Mahmoud





## Course specification (2021 / 2022)

### 1 - Basic Information:

**Course title:** Physiology of digestion, metabolism and energy.

**Code:** 129 /1

**Academic Year:** Master Degree of Veterinary Medicine.

**Total teaching hours:** 192 hrs.

Lectures: 96 hrs.

Practical: 96 hrs.

### 2 - OVERALL AIMS OF THE COURSE:

*By the end of this course, the student should acquire the concepts, principles and skills related to Physiology of digestion, metabolism and energy.*

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- a1- Define the process of digestion, advantage, absorption and factors affecting.
- a2- Identify the movements of different parts of GIT.
- a3- Explain the neural and hormonal control of digestion and secretions
- a4- Recognize the different types of energy and metabolic balance.
- a5- discuss the intestinal absorption and fate of nutrient

#### 2-B: INTELLECTUAL SKILLS:

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

- b1- Assess between digestion in simple and compound stomached animals.
- b2- Compare between absorption in herbivorous and carnivorous animals.
- b3- Evaluate the direct and indirect colorimetry in measuring BMR.

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

- c1- collect and examine samples of digestive juices.
- c2- use the Spirometer in measuring BMR.

#### 3- D: GENERAL SKILLS:

- d1- Coach and work in group.
- d2- Classify different duties.
- d3- Utilize computer and internet skills.
- d4- Develop the ethical behaviors between students and staff members as well as among the students themselves.

### 4 - COURSE CONTENTS:

TOPIC	No of hours		
	Total hours	lecture	practical
Physiology and Advantages of digestion	13	13	-
Factors affect digestion	8	8	-

Salivary digestion	9	-	9
Esophagus and Swallowing	26	13	13
Control of acid, gastric secretion and Bile secretion	47	24	24
Movement of the stomach and Vomiting	24	12	18
Neural control of rumen	17	7	10
Intestinal movement ,hormones and Juice	19	9	10
absorbed nutrient and metabolic balance in the body	22	10	12
Total	192	96	96

## 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library  
Making individual reports about Physiology digestion

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a5	b1 to b3		d1, d4
Practical sessions		b1 to b3	c1 to c2	d2, d4
Self-Learning activities				d2, d3, d4
Distance Teaching and Learning	a1 to a5	b1 to b3	c1 to c2	d1 to d4

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	All over the academic year
<b>7.c grads</b>	50	20	20	10

7.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a5	b1 to b3		d4
Practical exams			c1 to c2	d2, d3
Oral exams	a1 to a5	b1 to b3		d1
Student activities				d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Essential Books

- Animal Physiology. Richard W Hill , Gordon A Wyse , Margaret Anderson (4th Ed)  
ISBN: 9781605357379 Edition: 4 Paperback Oct 2017
- Principles of Animal Physiology (2018) 3rd edition, Christopher D. Moyes, Patricia M. Schulte
- Eckert Animal Physiology: Mechanisms and Adaptations (1997) 4<sup>th</sup> Ed, David Randall , Warren Burggren
- Functional Anatomy and Physiology of Domestic Animals, (2017) 5th Edition, William O. Reece, Eric W. Rowe
- Cunningham's Textbook of Veterinary Physiology, 6th Edition - January 3, 2019
- Dukes' Physiology of Domestic Animals, (2015) 13th Edition, William O. Reece (Editor), , Jesse P. Goff , Etsuro E. Uemura
- COMPARATIVE ANIMAL PHYSIOLOGY (2020) 1st Edition, by Philip C. Withers Anatomy and Physiology of Farm Animals, 8th Edition, Anna Dee Fails, Christianne Magee
- Essentials of Animal Physiology, (2007) S. C. Rastogi
- Equine Exercise Physiology (2002), David Marlin, Kathryn J. Nankervis
- Guyton and Hall Textbook of Medical Physiology (Guyton Physiology) (2022) 14th Edition, by John E. Hall PhD , Michael E. Hall MD MSc.
- Sturkie's Avian Physiology (2015) • Sixth Edition • 2015
- The Physiology of Fishes (2016), By Suzanne Currie, David H. Evans

### 8-2: Recommended books:

- Ruchebusch, Y., Phaneuf, I. and Dunlop, R (1991) Physiology of small and large Animals. B.C. Decker , Inc, Philadelphia, Hamilton.
- Swenson M.J, Reece, W.O. and Comstock (1993) Duke's Physiology of Domestic Animals. 11th edition, publishing Associates a division of Cornell University press. Ithaca and London.
- Gunningham, J. (1992) Text book of Veterinary Physiology. W.B. Saunders Company, Toronto, Montreal, Tokyo.
- Guyton, A. (1991) Text book of Medical physiology. 8th, W.B. Saunders Company.
- - Ganong, W.F. (1989) Review of Medical Physiology. 9th (Middle East edition) Appleton and Lang.
- 8.2.f- Periodicals, Web Sites, ... etc.

### 8-3: Egyptian Knowledge Bank:

- Animal Physiology, Beaver, BV and Höglund, DL. 2016. Academic Press, Elsevier Inc.
- Animal Physiology: An Environmental Perspective, by Patrick J. Butler, J. Anne Brown, et al. | Sep 23, 2020. Academic Press, Elsevier Inc.
- Principles of Animal Physiology ,by Christopher Moyes and Patricia Schulte | Jan 15, 2015. Academic Press, Elsevier Inc.
- Animal Physiology: From Genes to Organisms, by Lauralee Sherwood , Hillar Klandorf, et al. | Jan 1, 2012. Academic Press, Elsevier Inc
- Anatomy and Physiology of Farm Animals, by Anna Dee Fails and Christianne Magee | Jul 11, 2018. Academic Press, Elsevier Inc.
- Veterinary Anatomy Coloring Book: Animal Anatomy and Veterinary Physiology Coloring Book Vet Tech, Summer Sparks | Sep 22, 2020. Academic Press, Elsevier Inc
- Functional Anatomy and Physiology of Domestic Animals. by William O. Reece and Eric W. Rowe | Aug 14, 2017, Academic Press, Elsevier Inc
- Introduction to Animal and Veterinary Anatomy and Physiology, by Victoria Aspinall and Melanie Cappello | Dec 12, 2019. Academic Press, Elsevier Inc
- Eckert Animal Physiology: Mechanisms and Adaptations, by David Randall | Nov 1, 2001, Academic Press, Elsevier Inc
- Animal Physiology: Adaptation and Environment. by Knut Schmidt-Nielsen | Apr 10, 1997. Academic Press, Elsevier Inc.

#### 8.4. Scientific Journals

- Animals
- Animal physiology and biochemistry
- Cells
- Life science
- Biomedicine
- Animal reproduction science
- Aquaculture
- Veterinary sciences
- Scientific report
- Frontier in veterinary science

#### 8.5. Scientific websites

- The Egyptian Knowledge Bank: <https://www.ekb.eg/web/guest/home>
- <https://animalphys4e.sinauer.com/>
- <https://teachmephysiology.com/>
- <https://www.nature.com/subjects/animal-physiology>
- <https://sites.msudenver.edu/haysc/biology-courses/animal-physiology-bio-3360/>
- <https://www.acsedu.com/Courses/animal-biology-animal-husbandry-i-599.aspx>
- <https://animalphys4e.sinauer.com/quiz/>
- <https://askabiologist.asu.edu/explore/animal-physiology>
- <https://www.sinauer.com/media/wysiwyg/tocs/AnimalPhysiology3.pdf>
- <https://www.sciencedirect.com/topics/agricultural-and-biological-sciences/animal-physiology>
- <https://library.ivytech.edu/c.php?g=869309&p=6239318>

**Course Coordinator:**

Dr/ Mustafa Shukry

**Head of Department:**

Prof. Dr/ Shawky Abdelhady Mahmoud

### Course Matrix for achievement of Intended Learning Outcomes

Topics	Hours	Knowledge & Understanding(a)					Intellectual Skills(b)				Practical & Professional Skills©					General & Transferable Skills(d)			
		1	2	3	4	5	1	2	3	4	1	2	3	4	5	1	2	3	4
Physiology and Advantages of digestion	13	✓					✓	✓	✓		✓	✓				✓	✓	✓	✓
Factors affect digestion	8	✓					✓	✓	✓		✓	✓				✓	✓	✓	✓
Salivary digestion	9			✓			✓	✓	✓		✓	✓				✓	✓	✓	✓
Esophagus and Swallowing	26		✓				✓	✓	✓		✓	✓				✓	✓	✓	✓
Control of acid ,gastric secretion and Bile secretion	47			✓			✓	✓	✓		✓	✓				✓	✓	✓	✓
Movement of the stomach and Vomiting	24		✓				✓	✓	✓		✓	✓				✓	✓	✓	✓
Neural control of rumen	17			✓			✓	✓	✓		✓	✓				✓	✓	✓	✓
Intestinal movement ,hormones and Juice	19		✓	✓			✓	✓	✓		✓	✓	✓			✓	✓	✓	✓
Absorbed nutrient and metabolic balance in the body	22	✓			✓	✓	✓	✓	✓		✓	✓				✓	✓	✓	✓

## Course specification (2020 / 2021)

### 1 - Basic Information:

**Code number:** 130/1

**Course title:** Physiology of Pollution

**Academic Year:** Master Degree of Veterinary Medicine.

**Total teaching hours:** 144 hrs.

Lectures: 48 hrs.

Practical: 96 hrs.

### 2 - OVERALL AIMS OF THE COURSE:

Provide student with basic knowledge and skills concerning the pollution, sources of pollution, its effect on body functions.

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- a1- Recognize sources of pollution
- a2- Illustrate types of pollution
- a3- Describe metabolic and effect of pollution on some body functions
- a4- Recite the basic knowledge about mode of action of some pollutants
- a5- Define Body defense against pollutants and hormonal effect

#### 3-B: INTELLECTUAL SKILLS:

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

- b1- Interpret any disturbance in the animal body
- b2- Judge some Hormonal disorders

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

- c1- Perform some blood parameters concerned with pollution
- c2- Assess the level of some pollutants
- c3- Evaluate some organ function tests affected by pollutants

#### 3- D: GENERAL SKILLS:

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

- d1- Coach and work in group.
- d2- Classify different duties.
- d3- Utilize computer and internet skills.
- d4- Develop the ethical behaviors between students and staff members as well as among the students themselves.

### 4 - COURSE CONTENTS:

TOPIC	No of hours		
	Total hours	lecture	practical
Introduction to pollution	6	6	-

Types of pollutants	28	8	20
Mode of action	4	4	-
Effect of pollutants on body functions	26	8	18
Metabolic effect of pollutants	30	8	22
hormonal effect of pollutants	28	6	22
Body defense against pollutants	22	8	14
Total	144	48	96

## 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library  
Making individual reports about Physiology digestion

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a5	b1 to b2		d1, d4
Practical sessions		b1 to b2	c1 to c3	d2, d4
Self-Learning activities				d2, d3, d4
Distance Teaching and Learning	a1 to a5	b1 to b3	c1 to c3	d1 to d4

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:-

<u>7.a Used methods</u>	Written examination	Oral examination	Practical examination	Activities
<u>7.b time</u>	At the end of the academic year	At the end of the academic year	At the end of the academic year	All over the academic year
<u>7.c grads</u>	50	20	20	10

7.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a5	b1 to b2		d4
Practical exams			c1 to c3	d2, d3
Oral exams	a1 to a5	b1 to b2		d1
Student activities				d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Essential Books

- Animal Physiology. Richard W Hill , Gordon A Wyse , Margaret Anderson (4th Ed)  
ISBN: 9781605357379 Edition: 4 Paperback Oct 2017
- Principles of Animal Physiology (2018) 3rd edition, Christopher D. Moyes, Patricia M. Schulte
- Eckert Animal Physiology: Mechanisms and Adaptations (1997) 4<sup>th</sup> Ed, David Randall , Warren Burggren
- Functional Anatomy and Physiology of Domestic Animals, (2017) 5th Edition, William O. Reece, Eric W. Rowe
- Cunningham's Textbook of Veterinary Physiology, 6th Edition - January 3, 2019
- Dukes' Physiology of Domestic Animals, (2015) 13th Edition, William O. Reece (Editor), , Jesse P. Goff , Etsuro E. Uemura
- COMPARATIVE ANIMAL PHYSIOLOGY (2020) 1st Edition, by Philip C. Withers Anatomy and Physiology of Farm Animals, 8th Edition, Anna Dee Fails, Christianne Magee
- Essentials of Animal Physiology, (2007) S. C. Rastogi
- Equine Exercise Physiology (2002), David Marlin, Kathryn J. Nankervis
- Guyton and Hall Textbook of Medical Physiology (Guyton Physiology) (2022) 14th Edition, by John E. Hall PhD , Michael E. Hall MD MSc.

### 8-2: Recommended books:

- Ruchebusch, Y., Phaneuf, I. and Dunlop, R (1991) Physiology of small and large Animals. B.C. Decker , Inc, Philadelphia, Hamilton.
- Swenson M.J, Reece, W.O. and Comstock (1993) Duke's Physiology of Domestic Animals. 11th edition, publishing Associates a division of Cornell University press. Ithaca and London.
- Gunningham, J. (1992) Text book of Veterinary Physiology. W.B. Saunders Company, Toronto, Montreal, Tokyo.
- Guyton, A. (1991) Text book of Medical physiology. 8th, W.B. Saunders Company.
- - Ganong, W.F. (1989) Review of Medical Physiology. 9th (Middle East edition) Appleton and Lang.

### 8-3: Egyptian Knowledge Bank:

- Animal Physiology, Beaver, BV and Höglund, DL. 2016. Academic Press, Elsevier Inc.
- Animal Physiology: An Environmental Perspective, by Patrick J. Butler, J. Anne Brown, et al. | Sep 23, 2020. Academic Press, Elsevier Inc.



- Principles of Animal Physiology ,by Christopher Moyes and Patricia Schulte | Jan 15, 2015. Academic Press, Elsevier Inc.
- Animal Physiology: From Genes to Organisms,by Lauralee Sherwood , Hillar Klandorf, et al. | Jan 1, 2012. Academic Press, Elsevier Inc
- Anatomy and Physiology of Farm Animals,by Anna Dee Fails and Christianne Magee | Jul 11, 2018. Academic Press, Elsevier Inc.
- Veterinary Anatomy Coloring Book: Animal Anatomy and Veterinary Physiology Coloring Book Vet Tech,Summer Sparks | Sep 22, 2020. Academic Press, Elsevier Inc
- Functional Anatomy and Physiology of Domestic Animals.by William O. Reece and Eric W. Rowe | Aug 14, 2017, Academic Press, Elsevier Inc
- Introduction to Animal and Veterinary Anatomy and Physiology,by Victoria Aspinall and Melanie Cappello | Dec 12, 2019. Academic Press, Elsevier Inc
- Eckert Animal Physiology: Mechanisms and Adaptations,by David Randall | Nov 1, 2001, Academic Press, Elsevier Inc
- Animal Physiology: Adaptation and Environment.by Knut Schmidt-Nielsen | Apr 10, 1997. Academic Press, Elsevier Inc.

#### 8.4. Scientific Journals

- Animals
- Animal physiology and biochemistry
- Cells
- Life science
- Fish physiology and biochemistry
- Stress
- Biomedicine
- Animal reproduction science
- Aquaculture
- Veterinary sciences
- Scientific report
- Frontier in veterinary science

#### 8.5. Scientific websites

- The Egyptian Knowledge Bank: <https://www.ekb.eg/web/guest/home>
- <https://animalphys4e.sinauer.com/>
- <https://teachmephysiology.com/>
- <https://www.nature.com/subjects/animal-physiology>
- <https://sites.msudenver.edu/haysc/biology-courses/animal-physiology-bio-3360/>
- <https://www.acsedu.com/Courses/animal-biology-animal-husbandry-i-599.aspx>
- <https://animalphys4e.sinauer.com/quiz/>
- <https://askabiologist.asu.edu/explore/animal-physiology>
- <https://www.sinauer.com/media/wysiwyg/tocs/AnimalPhysiology3.pdf>
- <https://www.sciencedirect.com/topics/agricultural-and-biological-sciences/animal-physiology>
- <https://library.ivytech.edu/c.php?g=869309&p=6239318>

**Course Coordinator:**

**Dr/ Mustafa Shukry**

**Head of Department:**

**Prof. Dr/ Shawky Abdelhady Mahmoud**

### Course Matrix for achievement of Intended Learning Outcomes

Topics	Hours	Knowledge & Understanding(a)					Intellectual Skills(b)				Practical & Professional Skills©					General & Transferable Skills(d)			
		1	2	3	4	5	1	2	3	4	1	2	3	4	5	1	2	3	4
Introduction to pollution	4	✓	✓		✓		✓	✓			-					✓	✓	✓	✓
Types of pollutants	6		✓				-				✓	✓	✓			✓	✓	✓	✓
Mode of action	16				✓		✓	✓			-					✓	✓	✓	✓
Effect of pollutants on body functions	12			✓			✓	✓			✓	✓	✓			✓	✓	✓	✓
Metabolic effect of pollutants	4			✓			✓	✓			✓	✓	✓			✓	✓	✓	✓
hormonal effect of pollutants	4					✓	✓	✓			✓	✓	✓			✓	✓	✓	✓
Body defense against pollutants	14			✓		✓	✓	✓			✓	✓	✓			✓	✓	✓	✓

## Course specification (2020 / 2021)

### 1 - Basic Information:

Code number: 133/1

Course title: **Fish physiology**

Academic Year: **Master Degree of Veterinary Medicine**

Total teaching hours: 144 hrs.

Lectures: 48 hrs.

Practical: 96 hrs.

### 2 - OVERALL AIMS OF THE COURSE:

*By the end of this course, the student should acquire the concepts, principles and skills related to the structure of endocrine gland and different types of hormones secreted from fish glands, the role of gills and air gas bladder in gas exchange in fish, different hormones and enzymes secreted from the digestive tract and their functions and control, stress hormones and how they affect the autonomic nervous system, immunity and other hormones*

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- a1- Define Taxonomy and morphology of fish
- a2- Describe the molecular mechanism of hormone action and their role in osmoregulation in fishes
- a3- Recognize the mechanism of respiration, digestion and gas exchange and their impacts on body functions
- a4- Identify the male and female reproductive systems physiology, regulation and the endocrine factors that participate in normal reproduction induced spawning and methods of sex reversal in fishes
- a5- realize the information of the blood, circulation and mechanism of digestion

#### 3-B: INTELLECTUAL SKILLS:

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

- b1- Compare the physiological processes between fish and land vertebrates.
- b2 Interpret the appropriate behavior and coordination with environmental factors.
- b3- Recognize the different developing adaptations in fish.
- b4- Interpret any endocrine and reproductive situation concerning the endocrine or the reproductive systems in the animal body.
- b5- Carry out induced spawning and produce fry from fertilized eggs.

#### 3-C: PRACTICAL AND PROFESSIONAL SKILLS:

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

- c1- Utilize and deal with blood sample
- c2- Assess the different hormones concerned with osmoregulation in fish
- c3- Examine the reproductive system and assess the state of reproductive organs in different seasons.
- c4- analyze the respiratory efficiency through evaluation of blood gases
- c5- perform induction of spawning, sex reversal and hatching of fries.



### 3- D: GENERAL SKILLS:

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

d1-Coach and work in group.

d2-Classify different duties.

d3-Utilize computer and internet skills.

d4-Develop the ethical behaviors between students and staff members as well as among the students themselves.

### 4 - COURSE CONTENTS:

TOPIC	No of hours		
	Total hours	lecture	practical
Taxonomy of fish	5	5	-
General morphology of fish	25	5	20
Digestive system of fish	24	4	20
Blood and circulation	30	5	25
Respiratory& excretory systems and osmoregulation	14	8	6
Endocrine, Reproduction	20	15	5
Induction of spawning and monosex production	26	6	20
Total	144	48	96

### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library  
Making individual reports about Physiology digestion

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a5	b1 to b5		d1, d4
Practical sessions		b1 to b5	c1 to c5	d2, d4
Self-Learning activities				d2, d3, d4
Distance Teaching and Learning	a1 to a5	b1 to b5	c1 to c5	d1 to d4

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:-



<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	All over the academic year
<b>7.c grads</b>	50	20	20	10

7. Student Assessment				
Intended Learning Outcomes Covered				
7.1. Methods	KU	IS	PPS	GTS
Written exams	a1 to a5	b1 to b5		d4
Practical exams			c1 to c5	d2, d3
Oral exams	a1 to a5	b1 to b5		d1
Student activities				d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Essential Books

- Animal Physiology. Richard W Hill , Gordon A Wyse , Margaret Anderson (4th Ed) ISBN: 9781605357379 Edition: 4 Paperback Oct 2017
- Principles of Animal Physiology(2018) 3rd edition, Christopher D. Moyes, Patricia M. Schulte
- Eckert Animal Physiology: Mechanisms and Adaptations (1997) 4<sup>th</sup> Ed, David Randall , Warren Burggren
- Functional Anatomy and Physiology of Domestic Animals,(2017) 5th Edition, William O. Reece, Eric W. Rowe
- Cunningham's Textbook of Veterinary Physiology, 6th Edition - January 3, 2019
- Dukes' Physiology of Domestic Animals, (2015) 13th Edition, William O. Reece (Editor), , Jesse P. Goff , Etsuro E. Uemura
- COMPARATIVE ANIMAL PHYSIOLOGY (2020) 1st Edition, by Philip C. Withers Anatomy and Physiology of Farm Animals, 8th Edition, Anna Dee Fails, Christianne Magee
- The Physiology of Fishes (2016), By Suzanne Currie, David H. Evans

### 8-2: Recommended books:

- Ruchebusch, Y., Phaneuf, I. and Dunlop, R (1991) Physiology of small and large Animals. B.C. Decker , Inc, Philadelphia, Hamilton.
- Swenson M.J, Reece, W.O. and Comstock (1993) Duke's Physiology of Domestic Animals. 11th edition, publishing Associates a division of Cornell University press. Ithaca and London.
- Gunningham, J. (1992) Text book of Veterinary Physiology. W.B. Saunders Company, Toronto, Montreal, Tokyo.
- Guyton, A. (1991) Text book of Medical physiology. 8th, W.B. Saunders Company.
- Ganong, W.F. (1989) Review of Medical Physiology. 9th (Middle East edition) Appleton and Lang.

### 8-3: Egyptian Knowledge Bank:

- Animal Physiology, Beaver, BV and Höglund, DL. 2016. Academic Press, Elsevier Inc.

- Animal Physiology: An Environmental Perspective, by Patrick J. Butler, J. Anne Brown, et al. | Sep 23, 2020. Academic Press, Elsevier Inc.
- Principles of Animal Physiology, by Christopher Moyes and Patricia Schulte | Jan 15, 2015. Academic Press, Elsevier Inc.
- Animal Physiology: From Genes to Organisms, by Lauralee Sherwood, Hillar Klandorf, et al. | Jan 1, 2012. Academic Press, Elsevier Inc.
- Anatomy and Physiology of Farm Animals, by Anna Dee Fails and Christianne Magee | Jul 11, 2018. Academic Press, Elsevier Inc.

#### 8.4. Scientific Journals

- Cells
- Life science
- Fish physiology and biochemistry
- Stress
- Biomedicine
- Aquaculture
- Veterinary sciences
- Scientific report

#### 8.5. Scientific websites

- The Egyptian Knowledge Bank: <https://www.ekb.eg/web/guest/home>
- <https://animalphys4e.sinauer.com/>
- <https://teachmephysiology.com/>
- <https://www.nature.com/subjects/animal-physiology>
- <https://sites.msudenver.edu/haysc/biology-courses/animal-physiology-bio-3360/>
- <https://www.acsedu.com/Courses/animal-biology-animal-husbandry-i-599.aspx>
- <https://animalphys4e.sinauer.com/quiz/>
- <https://askabiologist.asu.edu/explore/animal-physiology>
- <https://www.sinauer.com/media/wysiwyg/tocs/AnimalPhysiology3.pdf>
- <https://www.sciencedirect.com/topics/agricultural-and-biological-sciences/animal-physiology>
- <https://library.ivytech.edu/c.php?g=869309&p=6239318>

**Course Coordinator:**

Dr/ Mustafa Shukry

**Head of Department:**

Prof.Dr/ Shawky Abdelhady Mahmoud

### Course Matrix for achievement of Intended Learning Outcomes

Topics	Hours	Knowledge & Understanding(a)					Intellectual Skills(b)					Practical & Professional Skills©					General & Transferable Skills(d)			
		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4
Taxonomy of fish	4	✓					✓	✓		✓				✓			✓	✓	✓	✓
General morphology of fish	6	✓					✓	✓		✓		✓	✓				✓	✓	✓	✓
Digestive system of fish	16			✓		✓	✓		✓	✓		✓	✓				✓	✓	✓	✓
Blood and circulation	12			✓		✓	✓		✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓
Respiratory & excretory systems and osmoregulation	4			✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Endocrine, Reproduction	4	✓	✓		✓				✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓
Induction of spawning and monosex production	14	✓	✓		✓	✓			✓	✓				✓			✓	✓	✓	✓



**Kafrelsheikh University**  
Faculty of Veterinary Medicine



**Kafrelsheikh University**

**Faculty of Veterinary Medicine**

**Department of poultry and rabbit diseases**

# **Program Specification for Master Degree**

## **(2021 - 2022)**

**Program Title:**

**Master of The Veterinary Science**  
**(Poultry and Rabbit Diseases )**





## **A- Administrative information:**

- 1- **Awarding Body:** Kafrelsheikh University
- 2- **Teaching Body:** Faculty of Veterinary Medicine
- 3- **Department responsible:** Poultry and rabbit diseases
- 4- **Program Title:** Master Degree in Veterinary Science (Poultry and rabbit diseases)
- 5- **Final award:** Master Degree
- 6- **Registration period:** 2-4 years
- 7- **Program Coordinator:** PROF.DR. Moshira Elabbasy
- 8- **External evaluator:** prof.dr. kamal kamal Metwally
- 9- **Date of revision:** 11 / 2016
- 10- **Date of approval:** 12/ 2016

## **B- Professional information:**

### **1-Educational aims of the program**

- Provide the graduates the opportunity to develop communication skills, recent techniques and diagnostic tools in the field of POULTRY AND RABBIT DISEASES, experience of scientific research and teaching skills.
- To achieve capability in modern laboratory technology to develop practical research project.
- To supply the graduated students with the most recent knowledge in science and technological applications of poultry.
- Demonstrate an awareness of the connections between disciplines and develop the ability to engage critically with scientific literature and to critically review and present their own research data for the protection and promotion of the poultry health.

### **2- Academic standards:**

**Academic reference standards (ARS) adopted by the faculty committee No (1) 14-9-2014)**

### **3-Graduate attributes:**

At the end of the program, graduate must be able to:

3.1. Apply the acquired knowledge and experience in developing the

professional practice.

- 3.2. Identify the professional problems and suggest solutions of the focus area.
- 3.3. Show satisfactory interpersonal and communication skills in his professional practice.
- 3.4. Communicate effectively and lead work team through professional scale.
- 3.5. Make decision according to the available information
- 3.6. Use of the available resources efficiently
- 3.7. Awareness with his role in society development and community preservation.
- 3.8. Reflects the commitment to act with integrity, credibility, and the rules of profession
- 3.9. Realize the importance of self and life-long learning.

#### 4-Programme outcomes [intended learning outcomes (ILOs

##### a. Knowledge and understanding:

By the end of the program, graduates of Master degree of poultry and rabbit diseases should be able to know and understand the followings :

- a.1. Realize the principles of research work in the field of poultry and rabbit.
- a.2. Recognize ethical and legal principles for the proper manipulation and utilization of the technology in the field of poultry and rabbit diseases.
- a.3. Apply the sound research methodology by evaluating the utility of those techniques to specific research question.
- a.4. Apply their knowledge and understanding to improve the production of the poultry farms ..
- a.5. Recognize the importance of infectious and non- infectious causes of poultry and rabbit diseases and how to deal with these problems.
- a.6. Recognize the different diagnostic and therapeutic techniques in the field of poultry and rabbit and develop these techniques.

##### B - Intellectual Skills

- b.1. Analyze and judge the information in the field of poultry and rabbits diseases and analog to solve problems.
- b.2. Illustrate clues for problems in poultry and rabbits diseases even in scarcity of resources via contact with professional experts.
- b.3. Relate between different knowledge to solve professional problems.
- b.4. Manage research plan in poultry and rabbits diseases and/ or write scientific article on a research problem.
- b.5. Point out risks of professional practices in poultry and rabbits diseases and their possible



consequences.

- b.6. Ensure improvement of professional performance.
- b.7. Confirm professional decisions in a variety of professional contexts with the desire to meet new challenges.

### **C- Practical Skills**

- c.1. Apply appropriate basic laboratory equipment safely and efficiently.
- c.2. Perform an experiment in poultry and rabbits diseases and analyze data statistically.
- c.3. Attain effective solutions for infectious diseases problems involving reasonably complex information

### **d. General and transferable skills:**

At the end of the programme, graduate must be able to:

#### **d.1. Communicate effectively in different ways, including:**

- Communication with his professors, collages and farm owner (s).
- Participation in workshops assigned on poultry and rabbit diseases
- To be a consultant for those working in field of poultry and rabbit diseases and biotechnology, when they expose to a problem in field of specification.

#### **d.2. Demonstrate information retrieval and library skills.**

#### **d.3. Self assessment and determine their educational needs.**

#### **d.4. Utilize different sources of gaining knowledge and information and to present research finding soft ware(e.g. power point, word, excel and in oral and written from using arrange of appropriate database).**

#### **d.5. Demonstrate interpersonal skills and team working ability by successful completion of collaborative learn assignment and the honors researches project.**

#### **d.6. Lead team under different professional circumstances.**

#### **d.7. Demonstrate an ability to learn independently in preparation for career of lifelong learning.**

#### **d.8. Present research finding in oral and written from using arrange of appropriate soft ware (e.g. power point, word, excel and database).**

### **5-Program structure (duration 2-4 years)**

#### **a) Premaster courses – at least one academic year**

	Lecture (hours/week)	Practical (hours/week)
Fundamental (core) course	3	4
Research methodology	1	3
2-5 Elective Courses (10-12 hours)	Offered by other departments and are selected from the list below according to thesis topic	

#### **b) MVSc Thesis (at least one academic year)**



- All master-degree students should prepare a master thesis.
- The department and the ethical committees must approve the protocol of the research.
- The thesis should include a review part and a research part.
- The thesis is supervised by one or more senior staff members of the department responsible for the program and may include other specialties according to the nature of the research.
- The thesis should be evaluated and approved by a committee of three professors including one of the supervisors and an external professor.

• *A number of subsidiary courses are selected from the following list according to the title of the research work*

Subject	Code	Course title	No of hours/week	
			Lecture	Practical Lab
Anatomy and embryology	101/1	<b>1- Applied anatomy</b>	2	2
	102/1	<b>2- Anatomical techniques and surface anatomy</b>	2	2
	103/1	<b>3- Osteology and arthrology</b>	2	2
	104/1	<b>4- Comparative digestive system</b>	2	2
	105/1	<b>5- Comparative uro-genital system</b>	2	2
	106/1	<b>6-Comparative respiratory system</b>	2	2
	107/1	<b>7- Comparative cardiovascular system</b>	2	2
	108/1	<b>8- Comparative nervous system and endocrine glands</b>	2	2
	109/1	<b>9- General and special embryology</b>	2	2
	110/1	<b>10- Avian anatomy</b>	1	2
Histology	111/1	<b>11- cytology and cytochemistry</b>	1	2
	112/1	<b>12- general histology</b>	2	2
	113/1	<b>13- Histology and histochemistry of blood, lymph and cardiovascular system.</b>	1	1
	114/1	<b>14- Comparative histology and histochemistry of body muscles, heart and blood vessels</b>	1	1
	115/1	<b>15- Comparative histology and histochemistry of respiratory system</b>	1	1
	116/1	<b>16-Comparative histology and histochemistry of digestive system</b>	2	2
	117/1	<b>17- Comparative histology and histochemistry of uro-genital system</b>	2	2



	118/1	<b>18- Comparative histology and histochemistry of nervous and endocrine systems</b>	2	2
	119/1	<b>19- Histology and histochemistry of special sensors</b>	1	2
	120/1	<b>20-Histology and histochemistry of skin, hooves, claws and Nails</b>	2	2
	121/1	<b>21- Avian histology</b>	2	2
	122/1	<b>22- Fish histology</b>	1	2
<b>Physiology</b>	123/1	<b>23- Physiology of mammalian endocrine and reproduction</b>	2	2
	124/1	<b>24- poultry physiology (advanced)</b>	2	2
	125/1	<b>25- physiology of muscle and nerve</b>	1	2
	126/1	<b>26- physiology of ruminants</b>	2	2
	127/1	<b>27- physiology of environment, adaptation and cell</b>	2	2
	128/1	<b>28- physiology of blood</b>	2	2
	129/1	<b>29- physiology of digestion, metabolism and energy</b>	2	2
	130/1	<b>30- Physiology in pollution</b>	1	2
	131/1	<b>31- Radioactive isotopes and biological uses</b>	2	2
	132/1	<b>32- Physiology of heights</b>	1	1
	133/1	<b>33-Fish physiology.</b>	1	2
<b>Biochemistry</b>	134/1	<b>34- Basics of biochemistry</b>	2	3
	135/1	<b>35- Metabolism</b>	2	2
	136/1	<b>36- Biochemistry of tissue and body fluids .</b>	2	2
	137/1	<b>37- Biochemistry of hormones and reproduction</b>	2	2
	138/1	<b>38- Feeding biochemistry</b>	2	2
	139/1	<b>39- Clinical biochemistry</b>	2	2
	140/1	<b>40- Avian biochemistry</b>	2	2
	141/1	<b>41- Microbial biochemistry</b>	2	2
	142/1	<b>42- Biochemistry of radiation</b>	1	2
	143/1	<b>43- Fish biochemistry</b>		
<b>Animal behavior and management</b>	144/1	<b>44- Behavior and management of ruminants ( specific courses in cattle, buffalo, sheep, camels and goats)</b>	2	3
	145/1	<b>45- Behavior and management of horses</b>	2	3
	146/1	<b>46- Behavior and management of pet animals</b>	1	2
	147/1	<b>47- Behavior and management of laboratory animals</b>	1	2
	148/1	<b>48- Behavior and management of wild animals</b>	2	2
	149/1	<b>49- Behavior and management of poultry</b>	2	2



	150/1	<b>50- Behavior and management of rabbit</b>	1	2
	151/1	<b>51- Behavior of experimental animals</b>	1	2
<b>Nutrition and clinical nutrition</b>	152/1	<b>52- Basics of animal nutrition</b>	2	2
	153/1	<b>53- feedstuff</b>	2	2
	154/1	<b>54- nutrition of farm animals and fish specific courses in ( cattle and buffalo nutrition – sheep and goat nutrition – camel nutrition- equine nutrition – fish nutrition)</b>	2	2
	155/1	<b>55- poultry and rabbit nutrition( advanced)</b>	2	2
	156/1	<b>56- wild animal nutrition</b>	1	2
	157/1	<b>57- laboratory animal nutrition</b>	1	2
	158/1	<b>58- feed additives</b>	1	2
	159/1	<b>59- feedstuff analysis</b>	2	2
	160/1	<b>60- Quality control of feed and feed factories</b>	2	2
	161/1	<b>61- Clinical nutrition and malnutrition</b>	2	2
	162/1	<b>62- Fish nutrition</b>	1	2
<b>Pathology</b>	163/1	<b>63- General pathology and neoplasm( progressive)</b>	2	2
	164/1	<b>64-pathology of microbial and parasitic diseases in animal</b>	2	2
	165/1	<b>65- pathology of bad nutrition</b>	1	2
	166/1	<b>66- pathology of environmental pollution</b>	1	2
	167/1	<b>67- pathology of reproductive diseases</b>	1	2
	168/1	<b>68- Avian pathology</b>	2	2
	169/1	<b>69-Experimental pathology</b>	2	2
	170/1	<b>70- toxins pathology</b>	2	2
	171/1	<b>71- surgical pathology</b>	2	2
	172/1	<b>72- Pathology of experimental animals.</b>		
	173/1	<b>73- Pathology of genetics</b>		
	174/1	<b>74-- Fish pathology</b>	2	2
<b>Clinical pathology</b>	175/1	<b>75- Advanced clinical pathology</b>	2	2
	176/1	<b>76-Organ function tests and body and urine balance</b>	2	2
	177/1	<b>77- Clinical hematology and bone marrow examination</b>	1	2
<b>Bacteriology, immunology and mycology</b>	178/1	<b>78- General bacteriology(advanced)</b>	1	2
	179/1	<b>79-systemic bacteriology</b>	2	3
	182/1	<b>80- Advanced immunology</b>	2	2
	183/2	<b>81- Advanced mycology</b>	1	2
<b>Virology</b>	180/3	<b>82- General virology</b>	1	2
	181/4	<b>83-Systemic virology( specific courses)</b>	2	3
	182/5	<b>84- Advanced immunology</b>	2	2



<b>Mixed courses between Bacteriology and Virology</b>	184/1	<b>85- Microbiology of poultry</b>	2	2
	185/1	<b>86- Microbiology of ???????</b>	1	2
	186/1	<b>87- Microbiology of animal product</b>	2	2
	187/1	<b>88- Fish Microbiology</b>	1	2
<b>81- Advanced immunology</b>			2	2
<b>Parasitology</b>	188/1	<b>89- Veterinary medical entomology and acarology</b>	2	2
	189/1	<b>90-helminthology</b>	2	2
	190/1	<b>91- protozoology</b>	2	2
	191/1	<b>92- Avian and rabbits parasitology</b>	2	2
	192/1	<b>93Malacology and its vet. Importance</b>	1	2
	193/1	<b>94- parasitic Immunology</b>	1	2
	194/1			
	195/1			
	196/1			
		197/1	<b>98- Physiology and biochemistry of parasites</b>	2
	198/1	<b>99- Fish parasitology</b>	1	2
<b>Pharmacology</b>	199/1	<b>100- Aeneral pharmacology ( advanced)</b>	2	2
	200/1	<b>101- pharmacology of autonomic nervous system and autocoid</b>	2	2
	201/1	<b>102- pharmacology of central nervous system</b>	2	2
	202/1	<b>103 pharmacology of anesthesia</b>	2	2
	203/1	<b>104- Systemic pharmacology</b>	2	2
	204/1	<b>105- pharmacology of metabolism</b>	2	2
	205/1	<b>106- pharmacology of hormones</b>	2	2
	206/1	<b>107-Chemotherapy</b>	2	2
	207/1	<b>108-Biological evolution of drug</b>	1	1
<b>Hygiene and control of milk and dairy products</b>	208/1	<b>108- Hygiene and control of milk and dairy products</b>	2	2
	209	<b>109- Microbiology of milk and dairy products</b>	2	2
	210/1	<b>110- Milk technology and preservation</b>	2	2
	211/1	<b>111- Food analysis</b>	2	2
	212/1	<b>112- Food poisoning</b>	1	2
	213/1	<b>113- Specific courses on sources of contamination, disturbances of milk production, milk born diseases, hygiene of table egg, edible fats and oils</b>	1	1
	214/1	<b>114- The sanitation of dairy plant</b>	2	2
<b>Control of meat hygiene and their products</b>	215/1	<b>115- Slaughter animal Hygiene</b>	1	2
	216/1	<b>116- Abattoir management and hygiene</b>	2	2
	217/1	<b>117- Hygienic control of meat and their product</b>	2	2
	218/1	<b>118 inspection of poultry meat.</b>	1	2



	219/1	<b>119- Food technology</b>	1	2
	220/1	<b>120- Microbiology of meat and fish meats and their product</b>	2	1
	221/1	<b>121- Chilled meal microbiology</b>	1	2
	222/1	<b>122- Analysis of meat and fish and their product</b>	1	2
	223/1	<b>123- Preservation of meat, poultry, fish and their products</b>	1	2
	224/1	<b>124- Sanitation affairs of meat and fish plants.</b>	2	2
<b>Internal medicine</b>	225/1	<b>125- advanced general medicine</b>	2	2
	226/1	<b>126- disease of ruminants( cattle, buffalo, camels, sheep and goats)</b>	3	3
	227/1	<b>127- diseases of equines</b>	2	2
	228/1	<b>128 diseases of pet animals</b>	2	2
	229/1	<b>129- diseases of wild animals</b>	2	2
	230/1	<b>130- diseases of metabolic disorders</b>	2	2
	231/1	<b>131- nutritional deficiency diseases</b>	2	2
	232/1	<b>132- Skin diseases</b>	1	2
	233/1	<b>133 - diseases of newly born animals</b>	2	2
	234/ 1	<b>134- Stress diseases during animals transport.</b>		
<b>Infectious diseases</b>	235/ 1	<b>135- Infectious diseases of cattle</b>	2	2
	236/ 1	<b>136- Infectious diseases of sheep and goat</b>	2	2
	237/ 1	<b>137- Infectious diseases camel</b>	2	2
	238/ 1	<b>138 Infectious diseases of equine</b>	2	2
	239/ 1	<b>139- Infectious diseases of pet animals</b>	2	2
	240/ 1	<b>140- Infectious diseases lab animals</b>	1	2
	241/ 1	<b>141- Infectious diseases of udder and newly born animals</b>	2	2
	242/ 1	<b>142- Infectious diseases buffaloes</b>	2	1
	243/1	<b>143- Infectious diseases of wild animals.</b>		
<b>Forensic medicine and toxicology</b>	244/1	<b>144- Forensic medicine and veterinary procedures</b>	2	2
	245/1	<b>145- general toxicology</b>	2	2
	246/1	<b>146- environmental toxicology</b>	2	2
	247/1	<b>147- forensic toxicology</b>	2	2
	248/1	<b>148- laboratory diagnostic toxicology</b>	2	2
	249/1	<b>149- Drug toxicology</b>		
<b>Theriogenology</b>	250/1	<b>150- Female infertility (special specific courses in ruminants- equine- pet animals)</b>	2	2
	251/1	<b>151- Male infertility (special specific courses in ruminants- equine- pet animals)</b>	2	2
	252/1	<b>152- Genital diseases.</b>		
	253/1	<b>153 - obstetrics (special specific courses in farm</b>	2	2





		<b>and pet Animals)</b>		
	254/1	<b>153- reproduction and immunity</b>	1	2
	255/1	<b>155- artificial insemination in ruminants</b>	2	2
	256/1	<b>156- artificial insemination in equine</b>	2	2
	257/1	<b>157- artificial insemination in pet animals</b>	1	2
	258/1	<b>158- embryo transfer</b>	1	2
<b>Veterinary Surgery</b>	259/1	<b>159- General surgery (advanced)</b>	2	2
	260/1	<b>160- Special surgery( organs)</b>	2	3
	261/1	<b>161- surgery of eye, ear, nose and larynx</b>	2	2
	262/1	<b>162 digestive system surgery</b>	2	2
	263/1	<b>163- surgery of the limbs, hoof and claws</b>	2	2
	264/1	<b>164- experimental surgery</b>	2	2
	265/1	<b>165- anesthesiology</b>	1	1
	266/1	<b>166- radiology and ultrasonography</b>	2	2
<b>Animal and environmental hygiene</b>	276/1	<b>176- farm animal hygiene ( advanced)</b>	2	2
	277/1	<b>177- poultry hygiene ( advanced)</b>	2	2
	278/1	<b>178- environmental hygiene and pollution</b>	2	2
	279/1	<b>179- control of contagious diseases</b>	2	2
	280/1	<b>180- eradication of rodents and disease vector</b>	2	2
	281/1	<b>181- insecticides and public health</b>	2	2
	282/1	<b>182-hygiene of animal enclosures- specific courses in :- cattle houses – poultry houses – rabbit houses- pet animals house3s – experimental animals houses</b>	2	2
	283/1	<b>183-disinfections and disinfectants</b>	2	2
	284/1	<b>184- veterinary epidemiology – specific courses in animal environment</b>	2	-
<b>Zoonoses</b>	285/1	<b>185- advanced zoonoses ( specific courses in bacterial and Mycotic diseases – viral diseases – parasitic diseases)</b>	2	2
	286/1	<b>186- role of rodents in transmission of zoonoses</b>	2	2
	287/1	<b>187- role of wild animals in transmission of zoonoses</b>	2	2
	288/1	<b>188- role of birds (special courses in: poultry, wild migrating or pets) in transmission of zoonoses</b>		
<b>Genetics and genetic engineering</b>	289/1	<b>189- Genetics of microorganisms .</b>	1	2
	290/1	<b>190- Genetic engineering( advanced)</b>	1	2
	291/1	<b>191- Cytological genetics</b>	1	-
	292/1	<b>192- Genetics of genuses.</b>	2	-



	293/1	<b>193- physiological genetics</b>	2	-
	294/1	<b>194- Chemical and radiological genetics.</b>	1	2
<b>Animal production</b>	295/1	<b>195- Animal breeding and improvement (advanced).</b>	2	-
	296/1	<b>196- Poultry breeding and improvement(advanced).</b>	2	-
	297/1	<b>197- Cattle and buffalo production (advanced).</b>	2	2
	298/1	<b>198- Sheep and goat production (advanced).</b>	2	2
	299/1	<b>199- Poultry production (advanced).</b>	2	2
	300	<b>200-Rabbit production (advanced).</b>	2	2
	301	<b>201-Improving by artificial insemination in poultry and rabbits.</b>	2	2
<b>Fish diseases and management</b>	302/1	<b>202- Biology of fish.</b>	2	2
	303/1	<b>203-Fish diseases (advanced)</b>	2	2
	304/1	<b>204-Fish farms.</b>	1	2
	305/1	<b>205-Fish breeding .</b>	2	2
<b>Economic and farms management</b>	306/1	<b>206- economics of animals and dairy production</b>	2	-
	307/1	<b>207- economics of poultry farms</b>	2	-
	308/1	<b>208-economics of fish farms</b>	2	-
	309/1	<b>209- feasibility studies</b>	2	-
	310/1	<b>210- farm management</b>	2	-
	311/1	<b>211- economics of beef production</b>	2	-
<b>Biostatistics</b>	312/1	<b>212- Biostatistics (advanced)</b>	2	-
	313/1	<b>213- Experimental design</b>	2	2
	314/1	<b>214- Computer and data processing</b>	2	1

#### 5-Teaching and Learning Methods:

- The program features a variety of teaching approaches for different intended learning objectives, including lectures, practical and lab sessions, field visits and seminars.

#### 7- Students assessments:

The program depends on different assessment ways:

##### a. Course assessment:

<b>1- Written examination</b>	<b>For assessment of knowledge, back calling and Intellectual skills</b>
-------------------------------	--



<b>2- Practical examination</b>	<b>For assessment of practical and professional skill</b>
<b>3- Oral examination</b>	<b>For assessment of knowledge and Intellectual skills</b>

### b. Master Thesis

- Annual reports adopted by the Faculty
- Finally, the assessment of thesis measure the individual student ability to work independently in the field specialization
- Final evaluation and approval by a judging committee of at least three professors including one or more of the supervisors and an external professor. This assesses the ability to write a review article, perform the needed practical steps and to present the results in tables and graphs. In addition, the skills of analysis of results and discussion with previous findings obtained by other authors are also assessed.

### Assessment of program intended learning outcomes

Tool or method	ILOs
Written	a1-3; b1,2,
Oral	a1-3; b1,2,
Practical	c1-3
Thesis	a3-6; b3-7; c1-3; d1-8

### 8. Marking scale as follow:-

<b>Excellent</b>	> 90	
<b>Very good</b>	>80	
<b>Good</b>	>70	
<b>Pass</b>	>60	
<b>Fail</b>	<b>Weak</b>	45 to less than 60
	<b>very weak</b>	Less than 45

### 9. Program evaluation methods

Evaluator	Tool	Sample
Postgraduate Student	Questioners	20%
	meeting	1
Postgraduate alumni	Questioners	5
Stakeholders (employers)	Questioners	10
	Meeting	1
External evaluator/External	Reports	1

examiner		
----------	--	--

## 10. Programme Entrance Requirements:

-The Applicant must normally satisfy the faculty of veterinary medicine- **Kafr El-Sheikh**

University general entrance and requirement. The normal minimum entrance qualification for registration at the faculty on a masters program in Poultry and rabbit diseases.

is at least one of the following:

- 1- Bachelor degree in Medical veterinary science of one of the Egyptian universities or hold a degree in Medical veterinary science equivalent through the Supreme Council of Universities with general grade at least “Good” and at least grade very Good” in specialization or the average courses covered the specialization
- 2- Diploma of Poultry and rabbit diseases of at least grade “Good”.
- 3- Applications with an appropriate technical qualification, or equivalent qualification and experience from overseas are also welcomed.

## 11. Regulations for progression of program

- a) Registration period for the MVSc in veterinary medical science is at least 3 years after the approval date by the faculty council and it should not exceed a period of five years, an extension could be approved by the faculty council depending on the supervisor report that approved by the department council and postgraduate and research committee refers to the universities regulation law.
- b) The student should conduct the courses proposed by both department council and approved by postgraduate and research committee and faculty council and include, 5 courses of the postgraduates stated in article (28) in regulation law list and the student will entitled to apply for the exam only after meeting attendance rate for each courses.
- c) -The student should pass written, practical and oral exams successfully in all courses, and the grade will be estimated according to one of the estimates stated in the article (34c).
- d) -The Faculty council should deprive the student from entering the exam if his attendance rate in the course is less than 75%.
- e) -Failure or depriving from entering one or more course did not requires reexamination of successful passed courses.
- f) -The applicant should conduct an innovate research on the subject that has been registered for at least 2 years from the date of registration approved by the faculty council. And the faculty council depending on a request from the supervisor has the right to authorize the student to do scientific experiments at recognized scientific institute.
- g) -The applicant should submit the thesis that accepted by the judging committee in an open discussion and the following policies should be met:
- h) -Pass all courses.
- i)-The applicant should submit 4 copies of his thesis concerned department council to form committee examining the thesis to be presented to the postgraduate studies committee and



the faculty council, and in case of thesis approval by the department council, the applicant will submit 6 copies for the faculty library, 1 copy for public university library before introducing the report of examination committee to the post graduate studies committee and the faculty council.

j)-Registration will be during March and September of each year.

k) -The applicant should submit a request enrolment for the dean who forwards bit to the concerned department council to determine the research subject and the study program and then take calendar after complete documentation on the faculty council for approval.

l)-The thesis title should be identified before being submitted at least 2 months and the judging committee has the right to amend the title without prejudice the subject of research.

m) -The Faculty council has the right to suspend the student enrolment for a certain period if he has acceptable excuse preventing him from continuing his study or research, and his period will not counted within the period stated in article 16 &20.

n)The applicant should submit 10 copies of the thesis after its validity approved by the judging and discussion committee to be distributed to the committee members and faculty library and the judging and discussion committee can decide the exchange of the thesis with other universities or printing at the expense of the university.

#### **12-Registration will be cancelled in one of the following cases:**

- If the supervisors report during the registration period is unsatisfactory (2 reports).
- If he did not submit his thesis before the end of registration period.
- If the judging committee rejected the thesis twice.

#### **13-Examination Regulations**

- a) Time of written exam, 3 hours for each course that have 3 hours or more for lecture / practical /week. If the curriculum less than 3 hours/week, the time of exam, is 2 hours only.
- b) The final degree of each course which have 3 hours (lecture and practical) per week is 100 and less than 3 hours is 50 degrees and divided into 50% for written exam, and 50% for practical and oral exam.

#### **14-Programme completion:**

- Successfully completion of the required courses.
- Approved completion of the research experiments.
- Successfully pass of thesis open defense examination.

Program co-ordinator

Head of department

Prof.dr. Moshira Elabbasy

Prof. dr. Moshira Elabbasy



## Matching program ILOs with ARS - Matrix

Program ILOs	ARS																							
	K&U (a)						I.S. (b)							P.P. (c)			G.T. (d)							
	1	2	3	4	5	6	1	2	3	4	5	6	7	1	2	3	1	2	3	4	5	6	7	8
K&U	1	2	3	4	5	6																		
I.S.							1	2	3	4	5	6	7											
P.P.														1	2	3								
G.T.																	1	2	3	4	5	6	7	8



## **ARS for Master in Veterinary Medical Sciences (Birds and Rabbit Diseases)**

### **1) Graduate attributes**

*The graduate should have the ability for:*

- 1) Perfect application of scientific research basics and methodologies in birds and rabbits diseases, and using its varied tools.
- 2) Application and use of analytical methods in detection of birds and rabbits diseases Application of gained specialized knowledge and integrating them with the relevant knowledge in birds and rabbits diseases.
- 3) Awareness with ongoing poultry and rabbits diseases problems and recent concepts of action of poisons at the cellular level.
- 4) Identification of toxicological problems and suggesting suitable and economic methods of treatment and control.
- 5) Mastering the proper scope of a rate specialized professional skills, and using appropriate technological means to serve the diagnosis and treatment of birds and rabbits diseases Effective communication with students, and owners and leading work team.
- 6) Decision making for suggesting the cause of birds and rabbits diseases.
- 7) Employ available resources efficiently including history, clinical signs, PM lesions and laboratory findings.
- 8) Awareness with his role in society development and fighting birds and rabbits diseases for preservation of a clean environment.
- 9) Reflection of the commitment to act with integrity, credibility and the rules of profession.
- 10) Academic and professional self- development and ability for life-long learning and progress by studying new birds and rabbits diseases cases.

### **A) Knowledge and understanding**

<b>Adopted ARS</b>		<b>NARS (Master)</b>	
	<i>By the end of this program the graduate should understand and accommodate the following:</i>		<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Theories and principles in the field of birds and rabbits diseases and related fields.		Theories and principles in the field of specialization and related fields.
2)	The host pathogen relationship and microbial pathogenesis and their impact on environment		Mutual effect between professional practice and its impact on environment
3)	Application of his knowledge of birds and rabbits diseases research methods by evaluating the utility of those techniques to specific research question about diagnosis of certain infectious causes		Scientific progress in the field of specialization
4)	Applying his knowledge and understanding of methods of infection to the critical analysis and		Legal and ethical basics in professional practice in the field of specialization



	discussion of the scientific literature.	
5)	Health and safety risk assessments for the birds and rabbits diseases laboratory.	Principles and basics of quality assurance in the area of specialization
6)	Basics and ethics of scientific research especially that involving birds and rabbits	Basics and ethics of scientific research

## B) Intellectual skills

<b>Adopted ARS</b>		<b>NARS (Master)</b>
	<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Analysis of data about birds and rabbits diseases to solve field problems	Analysis and judgment of information in the field of specialization and analog to solve problems.
2)	Solving birds and rabbits diseases problems even in presence of few data.	Solving professional problems even in scarcity of data.
3)	Evaluation of relationship between different knowledge to solve poultry farm disease problems.	Relating between different knowledge to solve professional problems.
4)	Designing a research project in the field of birds diseases and publishing a scientific paper	Preparing research plan in specialization and/ or writing scientific article on a research problem.
5)	Assessment of virulence of pathogens infecting birds and rabbits	Risk-assessment of professional practices in specialization.
6)	Development of plans to improve performance in treatment and control of poultry diseases	Planning for improvement of professional performance.
7)	Decision making under different field circumstances	Taking professional decisions in a variety of professional contexts.

## C) Professional and practical skills

<b>Adopted ARS</b>		<b>NARS (Master)</b>
	<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Using recent techniques and tools necessary for diagnosis and control of birds and rabbits diseases.	Mastering basic and recent professional skills in the field of specialization
2)	Summarizing data in a conclusive report with evaluation of findings	Writing and evaluating professional reports.
3)	Assessment of available methodology in the field	Evaluating existing materials and

of birds diseases

methods in the area of specialization.

#### D) General and transferable skill

Adopted ARS		NARS (Master)	
<i>By the end of this program the graduate should understand and accommodate the following:</i>		<i>By the end of this program the graduate should understand and accommodate the following:</i>	
1)	Communicating effectively with teaching staff, colleagues and the community.	Effective communication.	
2)	Using information technology in scientific research and publications.	Utilizing information technology to serve development of professional practice.	
3)	Demonstrating appropriate attitude towards teaching staff and colleagues.	Self-assessment and determination of personal educational needs.	
4)	Identifying and use different sources of information and knowledge.	Using different resources to obtain knowledge and information.	
5)	Using appropriate attitude and rules towards teaching staff and colleagues and use evidence based evaluations.	Establishing rules and indicators for assessment of the performance of others.	
6)	Respecting the importance of team work.	Team working and leading a team in familiar professional contexts.	
7)	Doing good control of timing.	Efficient time management.	
8)	Performing continuous self-learning.	Self and continuous learning.	

## ثانياً: برامج الماجستير

### ١- مواصفات الخريج

خريج برنامج الماجستير في أي تخصص يجب أن يكون قادراً على:

١. إجادة تطبيق أساسيات و منهجيات البحث العلمي واستخدام أدواته المختلفة
٢. تطبيق المنهج التحليلي واستخدامه في مجال التخصص
٣. تطبيق المعارف المتخصصة و دمجها مع المعارف ذات العلاقة في ممارسته المهنية
٤. إظهار وعيا بالمشاكل الجارية و الرؤى الحديثة في مجال التخصص
٥. تحديد المشكلات المهنية و إيجاد حلول لها
٦. إتقان نطاق مناسب من المهارات المهنية المتخصصة، واستخدام الوسائل التكنولوجية



- المناسبة بما يخدم ممارسته المهنية
٧. التواصل بفاعلية و القدرة على قيادة فرق العمل
٨. اتخاذ القرار في سياقات مهنية مختلفة
٩. توظيف الموارد المتاحة بما يحقق أعلى استفادة و الحفاظ عليها
١٠. إظهار الوعي بدوره في تنمية المجتمع و الحفاظ على البيئة في ضوء المتغيرات العالمية و الإقليمية
١١. التصرف بما يعكس الالتزام بالنزاهة و المصداقية و الالتزام بقواعد المهنة
١٢. تنمية ذاته أكاديميا و مهنيا و قادرا علي التعلم المستمر

## ١٢- المعايير القياسية العامة

### ١ المعرفة و الفهم

- بانتهاء دراسة برنامج الماجستير يجب ان يكون الخريج على فهم و دراية بكل من:
- أ- النظريات و الأساسيات المتعلقة بمجال التعلم وكذا في المجالات ذات العلاقة
- ب- التأثير المتبادل بين الممارسة المهنية وانعكاسها علي البيئة
- ت- التطورات العلمية في مجال التخصص
- ث- المبادئ الأخلاقية و القانونية للممارسة المهنية في مجال التخصص
- ج- مبادئ و أساسيات الجودة في الممارسة المهنية في مجال التخصص
- ح- أساسيات و أخلاقيات البحث العلمي

### ٢ المهارات الذهنية

- بانتهاء دراسة برنامج الماجستير يجب ان يكون الخريج قادرا على:
- أ- تحليل و تقييم المعلومات في مجال التخصص و القياس عليها لحل المشاكل
- ب- حل المشاكل المتخصصة مع عدم توافر بعض المعطيات
- ت- الربط بين المعارف المختلفة لحل المشاكل المهنية
- ث- إجراء دراسة بحثية و /أو كتابة دراسة علمية منهجية حول مشكلة بحثية
- ج- تقييم المخاطر في الممارسات المهنية في مجال التخصص
- ح- التخطيط لتطوير الأداء في مجال التخصص
- خ- اتخاذ القرارات المهنية في سياقات مهنية متنوعة

### ٣ المهارات المهنية

- بانتهاء دراسة برنامج الماجستير يجب ان يكون الخريج قادرا على:
- أ- إتقان المهارات المهنية الأساسية و الحديثة في مجال التخصص
- ب- كتابة و تقييم التقارير المهنية



ت-تقييم الطرق و الأدوات القائمة في مجال التخصص

### ٤ المهارات العامة و المنتقلة

بانتهاء دراسة برنامج الماجستير يجب أن يكون الخريج قادرا على:

أ-التواصل الفعال بأنواعه المختلفة

ب-استخدام تكنولوجيا المعلومات بما يخدم الممارسة المهنية

ت-التقييم الذاتي وتحديد احتياجاته التعليمية الشخصية

ث-استخدام المصادر المختلفة للحصول على المعلومات و المعارف

ج-وضع قواعد ومؤشرات تقييم أداء الآخرين

ح-العمل في فريق ، وقيادة فرق في سياقات مهنية مختلفة

خ-إدارة الوقت بكفاءة

د-التعلم الذاتي و المستمر



## DEPARTMENT OF POULTRY DISEASES

### Course specification

(2021 – 2022)

#### 1 - Basic Information:

Code number: -

Course title: **Diseases of Poultry and rabbits**

Academic year or level: Pre-master

Total teaching hours: 336 hrs

Lectures: 144 hrs

Practical: 192 hrs

#### 2 - OVERALL AIMS OF THE COURSE:

To provide students with basic knowledge and skills relevant to diseases of poultry. These including etiology, epidemiology, clinical signs, lesions, diagnosis, prevention and control of such avian diseases, Special attention is given to the most prevalent diseases in the country.

#### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

##### 3-A: KNOWLEDGE and UNDERSTANDING:

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

A1- Recognize the different techniques used in isolation of the etiology of diseases of poultry.

A2- **Define** the modern techniques used in identification of the etiology of different diseases of poultry.

A3- Describe the diagnosis and differential diagnosis of different diseases affecting poultry.

A4- Recognize the gross lesions in different diseases of poultry.

A5- Outlines the in vitro sensitivity tests against different antibiotics.

A6- Identify the drug of choice for treatment of poultry diseases.

A7- Define the effective vaccine used for prevention and control of diseases of poultry.

##### 3.B: INTELLECTUAL SKILLS:

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

B1- Create the ability to make isolation and identification of the etiology of different diseases of poultry.

B2- Select the diagnosis of different diseases of poultry.

B3- manage poultry diseases.

B4- Construct the effective vaccination program used for prevention and control of poultry diseases.

##### 3. C: Practical and professional skills:

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

C1. Perform isolation of the causative microorganisms followed by identification using both conventional and molecular techniques.

C2. **Detect** the clinical signs and postmortem lesions of different diseases of poultry and rabbits

C3. **Apply treatment of** diseases of poultry and rabbits

C4. Implement **preventive and control measures for** diseases of poultry and rabbits

##### 3.D: GENERAL SKILLS:

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



D1- Coach and work in groups.

D2-Classify different duties

D3- Utilize computer and internet skills.

D4-Develop the ethical behaviors between students and staff members as well as among the students themselves.

#### 4 - COURSE CONTENTS:

TOPIC	Total hours	Hours for lecture	Hours for practical
Salmonella Infection	15	7	8
E coli Infection	15	7	8
Pasteurella Infection	15	7	8
Chlostridial Infection	15	7	8
Strept.Staph. &Coryza	15	7	8
ORT,	15	7	8
Campylobacter& Mycobacteriosis	15	7	8
Chlamydia& Spirocheata	15	7	8
Newcastle disease	15	7	8
Avian influenza	15	7	8
Gumboro + REO virus	15	7	8
IB + ILT+TRT	15	5	10
Adenovirus infection	15	5	10
Neoplastic diseases	15	5	10



Duck viral diseases	15	5	10
Avian Pox	15	5	10
Aspergillosis	12	6	6
CandidiasisFavus	12	6	6
CryptococcosisHistoplasmosis	12	6	6
Mycotoxicoses	12	6	6
Avian Coccidiosis	12	6	6
Histomoniasis, Trichomoniasis Hair worm, Cecal worm, Lung worms	12	4	8
Treatmatodes, Cestodes Nematodes	12	4	8
Ectoparasites	12	4	8
total	336	144	192

## 5- TEACHING & LEARNING METHODS:

### 5.1:- Lectures

(using data show and white board, brain storming)

### 5.2:- Practical and small group sessions:

1: Practical training

(Practical demonstrations, practice of skills, and discussions)

### 5.3:- self learning

(Computer researches and faculty library visits to prepare essays and presentations)

- Library researches.
- Internet researches.
- Discussion in the researches.
- Histological Drawings.

### 5.4:- Audiovisual

Television circle in the practical laboratory

## 6. METHODS FOR STUDENTS With limited capabilities:-

- Activation of office hours.
- Discussion with them during practical session.

## 7. STUDENT ASSESSMENT:-



<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination
<b>7.b time</b>	<b>At the end of 48 weeks</b>	<b>At the end of 48 weeks</b>	<b>At the end of 48 weeks</b>
<b>7.c grads</b>	50	20	30

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-A: SUGGESTED MATERIALS:

1. [Diseases of Poultry](#) 12<sup>th</sup> Ed. (2008). Saif, Fadly, Glisson, McDougald, Nolan, and Swayne. Iowa State University Press, Iowa, USA.
2. [Virus Infection of Birds](#). 2<sup>nd</sup> ed. (1993) McFerran, and McNulty
3. [A Laboratory Manual for Isolation and Identification of Avian Pathogens](#). (2006). David Swayne, John Glisson, and Mark Jackwood. American Association of Avian pathologists. USA.
4. [Avian Medicine](#). 1<sup>st</sup> ed. (2000). Tully, Lawton, and Dorrestien. Butterworth-Heinemann.
5. [Diseases of Cage and Aviary Birds](#). 2nd ed. (1982) Margaret Petrak, Lea and Febiger, Philadelphia.
6. CD-ROM containing topics and presentations in poultry and rabbit diseases (to be available to students)

### 8.B: web sites and journals

- [www.oie.int](http://www.oie.int)
- [WWW.PubMed.com](http://WWW.PubMed.com)
- International of veterinary information services (IVIS)
- [www.vet.net.com](http://www.vet.net.com)

### International universities web sites (Colleges of Veterinary Medicines) •

#### [www.oie.net](http://www.oie.net) OIE Web site (Office of International Epizootics) •

- <http://www.thepoultry.net/>
- <http://www.aaapjournals.info/>
- <http://www.ncbi.nlm.nih.gov/pubmed/>
- <http://www.tandf.co.uk/journals/cavp/>
- <http://www.thepoultrysite.com/diseaseinfo/>
- <http://www.poultrymed.com/Poultry/>
- <http://www.jwildlifedis.org/>
- [Avian Diseases Journal](#). Published by the American Association of Avian Pathologists (AAAP).
- [Avian pathology Journal](#)

### 9.1.Course content ILOs Matrex:

TOPIC	K.U (a)	I.S (b)	P.P.S (c)	G.T.S (d)
-------	------------	------------	--------------	--------------





Salmonella infection	A1-A7	B1- 4	C1-C4	D1-D2-D4
E coli infection	A1-A7	B1- 4	C1-C4	D1-4
Pasteurella infection	A1-A7	B1- 4	C1-C4	<b>D1-4</b>
Chlostridial infection	A1-A7	B1- 4	C1-C4	<b>D1-4</b>
Strept.Staph. &Coryza	A1-A7	B1- 4	C1-C4	<b>D1-4</b>
ORT,	A1-A7	B1- 4	C1-C4	D1-4
Campylobacter& Mycobacteriosis	A1-A7	B1- 4	C1-C4	D1-4
Chlamydia& Spirocheata	A1-A7	B1- 4	C1-C4	D1-4
Newcastle disease	A1-A7	B1- 4	C1-C4	D1-D2-D4
Avian influenza	A1-A7	B1- 4	C1-C4	D1-4
Gumboro + REO virus	A1-A7	B1- 4	C1-C4	<b>D1-4</b>
IB + ILT+TRT	A1-A7	B1- 4	C1-C4	<b>D1-4</b>
Adenovirus infection	A1-A7	B1- 4	C1-C4	<b>D1-4</b>
Neoplastic diseases	A1-A7	B1- 4	C1-C4	D1-4
Duck viral diseases	A1-A7	B1- 4	C1-C4	D1-4
Avian Pox	A1-A7	B1- 4	C1-C4	D1-4
Aspergillosis	A1-A7	B1- 4	C1-C4	D1-D2-D4
CandidiasisFavus	A1-A7	B1- 4	C1-C4	D1-4
CryptococcosisHistoplasmosis	A1-A7	B1- 4	C1-C4	<b>D1-4</b>
Mycotoxicoeses	A1-A7	B1- 4	C1-C4	<b>D1-4</b>



Avian Coccidiosis	A1-A7	B1- 4	C1-C4	<b>D1-4</b>
Histomoniasis, Trichomoniasis Hair worm, Cecal worm, Lung worms	A1-A7	B1- 4	C1-C4	D1-4
Treatmatodes, Cestodes Nematodes	A1-A7	B1- 4	C1-C4	D1-4
Ectoparasites	A1-A7	B1- 4	C1-C4	D1-4

### 9.2. Assessment Ilos matrix:

TOOLS	I.L.O.S Evaluation				Marks allocated
	Knowledge	Intellectual	Practical	General	
Written examination	A1..A2..A3..A4..A5..A6.&.A7	B3. & B4		D3	50
Oral examination	A1..A2..A3..A4..A5..A6.&.A7	B3. & B4		D4	20
Practical examination		B1, B2	C1.C2.C3.C4	D1,2	30

#### Course coordinator:

Name : Dr. Moshira A. El-Abasy

Signature

#### Head of department of Poultry diseases

Name: Prof. Dr. Mahmoud M. Ismail

Signature:



## DEPARTMENT OF POULTRY DISEASES

### Course specification

(2021 - 2022)

#### 1 - Basic Information:

Code number: 267(1)

Course title: Bacterial Diseases of Poultry

Academic year or level: Pre-master

Total teaching hours: 192 hrs

Lectures: 96 hrs

Practical: 96 hrs

#### 2 - OVERALL AIMS OF THE COURSE:

To provide student with basic knowledge and skills concerning the epidemiology, diagnosis prevention and control of diseases in different birds and rabbits.

#### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

##### 3-A: KNOWLEDGE and UNDERSTANDING:

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

A1- Memorize the different techniques used in isolation of the etiology of different diseases of poultry and rabbits.

A2- **Defined** the modern techniques used in identification of the etiology of different diseases of poultry and rabbits.

A3- Describe the diagnosis and differential diagnosis of different diseases of poultry and rabbits.

A4- Recognize the gross lesions in different diseases of poultry and rabbits.

A5- Out lines the in vitro sensitivity tests against different antibiotics.

A6- Identify the drug of choice for treatment of poultry and rabbit diseases.

A7- Defined the effective vaccine used for prevention and control of poultry and rabbit diseases.

##### 3-B: INTELLECTUAL SKILLS:

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

B1- Create the ability to make isolation and identification of the etiology of different diseases of poultry and rabbits.

B2- Perform the diagnosis of different diseases of poultry and rabbits.

B3- Create the ability to treatment of poultry and rabbit diseases.

B4- Construct the effective vaccine used for prevention and control of poultry and rabbit diseases.

##### 3. C: Practical and professional skills:

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

C1. Perform isolation of the causative microorganisms and identification biochemically and serologically.

C2. **Detect** the clinical signs and postmortem lesions of different bacterial diseases of poultry.

C3. **Make laboratory and field tests** for diagnosis of bacterial diseases of poultry.

C4. **Apply the treatment of** bacterial diseases of poultry.

C5. Implement **preventive and control measures** for bacterial diseases of poultry



### 3.D: GENERAL SKILLS:

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

D1- Coach and work in groups.

D2-Classify different duties

D3- Utilize computer and internet skills.

D4-Develop the ethical behaviors between students and staff members as well as among the students themselves.

### 4 - COURSE CONTENTS:

TOPIC	Total hours	Hours for lecture	Hours for practical
Salmonella Infection	24	12	12
E coli Infection	24	12	12
Pasteurella Infection	24	12	12
Chlostridial Infection	24	12	12
Strept.Staph.&Coryza	24	12	12
ORT,	24	12	12
Campylobacter&Mycobacteriosis	24	12	12
Chlamydia&Spirocheata	24	12	12
Total	192	96	96

### 5- TEACHING & LEARNING :

#### 5.1:- Lectures

( using data show and white board, brain storming)

#### 5.2:- Practical and small group sessions:

1: Practical training

(Practical demonstrations, practice of skills, and discussions)

#### 5.3:- self learning

(Computer researches and faculty library visits to prepare essays and presentations)

- Library researches.
- Internet researches.
- Discussion in the researches.
- Histological Drawings.

#### 5.4:- Audiovisual

Television circle in the practical laboratory

### 6. METHODS FOR STUDENTS With limited capabilities:-

- Activation of office hours.
- Discussion with them during practical session.

### 7. STUDENT ASSESSMENT:-



<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination
<b>7.b time</b>	<b>At the end of 48 weeks</b>	<b>At the end of 48 weeks</b>	<b>At the end of 48 weeks</b>
<b>7.c grads</b>	50	25	25

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-A: SUGGESTED MATERIALS:

CD-ROM containing topics and presentations in poultry and rabbit diseases (to be available to students)

Osama, M. Y. (1995): Commercial Rabbit Production.

Calnek, B. w. (1998): Diseases of Poultry, Tenth edition.

Saif, Y. M. (2008): Poultry Diseases. U. S. A.

### 8.B: web sites and journals

- [WWW.PubMed.com](http://WWW.PubMed.com)
- International of veterinary information services (IVIS)
- [www.Vet.net.com](http://www.Vet.net.com)

### 9.1. Course content ILOs Matrix:

TOPIC	K.U (a)	I.S (b)	P.P.S (c)	G.T.S (d)
Salmonella infection	A1-A7	B1- 4	C1-C4	D1-D2-D4
E coli infection	A1-A7	B1- 4	C1-C4	D1-4
Pasteurella infection	A1-A7	B1- 4	C1-C4	<b>D1-4</b>
Chlostridial infection	A1-A7	B1- 4	C1-C4	<b>D1-4</b>
Strept.Staph&Coryza	A1-A7	B1- 4	C1-C4	<b>D1-4</b>
ORT,	A1-A7	B1- 4	C1-C4	D1-4
Campylobacter&Mycobacteriosis	A1-A7	B1- 4	C1-C4	D1-4
Chlamydia& Spirocheata	A1-A7	B1- 4	C1-C4	D1-4

### 9.2. Assessment ILOs Matrix:



TOOLS	I.L.O.S Evaluation				Marks allocated
	Knowledge	intellectual	Practical	General	
Written examination	A1..A2..A3..A4..A5..A6.&.A7	B3. & B4		D3	50
Oral examination	A1..A2..A3..A4..A5..A6.&.A7	B3. & B4		D4	25
Practical examination		B1, B2	C1.C2.C3.C4	D1,2	25

**Course coordinator:**

**Name :** Dr. Moshira A. El-Abasy

**Signature**

**Head of department of Poultry diseases**

**Name:** Prof. Dr. Mahmoud M. Ismail

**Signature:**



## DEPARTMENT OF POULTRY DISEASES

### Course specification

(2021 - 2022)

#### 1 - Basic Information:

Code number: 268 (1)

Course title: **Viral Diseases of Poultry**

Academic year or level: Pre-doctor

Total teaching hours: 192 hrs

Lectures: 96 hrs

Practical: 96 hrs

#### 2. Overall AIM OF THE COURSE:

To provide student with basic knowledge and skills concerning the epidemiology, diagnosis prevention and control of viral diseases in different birds.

#### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

##### 3-A: KNOWLEDGE and UNDERSTANDING:

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

A1- Memorize the different techniques used in isolation of the etiology of different viral diseases of poultry.

A2- **Define** the modern techniques used in identification of the etiology of different viral diseases of poultry.

A3- Describe the diagnosis and differential diagnosis of different viral diseases of poultry.

A4- Recognize the gross lesions in different viral diseases of poultry.

A5- Define the effective vaccine used for prevention and control of viral diseases of poultry.

##### 3. B: INTELLECTUAL SKILLS:

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

B1- Create the ability to make isolation and identification of the etiology of different viral diseases of poultry.

B2- Discover the diagnosis of different viral diseases of poultry.

B3- Construct the effective vaccine used for prevention and control of viral diseases of poultry.

##### 3. C: Practical and professional skills:

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

C1. Perform isolation of the causative microorganisms and serological identification.

C2. **Detect** the clinical signs and postmortem lesions of different viral diseases of Poultry.

C3. **Apply laboratory and field tests** for diagnosis of **viral diseases** of poultry.

C4. **Perform Field application of vaccines** of viral diseases of poultry.



C5. Implement **preventive and control measures** for viral diseases of poultry.

### 3. D: GENERAL SKILLS:

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

D1 - Coach and work in groups.

D2 - Classify different duties

D3 - Utilize computer and internet skills.

D4 - Develop the ethical behaviors between students and staff members as well as among the students themselves.

### 4 - COURSE CONTENTS:

TOPIC	Total hours (%)	Hours for lecture	Hours for practical
Newcastle disease	24	12	12
Avian influenza	24	12	12
Gumboro + REO virus	24	12	12
IB + ILT+TRT	24	12	12
Adenovirus infection	24	12	12
Neoplastic diseases	24	12	12
Duck viral diseases	24	12	12
Avian Pox	24	12	12
Total	192	96	96

### 5- TEACHING & LEARNING METHODS:

#### 5.1:- Lectures

( using data show and white board, brain storming)

#### 5.2:- Practical and small group sessions:

1: Practical training

(Practical demonstrations, practice of skills, and discussions)

#### 5.3:- self learning

(Computer researches and faculty library visits to prepare essays and presentations)

- Library researches.
- Internet researches.
- Discussion in the researches.
- Histological Drawings.





#### 5.4:- Audiovisual

Television circle in the practical laboratory

#### 6. METHODS FOR STUDENTS With limited capabilities:-

- Activation of office hours.
- Discussion with them during practical session.

#### 7. STUDENT ASSESSMENT:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination
<b>7.b time</b>	<b>At the end of 48 weeks</b>	<b>At the end of 48 weeks</b>	<b>At the end of 48weeks</b>
<b>7.c grads</b>	50	25	25

#### 8. LEARNING AND REFERENCE MATERIALS:

##### 8-A: SUGGESTED MATERIALS:

CD-ROM containing topics and presentations in poultry and rabbit diseases (to be available to students)

Osama, M. Y. (1995): Commercial Rabbit Production.

Calnek, B. w. (1998): Diseases of Poultry, Tenth edition.

Saif, Y. M. (2008): Poultry Diseases. U. S. A.

##### 8.B: web sites and jounrnlS

- [WWW.PubMed.com](http://WWW.PubMed.com)
- International of veterinary information services (IVIS)
- [www.Vet.net.com](http://www.Vet.net.com)

#### 9.1. Course content ILOs Matrex:

TOPIC	K.U (a)	I.S (b)	P.P.S (c)	G.T.S (d)
Newcastle disease	A1-A5	B1- 3	C1-C5	D1-D2-D4
Avian influenza	A1-A5	B1- 3	C1-C5	D1-4
Gumboro + REO virus	A1-A5	B1- 3	C1-C5	<b>D1-4</b>
IB + ILT+TRT	A1-A5	B1- 3	C1-C5	<b>D1-4</b>
Adenovirus infection	A1-A5	B1- 3	C1-C5	<b>D1-4</b>
Neoplastic diseases	A1-A5	B1- 3	C1-C5	D1-4
Duck viral diseases	A1-A5	B1- 3	C1-C5	D1-4



Avian Pox	A1-A5	B1- 3	C1-C5	D1-4
-----------	-------	-------	-------	------

### 9.2. Assessment ILOs Matrix:

TOOLS	I.L.O.S Evaluation				Marks allocated
	Knowledge	intellectual	Practical	general	
Written examination	A1..A2..A3..A4..A5..	B3		D3	50
Oral examination	A1..A2..A3..A4..A5.	B1. B2.		D4	25
Practical examination			C1.C2.C3.C4,C5	D1-2	25

#### Course coordinator:

Name : Dr. Moshira A. El-Abasy

Signature

#### Head of department of Poultry diseases

Name: Prof. Dr. Mahmoud M. Ismail

Signature:



## DEPARTMENT OF POULTRY DISEASES

### Course specification

(2016 / 2017)

#### 1 - Basic Information:

Code number: 269 (1)

Course title: **Mycotic Diseases of Poultry**

Academic year or level: Pre-master

Total teaching hours: 192 hrs

Lectures: 96 hrs

Practical: 96 hrs

#### 2 - OVERALL AIMS OF THE COURSE:

To provide student with basic knowledge and skills concerning the epidemiology, diagnosis prevention and control of viral diseases in different birds.

#### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

##### 3-A: KNOWLEDGE and UNDERSTANDING:

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

A1- Memorize the different techniques used in isolation of the etiology of different mycotic diseases of poultry.

A2- Define the modern techniques used in identification of the etiology of different viral diseases of poultry.

A3- Describe the diagnosis and differential diagnosis of different mycotic diseases of poultry.

A4- Recognize the gross lesions in different mycotic diseases of poultry.

A5- Define the effective drug used for treatment and control of mycotic diseases and mycotoxins of poultry.

##### 3. B: INTELLECTUAL SKILLS:

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

B1- Create the ability to make isolation and identification of the etiology of different mycotic diseases of poultry.

B2- Discover the diagnosis of different mycotic diseases of poultry.

B3- Construct the effective drug used for prevention and control of mycotic diseases and mycotoxins of poultry.

##### 3. C: Practical and professional skills:

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

C1. Make isolation of the causative microorganisms and serological identification.

C2. Describe the clinical signs and postmortem lesions of different mycotic diseases of Poultry.

C3. Make laboratory tests for diagnosis of mycotic diseases of poultry.

C4. Field application of treatment of mycotic diseases of poultry.

C5. prevention and control of mycotic diseases and mycotoxins of poultry.

##### 3. D: GENERAL SKILLS:

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

D1- Coach and work in groups.

D2- Classify different duties



D3- Utilize computer and internet skills.

D4-Develop the ethical behaviors between students and staff members as well as among the students themselves.

#### 4. COURSE CONTENTS:

TOPIC	Total hours (%)	Hours for lecture	Hours for practical
Aspergillosis	48	24	24
CandidiasisFavus	48	24	24
CryptococcosisHistoplasmosis	48	24	24
Mycotoxicoes	48	24	24
Total	192	96	96

#### 5- TEACHING & LEARNING METHODS:

##### 5.1:- Lectures

( using data show and white board, brain storming)

##### 5.2:- Practical sessions:

1: Practical training

(Practical demonstrations, practice of skills, and discussions)

##### 5.3:- self learning

(Computer researches and faculty library visits to prepare essays and presentations)

- Library researches.
- Internet researches.
- Discussion in the researches.
- Histological Drawings.

##### 5.4:- Audiovisual

Television circle in the practical laboratory

#### 6. METHODS FOR STUDENTS With limited capabilities:-

- Activation of office hours.
- Discussion with them during practical session.

#### 7. STUDENT ASSESSMENT:-



<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination
<b>7.b time</b>	<b>At the end of 48 weeks</b>	<b>At the end of 48 weeks</b>	<b>At the end of 48 weeks</b>
<b>7.c grads</b>	50	25	25

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-A: SUGGESTED MATERIALS:

CD-ROM containing topics and presentations in poultry and rabbit diseases (to be available to students)

Calnek, B. w. (1998): Diseases of Poultry, Tenth edition.

Saif, Y. M. (2008): Poultry Diseases. U. S. A.

### 8.B: web sites and journals

- [WWW.PubMed.com](http://WWW.PubMed.com)
- International of veterinary information services (IVIS)
- [www.Vet.net.com](http://www.Vet.net.com)

### 9.1. Course content ILOs

TOPIC	K.U (a)	I.S (b)	P.P.S (c)	G.T.S (d)
Aspergillosis	A1-A5	B1- 3	C1-C5	D1-D2-D4
CandidiasisFavus	A1-A5	B1- 3	C1-C5	D1-4
Cryptococcosis Histoplasmosis	A1-A5	B1- 3	C1-C5	<b>D1-4</b>
Mycotoxicoses	A1-A5	B1- 3	C1-C5	<b>D1-4</b>

### 9.2. Assessment ILOs Matrix:



TOOLS	I.L.O.S Evaluation				Marks allocated
	Knowledge	intellectual	Practical	general	
Written examination	A1..A2..A3..A4..A5..	B3		D3	50
Oral examination	A1..A2..A3..A4..A5.	B1. B2.		D4	25
Practical examination			C1.C2.C3.C4,C5	D1-2	25

**Course coordinator:**

**Name :** Dr. Moshira A. El-Abasy

**Signature**

**Head of department of Poultry diseases**

**Name:** Prof. Dr. Mahmoud M. Ismail

**Signature:**



## DEPARTMENT OF POULTRY DISEASES

### Course specification

(2021 - 2022)

#### 1 - Basic Information:

Code number: 270 (1)

Course title: **Parasitic Diseases of Poultry**

Academic year or level: **Pre-master**

Total teaching hours: 144 hrs

Lectures: 48 hrs

Practical: 96 hrs.

#### 2 - OVERALL AIMS OF THE COURSE:

To provide student with basic knowledge and skills concerning the epidemiology, diagnosis prevention and control of viral diseases in different birds.

#### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

##### 3-A: KNOWLEDGE and UNDERSTANDING:

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

A1- Memorize the different techniques used in isolation of the etiology of different parasitic diseases of poultry.

A2- **Define** the modern techniques used in identification of the etiology of different parasitic diseases of poultry.

A3- Describe the diagnosis and differential diagnosis of different parasitic diseases of poultry.

A4- Recognize the gross lesions in different parasitic diseases of poultry.

A5- Define the effective drug used for treatment and control of parasitic diseases of poultry.

##### 3.B: INTELLECTUAL SKILLS:

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

B1- Create the ability to make isolation and identification of the etiology of different mycotic diseases of poultry.

B2- Discover the diagnosis of different mycotic diseases of poultry.

B3- Construct the effective drug used for prevention and control of parasitic diseases of poultry.

##### 3. C: Practical and professional skills:

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

C1. Perform isolation of the causative microorganisms and serological identification.

C2. **Detect** the clinical signs and postmortem lesions of different mycotic diseases of Poultry.

C3. **Apply laboratory and field tests** for diagnosis of **mycotic diseases** of poultry.

C4. Perform **Field application for treatment** of mycotic diseases of poultry.

C5. Implement **preventive and control measures** for mycotic diseases and mycotoxins of poultry.

##### 3. D: GENERAL SKILLS:

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

D1- Coach and work in groups.

D2- Classify different duties

D3- Utilize computer and internet skills.

D4- Develop the ethical behaviors between students and staff members as well as among the students themselves.

#### 4. COURSE CONTENTS:

TOPIC	Total hours	Hours for lecture	Hours for practical
Avian Coccidiosis	36	12	24
Histomoniasis Trichomoniasis Hair worm Cecal worm Lung worms	36	12	24
Treamatodes Cestodes Nematodes	36	12	24
Ectoparasites	36	12	24
<b>Total</b>	<b>144</b>	<b>48</b>	<b>96</b>

#### 5- TEACHING & LEARNING METHODS:

##### 5.1:- Lectures

( using data show and white board, brain storming)

##### 5.2:- Practical and small group sessions:

1: Practical training

(Practical demonstrations, practice of skills, and discussions)

##### 5.3:- self learning

(Computer researches and faculty library visits to prepare essays and presentations)

- Library researches.
- Internet researches.
- Discussion in the researches.
- Histological Drawings.

##### 5.4:- Audiovisual

Television circle in the practical laboratory

#### 6. METHODS FOR STUDENTS With limited capabilities:-

- Activation of office hours.
- Discussion with them during practical session.

#### 7. STUDENT ASSESSMENT:-

<u>7.a Used methods</u>	Written examination	Oral examination	Practical examination





<b>7.b time</b>	<b>At the end of 48 weeks</b>	<b>At the end of 48 weeks</b>	<b>At the end of 48 weeks</b>
<b>7.c grads</b>	50	20	30

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-A: SUGGESTED MATERIALS:

CD-ROM containing topics and presentations in poultry and rabbit diseases (to be available to students)

Osama, M. Y. (1995): Commercial Rabbit Production.

Calnek, B. w. (1998): Diseases of Poultry, Tenth edition.

Saif, Y. M. (2008): Poultry Diseases. U. S. A.

### 8.B: web sites and journals

- [WWW.PubMed.com](http://WWW.PubMed.com)
- International of veterinary information services (IVIS)
- [www.Vet.net.com](http://www.Vet.net.com)

## 9.1. Course content ILOs

TOPIC	K.U (a)	I.S (b)	P.P.S (c)	G.T.S (d)
Avian Coccidiosis	A1-A5	B1- 3	C1-C5	D1-D2-D4
Histomoniasis Trichomoniasis Hair worm Cecal worm Lung worms	A1-A5	B1- 3	C1-C5	D1-4
Treatmatodes Cestodes Nematodes	A1-A5	B1- 3	C1-C5	<b>D1-4</b>
Ectoparasites	A1-A5	B1- 3	C1-C5	<b>D1-4</b>



## 9.2. Assessment ILOs Matrix:

TOOLS	I.L.O.S Evaluation			Marks allocated	
	Knowledge	intellectual	Practical		
Written examination	A1..A2..A3..A4..A5..	B3		D3	50
Oral examination	A1..A2..A3..A4..A5.	B1. B2.		D4	20
Practical examination		-	C1.C2.C3.C4,C5	D1-2	30

### Course coordinator:

Name : Dr. Moshira A. El-Abasy

### Signature

Head of department of Poultry diseases

Name: Prof. Dr. Mahmoud M. Ismail

Signature:



## DEPARTMENT OF POULTRY DISEASES

### Course specification

(2016 / 2017)

#### 1 - Basic Information

Code number: 271(1)

Course title: **Nutritional Deficiency Diseases of Poultry**

Academic year or level: Pre-master

Total teaching hours: 144hrs

Lectures: 48 hrs

Practical: 96 hrs

#### 2 - OVERALL AIMS OF THE COURSE:

To provide student with basic knowledge and skills concerning the epidemiology, diagnosis prevention and control of nutritional deficiency diseases in birds.

#### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

##### 3-A: KNOWLEDGE and UNDERSTANDING:

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

A1- Memorize the causes and clinical signs of deficiency diseases of poultry.

A2 - Recognize the gross lesions in different deficiency diseases of poultry.

A3- Prescribe the effective remedies used for treatment and prevention of deficiency diseases of poultry

##### 3. B: INTELLECTUAL SKILLS:

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

B1- Delineate the etiology of different deficiency diseases of poultry

B2- Confirm the diagnosis of different deficiency diseases of poultry.

B3- Prescribe effective drug used for prevention and treatment of deficiency diseases of poultry

##### 3. C: Practical and professional skills:

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

C1. Detect clinical signs of def. diseases

C2. **Perform** postmortem lesions of different deficiency diseases of poultry.

**C3.** Apply laboratory confirmation for diagnosis of deficiency diseases of poultry.

C4. Perform **Field application for treatment** of deficiency diseases of poultry.

C5. Implement **preventive and control measures** for deficiency diseases of poultry.

##### 3. D: GENERAL SKILLS:

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

D1- Coach and work in groups.

D2- Classify different duties

D3- Utilize computer and internet skills.

D4- Develop the ethical behaviors between students and staff members as well as among the students themselves.

#### 4. COURSE CONTENTS:



TOPIC	Total hours	Hours for lecture	Hours for practical
Vitamin A Deficiency	18	6	12
Vitamin E Deficiency	18	6	12
Vitamin D, Ca. & Ph. Deficiency	18	6	12
Vitamin B1 Deficiency	18	6	12
Vitamin B2 Deficiency	18	6	12
Vitamin K Deficiency	18	6	12
Cannibalism&Gout	18	6	12
Miscellaneous Conditions	18	6	12
Total	144	48	96

## 5- TEACHING & LEARNING METHODS:

### 5.1:- Lectures

( using data show and white board, brain storming)

### 5.2:- Practical and small group sessions:

1: Practical training

(Practical demonstrations, practice of skills, and discussions)

### 5.3:- self learning

(Computer researches and faculty library visits to prepare essays and presentations)

- Library researches.
- Internet researches.
- Discussion in the researches.
- Histological Drawings.

### 5.4:- Audiovisual

Television circle in the practical laboratory

## 6. METHODS FOR STUDENTS With limited capabilities:-

- Activation of office hours.
- Discussion with them during practical session.

## 7. STUDENT ASSESSMENT:-



<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination
<b>7.b time</b>	<b>At the end of 48 weeks</b>	<b>At the end of 48 weeks</b>	<b>At the end of 48 weeks</b>
<b>7.c grads</b>	50	20	30

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-A: SUGGESTED MATERIALS:

CD-ROM containing topics and presentations in poultry and rabbit diseases (to be available to students)

Osama, M. Y. (1995): Commercial Rabbit Production.

Calnek, B. w. (1998): Diseases of Poultry, Tenth edition.

Saif, Y. M. (2008): Poultry Diseases. U. S. A.

### 8.B: web sites and journals

- [WWW.PubMed.com](http://WWW.PubMed.com)
- International of veterinary information services (IVIS)
- [www.Vet.net.com](http://www.Vet.net.com)

### 9.1. Course content ILOs

TOPIC	K.U (a)	I.S (b)	P.P.S (c)	G.T.S (d)
Vitamin A Deficiency	A1-A3	B1- 3	C1-C5	D1-D2-D4
Vitamin E Deficiency	A1-A3	B1- 3	C1-C5	D1-4
Vitamin D, Ca. & Ph. Deficiency	A1-A3	B1- 3	C1-C5	<b>D1-4</b>
Vitamin B1 Deficiency	A1-A3	B1- 3	C1-C5	<b>D1-4</b>
Vitamin B2 Deficiency	A1-A3	B1- 3	C1-C5	<b>D1-4</b>
Vitamin K Deficiency	A1-A3	B1- 3	C1-C5	<b>D1-4</b>
Cannibalism&Gout	A1-A3	B1- 3	C1-C5	<b>D1-4</b>
Miscellaneous Conditions	A1-A3	B1- 3	C1-C5	<b>D1-4</b>

### 9.2. Assessment ILOs Matrix:



TOOLS	I.L.O.S Evaluation				Marks allocated
	Knowledge	intellectual	Practical	general	
Written examination	A1..A2..A3..	B3		D3	50
Oral examination	A1..A2..A3..	B1. B2.		D4	20
Practical examination	-	-	C1.C2.C3.C4,C5	D1-2	30

**Course coordinator:**

**Name :** Dr. Moshira A. El-Abasy

**Signature**

**Head of department of Poultry diseases**

**Name:** Prof. Dr. Mahmoud M. Ismail

**Signature:**



## DEPARTMENT OF POULTRY DISEASES

### Course specification

(2021 - 2022)

#### 1 - Basic Information:

Code number: 272 (1)

Course title: **Advanced Rabbit Diseases**

Academic year or level: Pre-master

Total teaching hours: 192 hrs

Lectures: 96 hrs

Practical: 96 hrs

#### 2 - OVERALL AIMS OF THE COURSE:

To provide student with basic knowledge and skills concerning the epidemiology, diagnosis prevention and control of different diseases in rabbits.

#### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

##### 3-A: KNOWLEDGE and UNDERSTANDING:

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

A1- Memorize the different techniques used in isolation of the etiology of different diseases of rabbits.

A2- **Define** the modern techniques used in identification of the etiology of rabbit diseases.

A3- Describe the diagnosis and differential diagnosis of different diseases of rabbits.

A4- Recognize the gross lesions in different diseases of rabbits.

A5- Illustrate the effective drug used for treatment of rabbit diseases.

A6- List the effective vaccines used for prevention and control of diseases of rabbits.

##### 3. B: INTELLECTUAL SKILLS:

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

B1- Create the ability to make isolation and identification of the etiology of different diseases of rabbits.

B2- Discover modern methods for diagnosis of different diseases of rabbits.

B3- Construct the effective vaccines and drug of choice used for prevention and control of rabbits diseases.

##### 3. C: Practical and professional skills:

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

C1. Perform isolation of the causative microorganisms and serological identification.

C2. **Demonstrate** the clinical signs and postmortem lesions of different diseases of rabbits.

C3. **Apply laboratory and field tests** for diagnosis of rabbit diseases.

C4. Perform **Field application of vaccines for prevention** of viral diseases of rabbits.



C5. Implement the **Treatment and control of rabbits diseases**

### 3. D: GENERAL SKILLS:

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

D1- Coach and work in groups.

D2- Classify different duties

D3- Utilize computer and internet skills.

D4- Develop the ethical behaviors between students and staff members as well as among the students themselves.

### 4. COURSE CONTENTS:

TOPIC	Total hours	Hours for lecture	Hours for practical
Rabbit Pasteurellosis	24	12	12
E coli infection of rabbits	24	12	12
Salmonella infection + Listeriosis	24	12	12
Mange infestation of rabbits	24	12	12
Rabbit Coccidiosis+ Cysticercosis	24	12	12
Rabbit Hemorrhagic Disease	24	12	12
Rabbit Myxomatosis	24	12	12
Rabbit Vesicular Stomatitis	24	12	12
Total	192	96	96

### 5- TEACHING & LEARNING METHODS:

#### 5.1:- Lectures

( using data show and white board, brain storming)

#### 5.2:- Practical and small group sessions:

1: Practical training

(Practical demonstrations, practice of skills, and discussions)

#### 5.3:- self learning

(Computer researches and faculty library visits to prepare essays and presentations)

- Library researches.
- Internet researches.
- Discussion in the researches.
- Histological Drawings.

#### 5.4:- Audiovisual

Television circle in the practical laboratory





## 6. METHODS FOR STUDENTS With limited capabilities:-

- Activation of office hours.
- Discussion with them during practical session.

## 7. STUDENT ASSESSMENT:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination
<b>7.b time</b>	At the end of 48 weeks	At the end of 48 weeks	At the end of 48 weeks
<b>7.c grads</b>	50	25	25

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-A: SUGGESTED MATERIALS:

CD-ROM containing topics and presentations in poultry and rabbit diseases (to be available to students)

Osama, M. Y. (1995): Commercial Rabbit Production.

### 8.B: web sites and journals

- [WWW.PubMed.com](http://WWW.PubMed.com)
- International of veterinary information services (IVIS)
- [www.Vet.net.com](http://www.Vet.net.com)

## 9.1. Course content ILOs

TOPIC	K.U (a)	I.S (b)	P.P.S (c)	G.T.S (d)
Rabbit Pasteurellosis	A1-A6	B1- 3	C1-C5	D1-D2-D4
E coli infection of rabbits	A1-A6	B1- 3	C1-C5	D1-4
Salmonella infection +Listeriosis	A1-A6	B1- 3	C1-C5	D1-4
Mange infestation of rabbits	A1-A6	B1- 3	C1-C5	D1-4
Rabbit Coccidiosis+ Cysticercosis	A1-A6	B1- 3	C1-C5	D1-4
Rabbit Hemorrhagic Disease	A1-A6	B1- 3	C1-C5	D1-4
Rabbit Myxomatosis	A1-A6	B1- 3	C1-C5	D1-4
Rabbit Vesicular Stomatitis	A1-A6	B1- 3	C1-C5	D1-4

## 9.2. Assessment ILOs Matrix:



TOOLS	I.L.O.S Evaluation				Marks allocated
	Knowledge	intellectual	Practical	general	
Written examination	A1..A2..A3..A4..A6..	B3		D3	50
Oral examination	A1..A2..A3..A4..A6.	B1. B2.		D4	25
Practical examination	-	-	C1.C2.C3.C4,C5	D1-2	25

**Course coordinator:**

**Name :** Dr. Moshira A. El-Abasy

**Signature**

**Head of department of Poultry diseases**

**Name:** Prof. Dr. Mahmoud M. Ismail

**Signature:**



## DEPARTMENT OF POULTRY DISEASES

### Course specification

(2016 / 2017)

#### 1 - Basic Information:

Code number: 273 (1)

Course title: **Diseases of wild and migratory birds**

Academic year or level: Pre-master

Total teaching hours: 192 hrs

Lectures: 96 hrs

Practical: 96 hrs

#### 2 - OVERALL AIMS OF THE COURSE:

To provide student with basic knowledge and skills concerning the epidemiology, diagnosis prevention and control of diseases of wild and migratory birds.

#### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

##### 3-A: KNOWLEDGE and UNDERSTANDING:

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

A1- **know** the different techniques used in isolation of the etiology of different diseases of wild and migratory birds.

A2- **Define** the modern techniques used in identification of the etiology of wild and migratory bird diseases

A3- **Describe** the diagnosis and differential diagnosis of different wild and migratory birds diseases.

A4- **Recognize** the gross lesions in different wild and migratory bird diseases..

A5- **Define** the effective vaccines used for prevention and control of wild and migratory bird diseases.

##### 3. B: INTELLECTUAL SKILLS:

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

B1- **Create** the ability to make isolation and identification of the etiology of different viral diseases of poultry.

B2- **Discover** the diagnosis of different viral diseases of poultry.

B3- **Construct** the effective vaccine used for prevention and control of viral diseases of poultry.

B4- **select** the effective drug used for treatment and control of control of wild and migratory bird diseases.

##### 3. C: Practical and professional skills:

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

C1. Make isolation of the causative microorganisms and their serological identification.

C2. **Detect** the clinical signs and postmortem lesions of different diseases of wild and migratory birds.

C3. Perform laboratory and field tests for diagnosis of wild and migratory bird diseases.

C4. Apply **Field application of vaccines** of wild and migratory bird diseases.

C5. Implement the **Treatment and control** of wild and migratory bird diseases..

##### 3. D: GENERAL SKILLS:

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

D1- Coach and work in groups.

D2- Classify different duties

D3- Utilize computer and internet skills.



D4-Develop the ethical behaviors between students and staff members as well as among the students themselves

#### 4. COURSE CONTENTS:

TOPIC	Total hours	Hours for lecture	Hours for practical
Bacterial Diseases of wild and migratory birds	48	24	24
Viral Diseases of wild and migratory birds	48	24	24
Mycotic Diseases of wild and migratory birds	48	24	24
Parasitic Diseases of wild and migratory birds	48	24	24
Total	192	96	96

#### 5- TEACHING & LEARNING METHODS:

##### 5.1:- Lectures

( using data show and white board, brain storming)

##### 5.2:- Practical and small group sessions:

1: Practical training

(Practical demonstrations, practice of skills, and discussions)

##### 5.3:- self learning

(Computer researches and faculty library visits to prepare essays and presentations)

- Library researches.
- Internet researches.
- Discussion in the researches.
- Histological Drawings.

##### 5.4:- Audiovisual

Television circle in the practical laboratory

#### 6. METHODS FOR STUDENTS With limited capabilities:-

- Activation of office hours.
- Discussion with them during practical session.



## 7. STUDENT ASSESSMENT:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination
<b>7.b time</b>	At the end of 48 weeks	At the end of 48 weeks	At the end of 48 weeks
<b>7.c grads</b>	50	25	25

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-A: SUGGESTED MATERIALS:

CD-ROM containing topics and presentations in poultry diseases (to be available to students)

Calnek, B. w. (1998): Diseases of Poultry, Tenth edition.

Saif, Y. M. (2008): Poultry Diseases. U. S. A.

### 8.B: web sites and journals

- [WWW.PubMed.com](http://WWW.PubMed.com)
- International of veterinary information services (IVIS)
- [www.Vet.net.com](http://www.Vet.net.com)

### 9.1. Course content ILOs

TOPIC	K.U (a)	I.S (b)	P.P.S (c)	G.T.S (d)
Bacterial Diseases of wild and migratory birds	A1-A5	B1- 4	C1-C5	D1-D2-D4
Viral Diseases of wild and migratory birds	A1-A5	B1- 4	C1-C5	D1-4
Mycotic Diseases of wild and migratory birds	A1-A5	B1- 4	C1-C5	<b>D1-4</b>
Parasitic Diseases of wild and migratory birds	A1-A5	B1- 4	C1-C5	<b>D1-4</b>



## 9.2. Assessment ILOs Matrix:

TOOLS	I.L.O.S Evaluation				Marks allocated
	Knowledge	intellectual	practical	general	
Written examination	A1..A2..A3..A4..A5..	B3,4		D3	50
Oral examination	A1..A2..A3..A4..A5.	B1. B2.		D4	25
Practical examination			C1.C2.C3.C4.C5	D1-2	25

### Course coordinator:

Name : Dr. Moshira A. El-Abasy

### Signature

Head of department of Poultry diseases

Name: Prof. Dr. Mahmoud M. Ismail

Signature:



## DEPARTMENT OF POULTRY DISEASES

### Course specification

(2021 - 2022)

#### 1 - Basic Information:

##### 3-A: KNOWLEDGE and UNDERSTANDING:

Code number: 274 (1)

Course title: Evaluation of poultry preventive vaccines

Academic year or level: Pre-master

Total teaching hours: 192 hrs

Lectures: 96 hrs

Practical: 96 hrs

#### 2 - OVERALL AIMS OF THE COURSE:

To provide student with basic knowledge and skills concerning the evaluation of poultry protective vaccines.

#### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

##### 3-A: KNOWLEDGE and UNDERSTANDING:

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

A1- **Describe** the modern techniques used in application of the different types of poultry vaccines by different routes and different doses.

A2- **Define** the immune response to the different types of poultry preventive vaccines.

A3- Recognize the efficacy poultry preventive vaccine used for prevention and control of infectious diseases.

A4- Understand avian immune system and response

##### 3. B: INTELLECTUAL SKILLS:

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

B1- **Construct** the effective vaccine used for prevention and control of poultry diseases.

B2- **Create** the ability to make application of the different types of poultry protective vaccines by different routes and different doses.

B3-- **Discover** the effectiveness of different kinds of poultry protective vaccines.

##### 3. C: Practical and professional skills:

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

C1. Prepare the effective vaccine used for prevention and control of poultry diseases.

C2. apply the different types of protective vaccines by different routes and different doses..

C3. Predict the results of different kinds of poultry protective vaccines.

##### 3. D: GENERAL SKILLS:

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

D1- Coach and work in groups.

D2- Classify different duties



D3- Utilize computer and internet skills.

D4-Develop the ethical behaviors between students and staff members as well as among the students themselves

#### 4. COURSE CONTENTS:

TOPIC	Total hours	Hours for lecture	Hours for practical
Isolation and identification of the causative microorganisms	48	24	24
Preparation of poultry protective vaccines	48	24	24
Application of poultry protective vaccines	48	24	24
Evaluation of poultry protective vaccines	48	24	24
Total	<b>192</b>	<b>96</b>	<b>96</b>

#### 5- TEACHING & LEARNING METHODS:

##### 5.1:- Lectures

( using data show and white board, brain storming)

##### 5.2:- Practical and small group sessions:

1: Practical training

(Practical demonstrations, practice of skills, and discussions)

##### 5.3:- self learning

(Computer researches and faculty library visits to prepare essays and presentations)

- Library researches.
- Internet researches.
- Discussion in the researches.
- Histological Drawings.

##### 5.4:- Audiovisual

Television circle in the practical laboratory

#### 6. METHODS FOR STUDENTS With limited capabilities:-

- Activation of office hours.
- Discussion with them during practical session.





## 7. STUDENT ASSESSMENT:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination
<b>7.b time</b>	At the end of 48 weeks	At the end of 48 weeks	At the end of 48 weeks
<b>7.c grads</b>	50	25	25

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-A: SUGGESTED MATERIALS:

CD-ROM containing topics and presentations in poultry and rabbit diseases (to be available to students)

Saif, Y. M. (2008): Poultry Diseases. U. S. A.

### 8.B: web sites and journals

- [WWW.PubMed.com](http://WWW.PubMed.com)
- International of veterinary information services (IVIS)
- [www.Vet.net.com](http://www.Vet.net.com)

## 9.1. Course content ILOs

TOPIC	K.U (a)	I.S (b)	P.P.S (c)	G.T.S (d)
Isolation and identification of the causative microorganisms	A1-A4	B1- 3	C1-C3	D1-D2-D4
Preparation of poultry protective vaccines	A1-A4	B1- 3	C1-C3	D1-4
Application of poultry protective vaccines	A1-A4	B1- 3	C1-C3	<b>D1-4</b>
Evaluation of poultry protective vaccines	A1-A4	B1- 3	C1-C3	<b>D1-4</b>



## 9.2. Assessment ILOs Matrix:

TOOLS	I.L.O.S Evaluation				Marks allocated
	Knowledge	intellectual	practical	general	
Written examination	A1..A2..A3..A4....	B3		D3	50
Oral examination	A1..A2..A3..A4...	B1. B2.		D4	25
Practical examination			C1.C2.C3.C4	D1-2	25

### Course coordinator:

Name : Dr. Moshira A. El-Abasy

### Signature

Head of department of Poultry diseases

Name: Prof. Dr. Mahmoud M. Ismail

Signature:



## Course specification (2016 / 2017)

### 1 - Basic Information:

Code number: 275 (1)

Course title: Laboratory diagnosis of poultry diseases

Academic year or level: Pre-master

Total teaching hours: 192 hrs

Lectures: 96 hrs

Practical: 96 hrs

### 2 - OVERALL AIMS OF THE COURSE:

To provide student with basic knowledge relevant to the methods of isolation and identification of different different avian pathogens.

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING

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

A1- Describe the different techniques used in isolation of the etiology of different diseases of poultry.

A2- **Define** the modern techniques used in identification of the etiology of different diseases of poultry.

A3- Describe the laboratory diagnosis and differential diagnosis of different poultry diseases.

A4- Recognize the gross lesions in different poultry diseases.

#### 3. B: INTELLECTUAL SKILLS:

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

B1- select the isolated and identified avian pathogens.

B2- discover the modern techniques for the laboratory diagnosis of different diseases of poultry.

#### 3. C: Practical and professional skills:

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

C1. perform isolation of the causative microorganisms and serological identification.

C2. Detect the clinical signs and postmortem lesions of different diseases of Poultry.

C3. Apply laboratory tests for diagnosis of poultry diseases.

#### 3. D: GENERAL SKILLS:

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

D1 - Coach and work in groups.

D2 - Classify different duties

D3 - Utilize computer and internet skills.

D4 - Develop the ethical behaviors between students and staff members as well as among the students themselves..



#### 4. COURSE CONTENTS:

TOPIC	Total hours	Hours for lecture	Hours for practical
Laboratory diagnosis of bacterial diseases	48	24	24
Laboratory diagnosis of viral diseases	48	24	24
Laboratory diagnosis of mycotic diseases	48	24	24
Laboratory diagnosis of parasitic diseases	48	24	24
Total	<b>192</b>	<b>96</b>	<b>96</b>

#### 5- TEACHING & LEARNING METHODS:

##### 5.1:- Lectures

( using data show and white board, brain storming)

##### 5.2:- Practical and small group sessions:

1: Practical training

(Practical demonstrations, practice of skills, and discussions)

##### 5.3:- self learning

(Computer researches and faculty library visits to prepare essays and presentations)

- Library researches.
- Internet researches.
- Discussion in the researches.
- Histological Drawings.

##### 5.4:- Audiovisual

Television circle in the practical laboratory

#### 6. METHODS FOR STUDENTS With limited capabilities:-

- Activation of office hours.
- Discussion with them during practical session.



## 7. STUDENT ASSESSMENT:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination
<b>7.b time</b>	At the end of 48 weeks	At the end of 48 weeks	At the end of 48 weeks
<b>7.c grads</b>	50	25	25

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-A: SUGGESTED MATERIALS:

CD-ROM containing topics and presentations in poultry and rabbit diseases (to be available to students)

Saif, Y. M. (2008): Poultry Diseases. U. S. A.

### 8.B: web sites and journals

- [WWW.PubMed.com](http://WWW.PubMed.com)
- International of veterinary information services (IVIS)
- [www.Vet.net.com](http://www.Vet.net.com)

## 9.1. Course content ILOs

TOPIC	K.U (a)	I.S (b)	P.P.S (c)	G.T.S (d)
Laboratory diagnosis of bacterial diseases	A1-A4	B1- 2	C1-C3	D1-D2-D4
Laboratory diagnosis of viral diseases	A1-A4	B1- 2	C1-C3	D1-4
Laboratory diagnosis of mycotic diseases	A1-A4	B1- 2	C1-C3	<b>D1-4</b>
Laboratory diagnosis of parasitic diseases	A1-A4	B1- 2	C1-C3	<b>D1-4</b>



## 9.2. Assessment ILOs Matrix:

TOOLS	I.L.O.S Evaluation				Marks allocated
	Knowledge	intellectual	practical	general	
Written examination	A1..A2..A3..A4...	B3		D3	50
Oral examination	A1..A2..A3..A4..	B1. B2.		D4	25
Practical examination			C1.C2.C3.C4	D1-2	25

### Course coordinator:

Name : Dr. Moshira A. El-Abasy

### Signature

Head of department of Poultry diseases

Name: Prof. Dr. Mahmoud M. Ismail

Signature:



**Kafrelsheikh University**  
Faculty of Veterinary Medicine



---

**Kafrelsheikh University**  
**Faculty of Veterinary Medicine**  
**Department of Theriogenology**

# **Program Specification for Master Degree**

## **(2021 - 2022)**

**Program Title:**

**Master of The Veterinary Science**  
**(Theriogenology)**



### **A- Administrative information:**

- 1- **Awarding Body:** Kafrelsheikh University
- 2- **Teaching Body:** Faculty of Veterinary Medicine
- 3- **Department responsible:** Theriogenology
- 4- **Program Title:** Master Degree in Veterinary Science (Theriogenology)
- 5- **Final award:** Master Degree
- 6- **Registration period:** 2-4 years
- 7- **Program Coordinator:** Prof. Dr.
- 8- **External evaluator:**
- 9- **Date of revision:**
- 10- **Date of approval:**

### **B- Professional information:**

#### **1-Educational aims of the program**

- Provide the graduates the opportunity to develop communication skills, recent techniques and diagnostic tools in the field of Theriogenology, experience of scientific research and teaching skills.
- To achieve capability in modern laboratory technology to develop practical research project.
- To supply the graduated students with the most recent knowledge in science and technological applications of reproduction.
- Demonstrate an awareness of the connections between disciplines and develop the ability to engage critically with scientific literature and to critically review and present their own research data for the protection and promotion of the animal health.

#### **2- Academic standards:**

**Academic reference standards (ARS) adopted by the faculty committee No (1) 14-9-2014)**

#### **3-Graduate attributes:**

*Upon successful completion of the program, the graduate has the ability for:*

- 1) Perfect application of scientific research basics and methodologies, and using its varied tools.
- 2) Application and use of analytical methods in Theriogenology.
- 3) Application of gained specialized knowledge and integrating them with the relevant





knowledge in Theriogenology.

- 4) Awareness with ongoing problems and recent visions in field of Theriogenology.
- 5) Identification of professional problems and suggesting solutions.
- 6) Mastering the proper scope of a rate specialized professional skills, and using appropriate technological means to serve the professional practice.
- 7) Effective communication and leading work team.
- 8) Decision making under different professional situations.
- 9) Employ available resources efficiently.
- 10) Awareness with his role in society development and community preservation in the light of global and regional variations.
- 11) Reflection of the commitment to act with integrity, credibility and the rules of profession.
- 12) Academic and professional self- development and ability for life-long learning and progress.

#### **4-Programme outcomes [intended learning outcomes (ILOs)]**

##### **a. Knowledge and understanding:**

*By the end of this program, the graduate should be able to:*

- a.1. Recognize basic principles of gynecology, obstetrics, andrology and artificial insemination in animals.
- a.2. Realize the infectious and non- infectious causes of infertility.
- a.3. Identify reciprocal effect between reproductive problems in animals and human health and economic status of country.
- a.4. Recognize scientific progress in the field of theriogenology and the applications of modern molecular techniques and recent instruments.
- a.5. Recognize ethical and legal principles for the proper animal manipulation and utilization of the technology concerning uses of echography in the field of theriogenology.
- a.6. Realize the principles and basics of quality assurance in the area of specialization.
- a.7. Apply the basics and ethics of scientific research in collection of samples, planning for research and critical analysis and discussion of the scientific literature.

##### **b. Intellectual skills:**

*At the end of the program, graduate must be able to:*

- b.1. Identify and/or analyze animal reproduction problems or questions and ordering them according to the priority.
- b.2. Solve animal reproduction problems by incorporation of different awareness despite insufficiency of some resources
- b.3. Arrange the scientific approach on exposing any problem related to the field application of reproductive management and biotechnology
- b.4. Relating the reproductive diseases encountered in the field with the laboratory findings to reach a perfect conclusion.
- b.5. Analytical reading the researches and topics in the related subject as the baseline for further post-graduation.



- b.6. Preparing a research plan in male or female reproduction according to local priorities and the new theories in Theriogenology.
- b.7. Asses risks of animal reproduction problems and its possible consequences.
- b.8. Design a plan for enhancing animal reproduction
- b.9. Using appropriate intellectual strategy to deal with laboratory diagnostic problems

**c. Practical and professional skills:**

*At the end of the programme, graduate must be able to:*

- c.1. Apply professional skills in the area of assessment of the fertility status and diagnose reproductive failure in farm animals using of the necessary recent techniques and tools.
- c.2. Experimental designing and analysis to their own research project.
- c.3. Write professional reports with special emphasis to understanding and interpretation of data that help in improving the economic values following introduction of a new management policy.
- c.4. Mastery of research skills as use of libraries and relevant index with a consideration to the technical, ethical and safety issues.
- c.5. Plan and executive a research project in the field of theriogenology with a consideration to the technical, ethical and safety issues and associated costs..
- c.6. Perform essential laboratory skills that underpin techniques associated with pregnancy diagnosis, semen biology and embryo transfer.

**d. General and transferable skills:**

*At the end of the programme, graduate must be able to:*

- d.1. Communicate effectively with his professors, collages and animal owner(s).
- d.2. Utilize different sources of knowledge and information.
- d.3. Assess himself and identify his personal educational needs.
- d.4. Demonstrate interpersonal skills and team working ability
- d.5. Demonstrate an ability to learn independently for a career of lifelong learning.
- d.6. Use information technology to serve the professional practice.
- d.7. Manage time efficiently.
- d.8. Set tools and indicators for assessment of the performance of others.

**5-Program structure:**

- a. Program duration (years): Master degree from 2-4 years
- b) Premaster courses – at least one academic year

Course	Lecture (hours/week)	Practical (hours/week)
Fundamental (core) course	3	4
Research methodology	1	3
2-5 Elective Courses Offered by other	5-6	5-6



departments and are selected from the list below according to thesis topic (10-12 hours)		
--	--	--

c) Master of Veterinary Medicine Thesis (at least one academic year)

- All master-degree students should prepare a master thesis.
- The department and the ethical committees must approve the protocol of the research.
- The thesis should include a review part and a research part.
- The thesis is supervised by one or more senior staff members of the department responsible for the program and may include other specialties according to the nature of the research.
- The thesis should be evaluated and approved by a committee of three professors including one of the supervisors and an external professor.

*A number of subsidiary courses are selected from the following list according to the title of the research work:*

Subject	Code	Course title	No of hours/week	
			Lecture	Practical Lab
Anatomy and embryology	101/1	<b>1- Applied anatomy</b>	2	2
	102/1	<b>2- Anatomical techniques and surface anatomy</b>	2	2
	103/1	<b>3- Osteology and arthrology</b>	2	2
	104/1	<b>4- Comparative digestive system</b>	2	2
	105/1	<b>5- Comparative uro-genital system</b>	2	2
	106/1	<b>6-Comparative respiratory system</b>	2	2
	107/1	<b>7- Comparative cardiovascular system</b>	2	2
	108/1	<b>8- Comparative nervous system and endocrine glands</b>	2	2
	109/1	<b>9- General and special embryology</b>	2	2
	110/1	<b>10- Avian anatomy</b>	1	2
Histology	111/1	<b>11- cytology and cytochemistry</b>	1	2
	112/1	<b>12- general histology</b>	2	2
	113/1	<b>13- Histology and histochemistry of blood, lymph and cardiovascular system.</b>	1	1
	114/1	<b>14- Comparative histology and histochemistry of body muscles, heart and blood vessels</b>	1	1
	115/1	<b>15- Comparative histology and histochemistry of respiratory system</b>	1	1
	116/1	<b>16-Comparative histology and histochemistry of digestive system</b>	2	2



	117/1	<b>17- Comparative histology and histochemistry of urogenital system</b>	2	2
	118/1	<b>18- Comparative histology and histochemistry of nervous and endocrine systems</b>	2	2
	119/1	<b>19- Histology and histochemistry of special sensors</b>	1	2
	120/1	<b>20-Histology and histochemistry of skin, hooves, claws and Nails</b>	2	2
	121/1	<b>21- Avian histology</b>	2	2
	122/1	<b>22- Fish histology</b>	1	2
<b>Physiology</b>	123/1	<b>23- Physiology of mammalian endocrine and reproduction</b>	2	2
	124/1	<b>24- poultry physiology (advanced)</b>	2	2
	125/1	<b>25- physiology of muscle and nerve</b>	1	2
	126/1	<b>26- physiology of ruminants</b>	2	2
	127/1	<b>27- physiology of environment, adaptation and cell</b>	2	2
	128/1	<b>28- physiology of blood</b>	2	2
	129/1	<b>29- physiology of digestion, metabolism and energy</b>	2	2
	130/1	<b>30- Physiology in pollution</b>	1	2
	131/1	<b>31- Radioactive isotopes and biological uses</b>	2	2
	132/1	<b>32- Physiology of heights</b>	1	1
	133/1	<b>33-Fish physiology.</b>	1	2
<b>Biochemistry</b>	134/1	<b>34- Basics of biochemistry</b>	2	3
	135/1	<b>35- Metabolism</b>	2	2
	136/1	<b>36- Biochemistry of tissue and body fluids .</b>	2	2
	137/1	<b>37- Biochemistry of hormones and reproduction</b>	2	2
	138/1	<b>38- Feeding biochemistry</b>	2	2
	139/1	<b>39- Clinical biochemistry</b>	2	2
	140/1	<b>40- Avian biochemistry</b>	2	2
	141/1	<b>41- Microbial biochemistry</b>	2	2
	142/1	<b>42- Biochemistry of radiation</b>	1	2
	143/1	<b>43- Fish biochemistry</b>		
<b>Animal behavior and management</b>	144/1	<b>44- Behavior and management of ruminants ( specific courses in cattle, buffalo, sheep, camels and goats)</b>	2	3
	145/1	<b>45- Behavior and management of horses</b>	2	3
	146/1	<b>46- Behavior and management of pet animals</b>	1	2
	147/1	<b>47- Behavior and management of laboratory animals</b>	1	2
	148/1	<b>48- Behavior and management of wild animals</b>	2	2



	149/1	<b>49- Behavior and management of poultry</b>	2	2
	150/1	<b>50- Behavior and management of rabbit</b>	1	2
	151/1	<b>51- Behavior of experimental animals</b>	1	2
<b>Nutrition and clinical nutrition</b>	152/1	<b>52- Basics of animal nutrition</b>	2	2
	153/1	<b>53- feedstuff</b>	2	2
	154/1	<b>54- nutrition of farm animals and fish specific courses in ( cattle and buffalo nutrition – sheep and goat nutrition – camel nutrition- equine nutrition – fish nutrition)</b>	2	2
	155/1	<b>55- poultry and rabbit nutrition( advanced)</b>	2	2
	156/1	<b>56- wild animal nutrition</b>	1	2
	157/1	<b>57- laboratory animal nutrition</b>	1	2
	158/1	<b>58- feed additives</b>	1	2
	159/1	<b>59- feedstuff analysis</b>	2	2
	160/1	<b>60- Quality control of feed and feed factories</b>	2	2
	161/1	<b>61- Clinical nutrition and malnutrition</b>	2	2
	162/1	<b>62- Fish nutrition</b>	1	2
<b>Pathology</b>	163/1	<b>63- General pathology and neoplasm( progressive)</b>	2	2
	164/1	<b>64-pathology of microbial and parasitic diseases in animal</b>	2	2
	165/1	<b>65- pathology of bad nutrition</b>	1	2
	166/1	<b>66- pathology of environmental pollution</b>	1	2
	167/1	<b>67- pathology of reproductive diseases</b>	1	2
	168/1	<b>68- Avian pathology</b>	2	2
	169/1	<b>69-Experimental pathology</b>	2	2
	170/1	<b>70- toxins pathology</b>	2	2
	171/1	<b>71- surgical pathology</b>	2	2
	172/1	<b>72- Pathology of experimental animals.</b>		
	173/1	<b>73- Pathology of genetics</b>		
	174/1	<b>74-- Fish pathology</b>	2	2
<b>Clinical pathology</b>	175/1	<b>75- Advanced clinical pathology</b>	2	2
	176/1	<b>76-Organ function tests and body and urine balance</b>	2	2
	177/1	<b>77- Clinical hematology and bone marrow examination</b>	1	2
<b>Bacteriology, immunology and mycology</b>	178/1	<b>78- General bacteriology(advanced)</b>	1	2
	179/1	<b>79-systemic bacteriology</b>	2	3
	182/1	<b>80- Advanced immunology</b>	2	2
	183/2	<b>81- Advanced mycology</b>	1	2
<b>Virology</b>	180/3	<b>82- General virology</b>	1	2
	181/4	<b>83-Systemic virology( specific courses)</b>	2	3
	182/5	<b>84- Advanced immunology</b>	2	2



Mixed courses between Bacteriology and Virology	184/1	85- Microbiology of poultry	2	2
	185/1	86- Microbiology of ???????	1	2
	186/1	87- Microbiology of animal product	2	2
	187/1	88- Fish Microbiology	1	2
<b>81- Advanced immunology</b>			<b>2</b>	<b>2</b>
Parasitology	188/1	89- Veterinary medical entomology and acarology	2	2
	189/1	90-helminthology	2	2
	190/1	91- protozoology	2	2
	191/1	92- Avian and rabbits parasitology	2	2
	192/1	93Malacology and its vet. Importance	1	2
	193/1			
	194/1			
	195/1			
	196/1	97-Special vet. Parasitology	2	2
	197/1	98- Physiology and biochemistry of parasites	2	2
	198/1	99- Fish parasitology	1	2
<b>Pharmacology</b>				
	199/1	100- general pharmacology ( advanced)	2	2
	200/1	101- pharmacology of autonomic nervous system and autocoid	2	2
	201/1	102- pharmacology of central nervous system	2	2
	202/1	103 pharmacology of anesthesia	2	2
	203/1	104- Systemic pharmacology	2	2
	204/1	105- pharmacology of metabolism	2	2
	205/1	106- pharmacology of hormones	2	2
	206/1	107-Chemotherapy	2	2
	207/1	108-Biological evolution of drug	1	1
<b>Hygiene and control of milk and dairy products</b>				
	208/1	108- Hygiene and control of milk and dairy products	2	2
	209	109- Microbiology of milk and dairy products	2	2
	210/1	110- Milk technology and preservation	2	2
	211/1	111- Food analysis	2	2
	212/1	112- Food poisoning	1	2
	213/1	113- Specific courses on sources of contamination, disturbances of milk production, milk born diseases, hygiene of table egg, edible fats and oils	1	1
	214/1	114- The sanitation of dairy plant	2	2
<b>Control of meat hygiene and their products</b>				
	215/1	115- Slaughter animal Hygiene	1	2
	216/1	116- Abattoir management and hygiene	2	2
	217/1	117- Hygienic control of meat and their product	2	2
	218/1	118 inspection of poultry meat.	1	2
	219/1	119- Food technology	1	2
	220/1	120- Microbiology of meat and fish meats and	2	1



		<b>their product</b>		
	221/1	<b>121- Chilled meal microbiology</b>	1	2
	222/1	<b>122- Analysis of meat and fish and their product</b>	1	2
	223/1	<b>123- Preservation of meat, poultry, fish and their products</b>	1	2
	224/1	<b>124- Sanitation affairs of meat and fish plants.</b>	2	2
<b>Internal medicine</b>	225/1	<b>125- advanced general medicine</b>	2	2
	226/1	<b>126- disease of ruminants( cattle, buffalo, camels, sheep and goats)</b>	3	3
	227/1	<b>127- diseases of equines</b>	2	2
	228/1	<b>128 diseases of pet animals</b>	2	2
	229/1	<b>129- diseases of wild animals</b>	2	2
	230/1	<b>130- diseases of metabolic disorders</b>	2	2
	231/1	<b>131- nutritional deficiency diseases</b>	2	2
	232/1	<b>132- Skin diseases</b>	1	2
	233/1	<b>133 - diseases of newly born animals</b>	2	2
	234/ 1	<b>134- Stress diseases during animals transport.</b>		
<b>Infectious diseases</b>	235/ 1	<b>135- Infectious diseases of cattle</b>	2	2
	236/ 1	<b>136- Infectious diseases of sheep and goat</b>	2	2
	237/ 1	<b>137- Infectious diseases camel</b>	2	2
	238/ 1	<b>138 Infectious diseases of equine</b>	2	2
	239/ 1	<b>139- Infectious diseases of pet animals</b>	2	2
	240/ 1	<b>140- Infectious diseases lab animals</b>	1	2
	241/ 1	<b>141- Infectious diseases of udder and newly born animals</b>	2	2
	242/ 1	<b>142- Infectious diseases buffaloes</b>	2	1
	243/1	<b>143- Infectious diseases of wild animals.</b>		
<b>Forensic medicine and toxicology</b>	244/1	<b>144- Forensic medicine and veterinary procedures</b>	2	2
	245/1	<b>145- general toxicology</b>	2	2
	246/1	<b>146- environmental toxicology</b>	2	2
	247/1	<b>147- forensic toxicology</b>	2	2
	248/1	<b>148- laboratory diagnostic toxicology</b>	2	2
	249/1	<b>149- Drug toxicology</b>		
<b>Veterinary Surgery</b>	259/1	<b>159- General surgery (advanced)</b>	2	2
	260/1	<b>160- Special surgery( organs)</b>	2	3
	261/1	<b>161- surgery of eye, ear, nose and larynx</b>	2	2
	262/1	<b>162 digestive system surgery</b>	2	2
	263/1	<b>163- surgery of the limbs, hoof and claws</b>	2	2
	264/1	<b>164- experimental surgery</b>	2	2
	265/1	<b>165- anesthesiology</b>	1	1
	266/1	<b>166- radiology and ultrasonography</b>	2	2



<b>Poultry and rabbit diseases</b>	267/1	<b>167- bacterial diseases of poultry</b>	2	2
	268/1	<b>168- viral diseases of poultry</b>	2	2
	269/1	<b>169- fungal diseases of poultry</b>	2	2
	270/1	<b>170 parasitic diseases of poultry</b>	1	2
	271/1	<b>171 - nutritional diseases of poultry</b>	1	2
	272/1	<b>172-diseases of rabbit (advanced)</b>	2	2
	273/1	<b>173-Diseases of wild and migrating birds</b>	2	2
	274/1	<b>174- Preventive vaccines and their evaluation in poultry</b>	2	2
	275/1	<b>175- Laboratory diagnosis of poultry diseases.</b>		
<b>Animal and environmental hygiene</b>	276/1	<b>176- farm animal hygiene ( advanced)</b>	2	2
	277/1	<b>177- poultry hygiene ( advanced)</b>	2	2
	278/1	<b>178- environmental hygiene and pollution</b>	2	2
	279/1	<b>179- control of contagious diseases</b>	2	2
	280/1	<b>180- eradication of rodents and disease vector</b>	2	2
	281/1	<b>181- insecticides and public health</b>	2	2
	282/1	<b>182-hygiene of animal enclosures- specific courses in :- cattle houses – poultry houses – rabbit houses- pet animals house3s – experimental animals houses</b>	2	2
	283/1	<b>183-disinfections and disinfectants</b>	2	2
	284/1	<b>184- veterinary epidemiology – specific courses in animal environment</b>	2	-
<b>Zoonoses</b>	285/1	<b>185- advanced zoonoses ( specific courses in bacterial and Mycotic diseases – viral diseases – parasitic diseases)</b>	2	2
	286/1	<b>186- role of rodents in transmission of zoonoses</b>	2	2
	287/1	<b>187- role of wild animals in transmission of zoonoses</b>	2	2
	288/1	<b>188- role of birds (special courses in: poultry, wild migrating or pets) in transmission of zoonoses</b>		
<b>Genetics and genetic engineering</b>	289/1	<b>189- Genetics of microorganisms .</b>	1	2
	290/1	<b>190- Genetic engineering( advanced)</b>	1	2
	291/1	<b>191- Cytological genetics</b>	1	-
	292/1	<b>192- Genetics of genuses.</b>	2	-
	293/1	<b>193- physiological genetics</b>	2	-
	294/1	<b>194- Chemical and radiological genetics.</b>	1	2
<b>Animal production</b>	295/1	<b>195- Animal breeding and improvement (advanced).</b>	2	-
	296/1	<b>196- Poultry breeding and improvement(advanced).</b>	2	-





	297/1	<b>197- Cattle and buffalo production (advanced).</b>	2	2
	298/1	<b>198- Sheep and goat production (advanced).</b>	2	2
	299/1	<b>199- Poultry production (advanced).</b>	2	2
	300	<b>200-Rabbit production (advanced).</b>	2	2
	301	<b>201-Improving by artificial insemination in poultry and rabbits.</b>	2	2
<b>Fish diseases and management</b>	302/1	<b>202- Biology of fish.</b>	2	2
	303/1	<b>203-Fish diseases (advanced)</b>	2	2
	304/1	<b>204-Fish farms.</b>	1	2
	305/1	<b>205-Fish breeding .</b>	2	2
<b>Economic and farms management</b>	306/1	<b>206- economics of animals and dairy production</b>	2	-
	307/1	<b>207- economics of poultry farms</b>	2	-
	308/1	<b>208-economics of fish farms</b>	2	-
	309/1	<b>209- feasibility studies</b>	2	-
	310/1	<b>210- farm management</b>	2	-
	311/1	<b>211- economics of beef production</b>	2	-
<b>Biostatistics</b>	312/1	<b>212- Biostatistics (advanced)</b>	2	-
	313/1	<b>213- Experimental design</b>	2	2
	314/1	<b>214- Computer and data processing</b>	2	1

#### 6-Teaching and Learning Methods:

•The program features a variety of teaching approaches for different intended learning objectives, including lectures, practical and lab sessions, field visits and seminars.

#### 7- Students assessments:

The program depends on different assessment ways:

##### a. Course assessment:

<b>1- Written examination</b>	<b>For assessment of knowledge, back calling and Intellectual skills</b>
<b>2- Practical examination</b>	<b>For assessment of practical and professional skill</b>
<b>3- Oral examination</b>	<b>For assessment of knowledge and Intellectual skills</b>

##### b. Master Thesis

- Annual reports adopted by the Faculty
- Finally, the assessment of thesis measure the individual student ability to work independently in the field specialization



•Final evaluation and approval by a judging committee of at least three professors including one or more of the supervisors and an external professor. This assesses the ability to write a review article, perform the needed practical steps and to present the results in tables and graphs. In addition, the skills of analysis of results and discussion with previous findings obtained by other authors are also assessed.

**Assessment of program intended learning outcomes**

Tool or method	ILOs
1- Written	a1-3; b1-2
2- Oral	a1-3; b1-2
3- Practical	c1-3
4- Thesis	a3-7; b3-8; c4-6, d1-8

**8. Marking scale as follow:-**

<b>Excellent</b>	> 90	
<b>Very good</b>	>80	
<b>Good</b>	>70	
<b>Pass</b>	>60	
<b>Fail</b>	<b>Weak</b>	45 to less than 60
	<b>very weak</b>	Less than 45

**9. Program evaluation methods**

Evaluator	Tool	Sample
Postgraduate Student	Questioners	<b>20%</b>
	meeting	<b>1</b>
Postgraduate alumni	Questioners	<b>5</b>
Stakeholders (employers)	Questioners	<b>10</b>
	Meeting	<b>1</b>
External evaluator/External examiner	Reports	<b>1</b>

**10. Program Admission Requirements:**

The Applicant must normally satisfy the faculty of veterinary medicine- kafrelsheikh University general entrance and requirement. The normal minimum entrance qualification for registration at the faculty on a master’s program

- 1- Bachelor degree in Medical veterinary science of one of the Egyptian universities or hold a degree in Medical veterinary science equivalent through the Supreme Council of Universities with general grade at least “Good” and at least grade very Good” in specialization or the average courses covered the specialization
- 2- Diploma of reproduction or AI at least grade “Good” so that the teaching hours are not less than 3 hours for theoretical and practical courses.



- 3- After he has passed the courses studied during premaster he must perform a research work in a subject approved by the faculty council at least for one year . He must submit the results of this work in thesis that should be approved by the discussion committee.

## 11. Regulations for progression of program

- a) Registration period for the M.V.M in veterinary medical science is at least 2 years after the approval date by the faculty council and it should not exceed a period of 4 years, an extension could be approved by the faculty council depending on the supervisor report that approved by the department council and postgraduate and research committee refers to the universities regulation law.
- b) The student should conduct the courses proposed by both department council and approved by postgraduate and research committee and faculty council and include, 2-5 courses of the postgraduates stated in article (28) in regulation law list and the student will entitled to apply for the exam only after meeting attendance rate for each courses.
- c) The student should pass written, practical and oral exams successfully in all courses, and the examination is held two times annually.
- d) The Faculty council should deprive the student from entering the exam if his attendance rate in the course is less than 75%.
- e) Failure or depriving from entering one or more course did not require reexamination of successful passed courses.
- f) The applicant should conduct an innovate research on the subject that has been registered for at least 2 years from the date of registration approved by the faculty council. And the faculty council depending on a request from the supervisor has the right to authorize the student to do scientific experiments at recognized scientific institute.
- g) The applicant should submit the thesis that accepted by the judging committee in an open discussion and the following policies should be met:
- h) Pass all courses.
- i) The applicant should submit 4 copies of his thesis concerned department council to form committee examining the thesis to be presented to the postgraduate studies committee and the faculty council, and in case of thesis approval by the department council, the applicant will submit 6 copies for the faculty library, 1 copy for public university library before introducing the report of examination committee to the post graduate studies committee and the faculty council.
- j) Registration will be during March and September of each year.
- k) The applicant should submit a request enrolment for the dean who forwards bit to the concerned department council to determine the research subject and the study program and then take calendar after complete documentation on the faculty council for approval.



- l) The thesis title should be identified before being submitted at least 2 months and the judging committee has the right to amend the title without prejudice the subject of research.
- m) The Faculty council has the right to suspend the student enrolment for a certain period if he has acceptable excuse preventing him from continuing his study or research, and his period will not counted within the period stated in article 25.
- n) The applicant should submit 5 hard copies and 10 electronic copies (CDs) of the thesis after its validity approved by the judging committee and head of department to be distributed to the committee members and faculty library and the judging committee can decide the exchange of the thesis with other universities or printing at the expense of the university.

**12. Registration will be cancelled in one of the following cases:**

1. If the supervisors report during the registration period is unsatisfactory (2 reports).
2. If he did not submit his thesis before the end of registration period.
3. If the judging committee rejected the thesis twice.

**13. Examination Regulations**

- a- Time of written exam, 3 hours for each course that has 3 hours or more for lecture / practical /week. **If has less than 3 hours/week, the time of exam, is 2 hours only.**
- b- The final degree of each course which has 3 hours (lecture and practical) per week is **100 and less than 3 hours is 50 degrees and divided into 50% for written exam, and 50% for practical and oral exam.**

**14. Program completion:**

- Successfully completion of the required courses and submission of a thesis.

**Program Coordinator**

**Head of Department**

**Prof. Dr. Adel A. Ramoun**

**Dr. Essam A. Almadaly**

## Matching program ILOs with ARS - Matrix

Program ILOs	ARS																								
	K&U (a)						I.S. (b)							P.P. (c)				G.T. (d)							
	1	2	3	4	5	6	1	2	3	4	5	6	7	1	2	3	4	1	2	3	4	5	6	7	8
<b>K&amp;U</b>	1 2	3	4	5	6	7																			
<b>I.S.</b>							1 2	3	4 5	6	7	8	9												
<b>P.P.</b>														1	2 3 4	5	6								
<b>G.T.</b>																		1	2	3	4	5	6	7	8







## ARS for Master in Veterinary Medical Sciences (Theriogenology)

### 1) Graduate attributes

*The graduate should have the ability for:*

- 1) Perfect applying scientific research basics and methodology, and using of its varied tools.
- 2) Apply and use the analytical methodology in Theriogenology.
- 3) Apply the gained specific knowledge and the relevant ones in professional practice.
- 4) Aware with current problems and recent visions in Theriogenology.
- 5) Identify the professional problems and suggest the solutions.
- 6) Mastery of an appropriate scale of specific professional skills and the use of an appropriate technological means to serve the professional practice.
- 7) Communicate effectively and able to lead team work
- 8) Decision-making in various professional contexts
- 9) Employment the available resources to achieve the highest benefit and preserve them.
- 10) Aware obviously of his role in the society development and safe society in the light of the global and regional changes.
- 11) Deposit in a manner reflecting the commitment to integrity, credibility, and the professional rules.
- 12) Continuous self-learning in both academic and professional practice.

### A) Knowledge and understanding

**Adopted ARS**

**NARS (Master)**





	<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Theories and principles in the field of gynecology, obstetrics, andrology and artificial insemination.	Theories and principles in the field of specialization and related fields.
2)	Impact of controlling reproductive problems on the development of animal wealth in Egypt, and the effect of endemic reproductive diseases on animal health.	Mutual effect between professional practice and its impact on environment
3)	Application of his knowledge of Theriogenology research methods by evaluating the utility of those techniques to specific research question about diagnosis of male and female reproductive problems	Scientific progress in the field of specialization
4)	Applying his knowledge and understanding of ethical principles in Theriogenology on the different cases of infertility in both sexes.	Legal and ethical basics in professional practice in the field of specialization
5)	Basic principles of quality assurance in combating endemic reproductive diseases such as Brucella	Principles and basics of quality assurance in the area of specialization
6)	Principals of scientific research on male animals and in the field of gynecology and obstetrics in both farm and pet animal.	Basics and ethics of scientific research

## B) Intellectual skills

	<b>Adopted ARS</b>	<b>NARS (Master)</b>
	<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Identification, analysis and interpretation of sterility problems in male animals and problems of repeated abortion and infertility in females.	Analysis and judgment of information in the field of specialization and analog to solve problems.
2)	Critical evaluation of local reproductive issues in Egypt according to the available data	Solving professional problems even in scarcity of data.
3)	Relating the reproductive performance of male and female animals to the disease conditions recorded in a specific area in Egypt.	Relating between different knowledge to solve professional problems.
4)	Identification, summarizing and evaluating prior researches finding in gynecology, obstetrics, or andrology in order to make a research plan in the area of concern.	Preparing research plan in specialization and/ or writing scientific article on a research problem.
5)	Health and safety measures to be undertaken in the	Risk-assessment of professional



	field of Theriogenology and in the laboratory of artificial insemination, gynecology or obstetrics.	practices in specialization.
6)	Development of plans to improve performance in laboratory practice by applying modern biotechnological techniques in Theriogenology.	Planning for improvement of professional performance.
7)	Using appropriate intellectual strategy to deal with laboratory diagnostic problems.	Taking professional decisions in a variety of professional contexts.

### C) Professional and practical skills

Adopted ARS		NARS (Master)
	<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Investigating using of recent techniques and tools necessary to diagnose pregnancy and fetal diseases and infertility problems in male animals.	Mastering basic and recent professional skills in the field of specialization
2)	Application of the principles of good experimental design and analysis to their own research project	Writing and evaluating professional reports.
3)	Planning a research project in the field of Theriogenology with a consideration to the technical, ethical and safety issues and associated costs.	
4)	Performing essential laboratory skills that underpin techniques associated with sampling, pathogen isolation on susceptible host systems and different techniques for pathogen identification	Evaluating existing materials and methods in the area of specialization.

### D) General and transferable skill

Adopted ARS		NARS (Master)
	<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Communicating effectively with teaching staff, colleagues and the community.	Effective communication.
2)	Using information technology in scientific research and publications.	Utilizing information technology to serve development of professional practice.
3)	Demonstrating appropriate attitude towards teaching staff and colleagues.	Self-assessment and determination of personal educational needs.

4)	Identifying and use different sources of information and knowledge.	Using different resources to obtain knowledge and information.
5)	Using appropriate attitude and rules towards teaching staff and colleagues and use evidence based evaluations.	Establishing rules and indicators for assessment of the performance of others.
6)	Respecting the importance of team work.	Team working and leading a team in familiar professional contexts.
7)	Doing good control of timing.	Efficient time management.
8)	Performing continuous self-learning.	Self and continuous learning.

## ثانياً: برامج الماجستير

### ١- مواصفات الخريج

خريج برنامج الماجستير في أي تخصص يجب أن يكون قادراً على:

١. إجادة تطبيق أساسيات و منهجيات البحث العلمي واستخدام أدواته المختلفة
٢. تطبيق المنهج التحليلي واستخدامه في مجال التخصص
٣. تطبيق المعارف المتخصصة و دمجها مع المعارف ذات العلاقة في ممارسته المهنية
٤. إظهار وعيا بالمشاكل الجارية و الرؤى الحديثة في مجال التخصص
٥. تحديد المشكلات المهنية و إيجاد حلول لها
٦. إتقان نطاق مناسب من المهارات المهنية المتخصصة، واستخدام الوسائل التكنولوجية المناسبة بما يخدم ممارسته المهنية
٧. التواصل بفاعلية و القدرة على قيادة فرق العمل
٨. اتخاذ القرار في سياقات مهنية مختلفة
٩. توظيف الموارد المتاحة بما يحقق أعلى استفادة و الحفاظ عليها
١٠. إظهار الوعي بدوره في تنمية المجتمع و الحفاظ على البيئة في ضوء المتغيرات العالمية و الإقليمية
١١. التصرف بما يعكس الالتزام بالنزاهة و المصداقية و الالتزام بقواعد المهنة
١٢. تنمية ذاته أكاديمياً و مهنياً و قادراً على التعلم المستمر

### ١٢- المعايير القياسية العامة

#### ١ المعرفة و الفهم

بانتهاج دراسة برنامج الماجستير يجب ان يكون الخريج على فهم و دراية بكل من:

- أ- النظريات و الأساسيات المتعلقة بمجال التعلم وكذا في المجالات ذات العلاقة  
ب- التأثير المتبادل بين الممارسة المهنية وانعكاسها علي البيئة  
ت- التطورات العلمية في مجال التخصص  
ث- المبادئ الأخلاقية و القانونية للممارسة المهنية في مجال التخصص  
ج- مبادئ و أساسيات الجودة في الممارسة المهنية في مجال التخصص  
ح- أساسيات وأخلاقيات البحث العلمي
- ٢ المهارات الذهنية**

- بانتهاء دراسة برنامج الماجستير يجب ان يكون الخريج قادرا على:  
أ- تحليل و تقييم المعلومات في مجال التخصص و القياس عليها لحل المشاكل  
ب- حل المشاكل المتخصصة مع عدم توافر بعض المعطيات  
ت- الربط بين المعارف المختلفة لحل المشاكل المهنية  
ث- إجراء دراسة بحثية و /أو كتابة دراسة علمية منهجية حول مشكلة بحثية  
ج- تقييم المخاطر في الممارسات المهنية في مجال التخصص  
ح- التخطيط لتطوير الأداء في مجال التخصص  
خ- اتخاذ القرارات المهنية في سياقات مهنية متنوعة
- ٣ المهارات المهنية**

- بانتهاء دراسة برنامج الماجستير يجب ان يكون الخريج قادرا على:  
أ- إتقان المهارات المهنية الأساسية و الحديثة في مجال التخصص  
ب- كتابة و تقييم التقارير المهنية  
ت- تقييم الطرق و الأدوات القائمة في مجال التخصص
- ٤ المهارات العامة و المنتقلة**

- بانتهاء دراسة برنامج الماجستير يجب أن يكون الخريج قادرا على:  
أ- التواصل الفعال بأنواعه المختلفة  
ب- استخدام تكنولوجيا المعلومات بما يخدم الممارسة المهنية  
ت- التقييم الذاتي وتحديد احتياجاته التعليمية الشخصية  
ث- استخدام المصادر المختلفة للحصول على المعلومات و المعارف  
ج- وضع قواعد ومؤشرات تقييم أداء الآخرين  
ح- العمل في فريق ، وقيادة فرق في سياقات مهنية مختلفة  
خ- إدارة الوقت بكفاءة  
د- التعلم الذاتي و المستمر



## COURSE SPECIFICATION

(2021/2022)

### 1- Basic Information:

**Code number:** Theriogenology (Essential)

**Course title:** Gynaecology, Obstetrics and AI

**Academic Year:** Master of Veterinary Medicine Program (Premaster year)

**Total teaching hours:** 336 h

**Lectures:** 144 h (48 weeks- 3h/week)

**Practical:** 192 h (48 weeks- 4h/week)

### 2- OVERALL AIMS OF THE COURSE:

By the end of this course, the student should acquire the concepts, principles and skills related to Gynecology, Obstetrics, AI and Reproductive Technologies in farm and pet animals.

### 3- INTENDED LEARNING OUTCOMES (I.L.Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- a.1. Memorize the basics of reproduction such as clinical uses of hormones and follicular dynamics.
- a.2. Define the congenital, hormonal, pathological and environmental causes of female infertility.
- a.3. Demonstrate the semen composition, metabolism, evaluation, collection and preservation.
- a.4. Recognize the importance of reproductive technologies for improving reproductive performance.
- a.5. Explore the fertility management programs.
- a.6. Identify the obstetrical problems occurring during pregnancy, parturition and puerperium.

#### 3-B: INTELLECTUAL SKILLS:

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

- b.1. Identify research problems and questions related to female reproduction.
- b.2. Evaluate the risk of female reproductive problems and its possible consequences.
- b.3. Select the efficient proper reproductive technologies necessary for managing infertility problems.
- b.4. Design a plan for enhancing reproductive performance in herd.



- b.5. Interpret the relationship between reproduction and environmental factors.
- b.6. Prepare and write a scientific research plan in the field of female reproduction.

**3- C: PRACTICAL AND PROFESSIONAL SKILLS:**

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

- c.1. Apply advanced techniques for pregnancy diagnosis in farm and pet animals.
- c.2. Diagnose and handle infertility problems and cases of dystocia in farm and pet animals.
- c.3. Use recent techniques for evaluation and preservation of semen.
- c.4. Perform the recent advanced reproductive technologies such reproductive ultrasonography. etc.
- c.5. Utilize the reproductive technologies for improving reproductive performance
- c.6. Conduct essential laboratory skills that underpin techniques associated with pregnancy diagnosis, semen biology.
- c.7. Apply the principles of good experimental design, perform relevant statistical analysis and write scientific paper and dissertation.

**3- D: GENERAL SKILLS:**

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

- d.1. Participate in workshops and seminars assigned on theriogenology at level of the stockholders and veterinary practitioners
- d.2. Demonstrate information retrieval and library skills.
- d.3. Use information technology to serve the professional practice.
- d.4. Manage time efficiently.
- d.5. Recognize interpersonal skills and team working ability by successful completion of collaborative learn assignment and researches project.
- d.6. Has the ability to learn independently in preparation for career of lifelong learning.

**4- COURSE CONTENTS:**

Topic	No. of hours		
	Lectures	Practical	Total
Introduction and course description	3	4	7
Basics of reproduction and reproductive technologies	15	16	31
Causes of female infertility (Congenital, Hormonal, Pathological and environmental)	45	32	77
Pregnancy diagnosis and assessment of herd fertility	-	48	48
Semen composition and metabolism	12	-	12
Semen collection, evaluation, preservation and insemination techniques	15	44	59



Normal and abnormal pregnancy, parturition and puerperium	54	-	54
Diagnosis and treatment of dystocia in farm and pet animals	-	48	48
<b>Total</b>	<b>144</b>	<b>192</b>	<b>336</b>

### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard

Discussion and brain storming.

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library

Making individual reports about beef or dairy operations

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a6	b1 to b6		d1, d6
Practical sessions		b1 to b6	c1 to c7	d3, d6
Self-Learning activities				d2, d3, d4
Distance Teaching and Learning	a1 to a6	b1 to b6	c1 to c7	d1 to d6

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	All over the academic year
<b>7.c grads</b>	<b>50</b>	<b>20</b>	<b>20</b>	<b>10</b>



6.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a6	b1 to b6		d4
Practical exams			c1 to c7	d2, d3
Oral exams	a1 to a6	b1 to b6		d1
Student activities	a1, a6			d1 to d6

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

**8. LEARNING AND REFERENCE MATERIALS:**

8.1. Essential books (text books)

- Veterinary Andrology and Artificial Insemination (2019).
- Reproductive Technologies in Farm Animals, Ian Gordon (2004).
- Ruminant and Camelid Reproductive Ultrasonography, Luc Des Coteaux (2010).
- Equine Reproduction, Physiology, breeding and stud management (2016).

8.2. Recommended books

- Veterinary reproduction & obstetrics, G.H. Arthur, et al., ( 2006)
- Veterinary obstetrics & genital diseases, G.R. Riberts (1986).
- Current therapy in Theriogenology, D.A. Morrow (1984)
- Practical Manual of Veterinary Gynecology (2015).

8.3.: web sites and jounrnl

- google.com
- arabvet.com
- esarf.tripod.com/index.html.

8.4. Periodicals, Web sites, etc.....

- Reproduction in Domestic Animals.
- Biology of Reproduction.
- Theriogenology Journal.
- Zygote.
- Animal Reproduction Science.
- Reproduction.

**Course Coordinator**

**Prof. Dr. Adel A. Ramoun**

**Head of Department**

**Dr. Essam A. Almadaly**





**Course Matrix for achievement of Intended Learning Outcomes**

	Topics	Hours	Knowledge & Understanding						Intellectual Skills						Practical & Professional Skills							General & Transferable Skills									
			1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	7	1	2	3	4	5	6				
1	Introduction and course description	7	X													X										X	X	X	X	X	X
2	Basics of reproduction and reproductive technologies	31	X							X	X	X			X						X					X	X	X	X	X	X
3	Causes of female infertility (Congenital, Hormonal, Pathological and environmental)	77		X						X	X	X			X		X									X	X	X	X	X	X
4	Pregnancy diagnosis and assessment of herd fertility.	48											X	X		X										X	X	X	X	X	X
5	Semen composition and metabolism	12			X					X	X	X			X		X									X	X	X	X	X	X
6	Semen collection, evaluation, preservation and insemination techniques.	59			X					X	X	X			X			X								X	X	X	X	X	X
7	Normal and abnormal pregnancy, parturition and puerperium.	54							X				X													X	X	X	X	X	X
8	Diagnosis and treatment of dystocia in farm and pet animals.	48											X				X									X	X	X	X	X	X



## **COURSE SPECIFICATION**

**(2021/2022)**

### **1- Basic Information:**

**Code number: 250/1**

**Course title: Female Infertility**

**Academic Year: MD of Veterinary Medicine Program (Premaster year)**

**Total teaching hours: 192 h**

**Lectures: 96 h (48 weeks- 2h/week)**

**Practical: 96 h (48 weeks- 2h/week)**

### **2- OVERALL AIMS OF THE COURSE:**

*By the end of this course, the student should acquire the concepts, principles and skills related to congenital, hormonal, pathological and environmental causes of infertility as well as the repeat breeders in farm animals.*

### **3- INTENDED LEARNING OUTCOMES (I. L.Os.):**

#### **3-A: KNOWLEDGE and UNDERSTANDING:**

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

- a.1. Memorize the basics of reproduction such as clinical uses of hormones and follicular dynamics.
- a.2. Define the congenital, hormonal, pathological and environmental causes of female infertility.
- a.3. Demonstrate the semen composition, metabolism, evaluation, collection and preservation.
- a.4. Recognize the importance of reproductive technologies for improving reproductive performance.
- a.5. Explore the fertility management programs.
- a.6. Identify the obstetrical problems occurring during pregnancy, parturition and puerperium.

#### **3-B: INTELLECTUAL SKILLS:**

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

- b.1. Identify research problems and questions related to female reproduction.
- b.2. Evaluate the risk of female reproductive problems and its possible consequences.
- b.3. Select the efficient proper reproductive technologies necessary for managing infertility problems.
- b.4. Design a plan for enhancing reproductive performance in herd.



- b.5. Interpret the relationship between reproduction and environmental factors.
- b.6. Prepare and write a scientific research plan in the field of female reproduction.

### **3- C: PRACTICAL AND PROFESSIONAL SKILLS:**

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

- c.1. Apply advanced techniques for pregnancy diagnosis in farm and pet animals.
- c.2. Diagnose and handle infertility problems and cases of dystocia in farm and pet animals.
- c.3. Use recent techniques for evaluation and preservation of semen.
- c.4. Perform the recent advanced reproductive technologies such reproductive ultrasonography. etc.
- c.5. Utilize the reproductive technologies for improving reproductive performance
- c.6. Conduct essential laboratory skills that underpin techniques associated with pregnancy diagnosis, semen biology.
- c.7. Apply the principles of good experimental design, perform relevant statistical analysis and write scientific paper and dissertation.

### **3- D: GENERAL SKILLS:**

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

- d.1. Participate in workshops and seminars assigned on theriogenology at level of the stockholders and veterinary practitioners
- d.2. Demonstrate information retrieval and library skills.
- d.3. Use information technology to serve the professional practice.
- d.4. Manage time efficiently.
- d.5. Recognize interpersonal skills and team working ability by successful completion of collaborative learn assignment and researches project.
- d.6. Has the ability to learn independently in preparation for career of lifelong learning.

## **4- COURSE CONTENTS:**

Topic	No. of hours		
	Lectures	Practical	Total
Clinical uses of hormones and follicular dynamics	4	4	8
Congenital causes of infertility	15	15	30
Pathological causes of infertility	25	25	50
Environmental causes of infertility	10	10	20
Hormonal causes of infertility	12	12	24
Estrous detection and pregnancy diagnosis	25	25	50



Reproductive technologies	5	5	10
<b>Total</b>	<b>96</b>	<b>96</b>	<b>192</b>

## 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming.

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library

Making individual reports about beef or dairy operations

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a6	b1 to b6		d1, d6
Practical sessions		b1 to b6	c1 to c7	d3, d6
Self-Learning activities				d2, d3, d4
Distance Teaching and Learning	a1 to a6	b1 to b6	c1 to c7	d1 to d6

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	All over the academic year
<b>7.c grads</b>	50	20	20	10



Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a6	b1 to b6		d4
Practical exams			c1 to c7	d2, d3
Oral exams	a1 to a6	b1 to b6		d1
Student activities	a1, a6			d1 to d6

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8.1. Essential books (text books)

- Veterinary Andrology and Artificial Insemination (2019).
- Reproductive Technologies in Farm Animals, Ian Gordon (2004).
- Ruminant and Camelid Reproductive Ultrasonography, Luc Des Coteaux (2010).
- Equine Reproduction, Physiology, breeding and stud management (2016).

### 8.2. Recommended books

- Veterinary reproduction & obstetrics, G.H. Arthur, et al. ( 2006)
- Veterinary obstetrics & genital diseases, G.R. Riberts (1986).
- Current therapy in Theriogenology, D.A. Morrow (1984)
- Practical Manual of Veterinary Gynecology (2015).

### 8.3.: web sites and jounanls

- google.com
- arabvet.com
- esarf.tripod.com/index.html.

### 8.4. Periodicals, Web sites, etc.....

- Reproduction in Domestic Animals.
- Biology of Reproduction.
- Theriogenology Journal.
- Zygote.
- Animal Reproduction Science.
- Reproduction.

**Course Coordinator**

**Prof. Dr. Adel A. Ramoun**

**Head of Department**

**Dr. Essam A. Almadaly**

**Course Matrix for achievement of Intended Learning Outcomes**

No	Topics	Hours	Knowledge & Understanding						Intellectual Skills						Practical & Professional Skills							General & Transferable Skills								
			1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	7	1	2	3	4	5	6			
1	Introduction and course description	8	X													X									X	X	X	X	X	X
2	Basics of reproduction and reproductive technologies	8	X							X	X	X			X						X				X	X	X	X	X	X
3	Causes of female infertility (Congenital, Hormonal, Pathological and environmental)	50		X						X	X	X			X		X								X	X	X	X	X	X
4	Pregnancy diagnosis and assessment of herd fertility	20											X	X		X									X	X	X	X	X	X
5	Semen composition and metabolism	24			X					X	X	X			X		X								X	X	X	X	X	X
6	Semen collection, evaluation, preservation and insemination techniques	50			X					X	X	X			X			X							X	X	X	X	X	X
7	Normal and abnormal pregnancy, parturition and puerperium	10							X				X												X	X	X	X	X	X
8	Diagnosis and treatment of dystocia in farm and pet animals	22											X				X								X	X	X	X	X	X



## **COURSE SPECIFICATION**

**(2021/2022)**

### **1- Basic Information:**

**Code number: 251/1**

**Course title: Male Infertility**

**Academic Year: MD of Veterinary Medicine Program (Premaster year)**

**Total teaching hours: 192 h**

**Lectures: 96 h (48 weeks- 2h/week)**

**Practical: 96 h (48 weeks- 2h/week)**

### **2- OVERALL AIMS OF THE COURSE:**

By the end of this course, the student should acquire the concepts, principles and skills related to diagnose and handle infertility problems in male, achieve capability in conducting sire selection and breeding soundness examination for bulls in AI centers, understand the self-development and the continuous learning.

### **3- INTENDED LEARNING OUTCOMES (I. L.Os.):**

#### **3-A: KNOWLEDGE and UNDERSTANDING:**

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

- a.1. Demonstrate advanced research techniques used in the diagnosis of male infertility problems.
- a.2. Recognize the causes and different forms of male infertility in farm and pet animals.
- a.3. Identify the effect of nutritional level and environmental pollution on male infertility .
- a.4. Deeply understand the basics of theriogenology research techniques and evaluating the utility of these techniques for specific research question.
- a.5. Prepare the student for understanding the proper animal manipulation and utilization of the most recent diagnostic techniques such as CASA and the use of sperm vital stains.
- a.6. Apply knowledge and understanding of the reproductive efficiency to the critical analysis and discussion of the scientific literature.

#### **3-B: INTELLECTUAL SKILLS:**

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

- b.1. Make differential diagnosis among the different causes of infertility.



- b.2. Analyze the role of male as a cause of lower conception rate
- b.3. Evaluate their own research data and develop new approach to solve their research questions.
- b.4. Develop creative approaches for solving the technical problems or issues associated with the sustained research projects.
- b.5. Identify, summarize and evaluate prior researches finding in a specific area.
- b.6. Prepare and write a scientific research plan in the field of male reproductive problems.
- b.7. Design a plan for enhancing male reproduction.

### **3- C: PRACTICAL AND PROFESSIONAL SKILLS:**

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

- c.1. Perform an adequate clinical examination for male animals.
- c.2. Collect the representative semen sample from the male animal and conduct semen analysis
- c.3. Use of ultrasonography for diagnosis of male infertility.
- c.4. Provide the suitable treatment for each cause of male infertility
- c.5. Have an experience in understanding and interpretation of data which help in improving the economic values following introduction of a new management policy.
- c.6. Apply appropriate intervention plan for male infertility problems.
- c.7. To perform essential laboratory skills that strengthen techniques associated with semen biology and male fertility.

### **3- D: GENERAL SKILLS:**

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

- d.1. Participate in workshops and seminars assigned on theriogenology at level of the stockholders and veterinary practitioners
- d.2. Demonstrate information retrieval and library skills.
- d.3. Use information technology to serve the professional practice.
- d.4. Manage time efficiently.
- d.5. Recognize interpersonal skills and team working ability by successful completion of collaborative learn assignment and researches project.
- d.6. Has the ability to learn independently in preparation for career of lifelong learning.

## **4 - COURSE CONTENTS:**





Topic	No. of hours		
	Lectures	Practical	Total
Spermatogenesis & spermiogenesis	14	-	14
Male sexual behavior	16	15	31
Impotentia Eregendi	17	11	28
Impotentia Coeundi	15	10	25
Impotentia Generandi	17	10	27
Sire selection	-	25	25
Sire genetic improvement	17	-	17
Breeding soundness examinations	-	25	25
<b>Total</b>	<b>96</b>	<b>96</b>	<b>192</b>

### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming.

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library

Making individual reports about beef or dairy operations

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a6	b1 to b7		d1, d6
Practical sessions	a 5	b1 to b7	c1 to c7	d3, d6
Self-Learning activities				d2, d3, d4
Distance Teaching and Learning	a1 to a6	b1 to b7	c1 to c7	d1 to d6

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	All over the academic year
<b>7.c grads</b>	50	20	20	10

6.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a6	b1 to b7		d4
Practical exams	a 5		c1 to c7	d2, d3
Oral exams	a1 to a6	b1 to b7		d1
Student activities	a1, a6			d1 to d6

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8.1. Essential books (text books)

- Veterinary Andrology and Artificial Insemination, (2019).
- Reproductive Technologies in Farm Animals, Ian Gordon (2004).
- Ruminant and Camelid Reproductive Ultrasonography, Luc Des Coteaux (2010).
- Equine Reproduction, Physiology, breeding and stud management (2016).

### 8.2. Recommended books

- Veterinary reproduction & obstetrics, G.H. Arthur, et al., ( 2006)
- Veterinary obstetrics & genital diseases, G.R. Riberts (1986).
- Current therapy in Theriogenology, D.A. Morrow (1984)
- Practical Manual of Veterinary Gynecology (2015).

### 8.3.: web sites and jounrls

- google.com



- arabvet.com
- esarf.tripod.com/index.html.

8.4. Periodicals, Web sites, etc.....

- Reproduction in Domestic Animals.
- Biology of Reproduction.
- Theriogenology Journal.
- Zygote.
- Animal Reproduction Science.
- Reproduction.

**Course Coordinator**

**Prof. Dr. Ismail I. El-kon**

**Head of Department**

**Dr. Essam A. Almadaly**



**Course Matrix for achievement of Intended Learning Outcomes**

	Topics	Hours	Knowledge & Understanding						Intellectual Skills							Practical & Professional Skills							General & Transferable Skills									
			1	2	3	4	5	6	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6				
1	Spermatogenesis & spermiogenesis	14				X		X									X									X	X	X	X	X	X	
2	Male sexual behavior	31					X		X												X						X	X	X	X	X	X
3	Impotentia Eregendi	28	X	X					X					X			X									X	X	X	X	X	X	
4	Impotentia Ceundi	25	X	X					X					X			X									X	X	X	X	X	X	
5	Impotentia Generandi	27	X	X					X					X			X									X	X	X	X	X	X	
6	Sire selection	25					X			X					X			X								X	X	X	X	X	X	
7	Sire genetic improvement	17					X				X	X				X										X	X	X	X	X	X	
8	Breeding soundness examinations	25		X	X					X	X				X			X								X	X	X	X	X	X	



## **COURSE SPECIFICATION**

**(2021 / 2022)**

### **1- Basic Information:**

**Code number: 252/1**

**Course title: Infectious Genital diseases**

**Academic Year: MD of Veterinary Medicine Program (Premaster year)**

**Total teaching hours: 96 h**

**Lectures: 48 h (48 weeks- 1h/week)**

**Practical: 48 h (48 weeks- 1h/week)**

### **2- OVERALL AIMS OF THE COURSE:**

*By the end of this course, the student should acquire the concepts, principles and skills related to efficiently diagnose and handle infectious reproductive diseases that affect problems in males and females that directly or indirectly cause hazardous effect to pregnancy, provide the student of master with at professional skill and attitude in handling recent techniques and diagnostic tools.*

### **3- INTENDED LEARNING OUTCOMES (I. L.Os.):**

#### **3-A: KNOWLEDGE and UNDERSTANDING:**

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

- a.1.** Identify genital diseases that causes male and female infertility.
- a.2.** Understand the term of venereal diseases and differentiate between venerea diseases and other infectious diseases causing abortion or infertility in farm animals.
- a.3.** Know the risks of some genital diseases to human health (zoonotic importance).
- a.4.** Recognize concepts about optimum method for handling, controlling and eradication infectious infertility problems.

#### **3-B: INTELLECTUAL SKILLS:**

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

- b.1.** Survey, conceptualize and define research problems and questions.
- b.2.** Analyze the available information about infectious infertility problems.
- b.3.** Prepare and write a scientific research plan in the field of infectious causes of pregnancy loss.



**b.4.** Design a plan for controlling and eradication infectious causes abortion or early embryonic death.

### **3- C: PRACTICAL AND PROFESSIONAL SKILLS:**

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

- c.1.** Construct a proper history for the patient or for the herd.
- c.2.** Perform an adequate clinical examination for male and female animals.
- c.3.** Inspect the fetal membranes and fetus and identify the pathognomic lesion of each disease.
- c.4.** Collect the appropriate sample in a proper time from the affected females and males, aborted fetus and fetal membranes and send the collected samples in appropriate manner to the laboratory.
- c.5.** Conduct the field tests for identifying the causative agent(s) of the genital diseases.
- c.6.** Apply appropriate intervention plan for female infertility problems.
- c.7.** Have the ability for planning and executing a research project in the field of reproductive biotechnology with a consideration to the technical, ethical and safety issues and associated costs.

### **3- D: GENERAL SKILLS:**

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

- d.1.** Participate in workshops and seminars assigned on theriogenology at level of the stockholders and veterinary practitioners
- d.2.** Demonstrate information retrieval and library skills.
- d.3.** Use information technology to serve the professional practice.
- d.4.** Manage time efficiently.
- d.5.** Recognize interpersonal skills and team working ability by successful completion of collaborative learn assignment and researches project.
- d.6.** Has the ability to learn independently in preparation for career of lifelong learning.

### **4- COURSE CONTENTS:**

Topic	No. of hours		
	Lectures	Practical	Total
Non-infectious causes of abortion	9	-	9
Diseases causing abortion	5	4	9
Bacterial diseases	7	8	15
Viral diseases	7	6	13
Parasitic diseases	5	8	13
Mycotic diseases	7	8	15
Common diagnostic techniques	2	9	11



Control & treatment	6	5	11
<b>Total</b>	<b>48</b>	<b>48</b>	<b>96</b>

**5- TEACHING & LEARNING METHODS:**

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming.

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library

Making individual reports about beef or dairy operations

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a4	b1 to b4		d1, d6
Practical sessions		b1 to b4	c1 to c7	d3, d6
Self-Learning activities				d2, d3, d4
Distance Teaching and Learning	a1 to a4	b1 to b4	c1 to c7	d1 to d6

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:-**

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	All over the academic year
<b>7.c grads</b>	<b>50</b>	<b>20</b>	<b>20</b>	<b>10</b>



6.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a4	b1 to b4		d4
Practical exams			c1 to c7	d2, d3
Oral exams	a1 to a4	b1 to b4		d1
Student activities	a1, a4			d1 to d6

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

**8. LEARNING AND REFERENCE MATERIALS:**

8.1. Essential books (text books)

- Veterinary Andrology and Artificial Insemination, (2019).
- Reproductive Technologies in Farm Animals, Ian Gordon (2004).
- Ruminant and Camelid Reproductive Ultrasonography, Luc Des Coteaux (2010).
- Equine Reproduction, Physiology, breeding and stud management (2016).

8.2. Recommended books

- Veterinary reproduction & obstetrics, G.H. Arthur, et al., ( 2006)
- Veterinary obstetrics & genital diseases, G.R. Riberts (1986).
- Current therapy in Theriogenology, D.A. Morrow (1984)
- Practical Manual of Veterinary Gynecology (2015).

8.3.: web sites and jounanls

- google.com
- arabvet.com
- esarf.tripod.com/index.html.

8.4. Periodicals, Web sites, etc.....

- Reproduction in Domestic Animals.
- Biology of Reproduction.
- Theriogenology Journal.
- Zygote.
- Animal Reproduction Science.
- Reproduction.

**Course Coordinator**

**Prof. Dr. Adel A. Ramoun**

**Head of Department**

**Dr. Essam A. Almadaly**





**Course Matrix for achievement of Intended Learning Outcomes**

	Topics	Hours	Knowledge & Understanding				Intellectual Skills				Practical & Professional Skills							General & Transferable Skills					
			1	2	3	4	1	2	3	4	1	2	3	4	5	6	7	1	2	3	4	5	6
1	Non-infectious causes of abortion	9		X			X		X	X							X	X	X	X	X	X	X
2	Diseases causing abortion	9	X	X			X		X	X							X	X	X	X	X	X	X
3	Bacterial diseases	15	X				X							X		X	X	X	X	X	X	X	X
4	Viral diseases	13	X				X							X		X	X	X	X	X	X	X	X
5	Parasitic diseases	13	X				X							X			X	X	X	X	X	X	X
6	Mycotic diseases	15	X				X							X			X	X	X	X	X	X	X
7	Common diagnostic techniques	11				X		X	X			X	X	X	X	X	X	X	X	X	X	X	X
8	Control & treatment	11			X	X			X								X	X	X	X	X	X	X



## **COURSE SPECIFICATION**

**(2021/2022)**

### **1- Basic Information:**

**Code number: 253/1**

**Course title: Obstetrics**

**Academic Year: MD of Veterinary Medicine Program (Premaster year)**

**Total teaching hours: 240 h**

**Lectures: 96 h (48 weeks- 2h/week)**

**Practical: 144 (48 weeks- 3h/week)**

### **2- OVERALL AIMS OF THE COURSE:**

*By the end of this course, the student should acquire the concepts, principles and skills related to provide student with basic knowledge about Normal and abnormal pregnancy, parturition, puerperium and neonatology in farm and pet animals.*

### **3- INTENDED LEARNING OUTCOMES (I. L.Os.):**

#### **3-A: KNOWLEDGE and UNDERSTANDING:**

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

- a.1. know the normal and abnormal pregnancy, parturition and puerperium in both farm and pet animals.
- a.2. Contraception and pregnancy termination in pet animals.
- a.3. Induction of abortion and parturition in farm animals.
- a.4. Identify and handle proplems occurring during pregnancy, parturition (Dystocia) and puerperium.
- a.5. Know about the neonatology of the newborn in both farm and pet animals.

#### **3-B: INTELLECTUAL SKILLS:**

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

- b.1. Minimize the incidence of fetal anomalies, abortion and hydropsy in farm and pet animals..
- b.2. Correlate between obstetrical problems and other problems in other specialization.
- b.3. To survey, conceptualize and define research problems and questions.



b.4. To critically evaluate their own research data and develop new approach to solve their research questions.

### **3- C: PRACTICAL AND PROFESSIONAL SKILLS:**

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

- c.1. Differentiate between normal and abnormal pregnancy, parturition and puerperium.
- c.2. Perform pregnancy diagnosis in both pet and farm animals.
- c.3. Diagnose and treat the obstetrical problems.
- c.4. Follow normal puerperium and handle problems of abnormal puerperium in farm and pet animals.
- c.5. Use contraceptive in pet animals
- c.6. Establish prophylactic measures against wide spread of retained placenta , fetal anomalies...etc

### **3- D: GENERAL SKILLS:**

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

- d.1. Participate in workshops and seminars assigned on theriogenology at level of the stockholders and veterinary practitioners
- d.2. Demonstrate information retrieval and library skills.
- d.3. Use information technology to serve the professional practice.
- d.4. Manage time efficiently.
- d.5. Recognize interpersonal skills and team working ability by successful completion of collaborative learn assignment and researches project.
- d.6. Has the ability to learn independently in preparation for career of lifelong learning.

### **4- COURSE CONTENTS:**

Topic	No. of hours		
	Lectures	Practical	Total
Hormonal control of pregnancy	10	12	22
Pregnancy diagnosis	-	16	16
Management of pregnant animal	13	14	27
Pathology of pregnancy	21	-	21
Normal parturition	9	12	21
Dystocia: causes & manipulations	22	34	56
Normal puerperium	9	12	21
Post-parturient problems	12	44	56



<b>Total</b>	<b>96</b>	<b>144</b>	<b>240</b>
--------------	-----------	------------	------------

### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming.

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library

Making individual reports about beef or dairy operations

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a5	b1 to b4		d1, d6
Practical sessions		b1 to b4	c1 to c6	d3, d6
Self-Learning activities				d2, d3, d4
Distance Teaching and Learning	a1 to a5	b1 to b4	c1 to c6	d1 to d6

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	Allover the academic year
<b>7.c grads</b>	50	20	20	10



6.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a5	b1 to b4		d4
Practical exams			c1 to c6	d2, d3
Oral exams	a1 to a5	b1 to b4		d1
Student activities	a1, a5			d1 to d6

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

### 8. LEARNING AND REFERENCE MATERIALS:

#### 8.1. Essential books (text books)

- Veterinary Andrology and Artificial Insemination, (2019).
- Reproductive Technologies in Farm Animals, Ian Gordon (2004).
- Ruminant and Camelid Reproductive Ultrasonography, Luc Des Coteaux (2010).
- Equine Reproduction, Physiology, breeding and stud management (2016).

#### 8.2. Recommended books

- Veterinary reproduction & obstetrics, G.H. Arthur, et al., ( 2006)
- Veterinary obstetrics & genital diseases, G.R. Riberts (1986).
- Current therapy in Theriogenology, D.A. Morrow (1984)
- Practical Manual of Veterinary Gynecology (2015).

#### 8.3.: web sites and jounanls

- google.com
- arabvet.com
- esarf.tripod.com/index.html.

#### 8.4. Periodicals, Web sites, etc.....

- Reproduction in Domestic Animals.
- Biology of Reproduction.
- Theriogenology Journal.
- Zygote.
- Animal Reproduction Science.
- Reproduction.

**Course Coordinator**

**Prof. Dr. Ismail I. El-kon**

**Head of Department**

**Dr. Essam A. Almadaly**



**Course Matrix for achievement of Intended Learning Outcomes**

	Topics	Hours	Knowledge & Understanding					Intellectual Skills				Practical & Professional Skills						General & Transferable Skills					
			1	2	3	4	5	1	2	3	4	1	2	3	4	5	6	1	2	3	4	5	6
1	Hormonal control of pregnancy	22	X	X													X	X	X	X	X	X	
2	Pregnancy diagnosis	16	X	X			X	X			X	X					X	X	X	X	X	X	
3	Management of pregnant animal	27		X	X		X	X	X								X	X	X	X	X	X	
4	Pathology of pregnancy	21			X	X	X	X	X	X	X					X	X	X	X	X	X	X	
5	Normal parturition	21			X												X	X	X	X	X	X	
6	Dystocia: causes & manipulations	56				X		X									X	X	X	X	X	X	
7	Normal puerperium	21								X	X				X		X	X	X	X	X	X	
8	Post-parturient problems	56						X	X	X	X				X	X	X	X	X	X	X	X	



## **COURSE SPECIFICATION**

**(2021/2022)**

### **1- Basic Information:**

Code number: **254/1**

Course title: **Reproductive immunology**

Academic Year: **MD of Veterinary Medicine Program (Premaster year)**

Total teaching hours: **144 h**

Lectures: **48 hrs (48 weeks- 1hrs/week)**

Practical: **96 hrs (48 weeks- 2hrs/week)**

### **2- OVERALL AIMS OF THE COURSE:**

*By the end of this course, the student should acquire the concepts, principles and skills related to understand the relationship between the immunology and reproduction, achieve capability in modern laboratory technology in developing a practical research project and critically review and present their own research data to declare the relationship between the immunology and reproduction.*

### **3- INTENDED LEARNING OUTCOMES (I. L.Os.):**

#### **3-A: KNOWLEDGE and UNDERSTANDING:**

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

- a.1. Introduction on immunology and reproduction.
- a.2. Recognize the immunological causes of infertility in the female.
- a.3. Identify the immunological causes of infertility in male.
- a.4. Describe immunological profile of pregnancy.
- a.5. Recognize the relationship between hormonal profile and immune status
- a.6. To recognize the concepts about general immunology.
- a.7. Up to date research points in the field immunology of reproduction.
- a.8. To apply knowledge and understanding of the reproductive efficiency to the critical analysis and discussion of the scientific literature.

#### **3-B: INTELLECTUAL SKILLS:**

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



- b.1.** To differentiate between infertility problems arise due to immunological and non immunological causes.
- b.2.** To critically evaluate their own research data and develop new approach to solve their research questions.
- b.3.** To develop creative approaches for solving technical problems or issues associated with running and researches project.
- b.4.** To identify, summarize and evaluate prior researches finding in the field of reproductive immunology.

### **3- C: PRACTICAL AND PROFESSIONAL SKILLS:**

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

- c.1.** To investigate; using of recent techniques; fertility status and diagnose immunological causes of the reproductive failure in farm animals.
- c.2.** To utilize the immunological response for pregnancy diagnosis, controlling and diagnosis infectious disease, controlling reproduction.
- c.3.** To select and perform relevant statistical analysis on data obtained for their own research.
- c.4.** To plan and execute a research project in the field of theriogenology with a consideration to the technical, ethical and safety issues and associated costs.

### **3- D: GENERAL SKILLS:**

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

- d.1.** Participate in workshops and seminars assigned on theriogenology at level of the stockholders and veterinary practitioners
- d.2.** Demonstrate information retrieval and library skills.
- d.3.** Use information technology to serve the professional practice.
- d.4.** Manage time efficiently.
- d.5.** Recognize interpersonal skills and team working ability by successful completion of collaborative learn assignment and researches project.
- d.6.** Has the ability to learn independently in preparation for career of lifelong learning.

## **4- COURSE CONTENTS:**

Topic	No. of hours		
	Lectures	Practical	Total
Fertilization	5	14	19





Pregnancy recognition	-	20	20
Specific proteins for pregnancy diagnosis	14	10	24
Specific proteins for heat stresses	9	14	23
Sperm auto-immunization	6	15	21
Sperm-iso-immunization	6	14	20
Immune-suppression of reproductive .hormones	8	9	17
<b>Total</b>	<b>48</b>	<b>96</b>	<b>144</b>

## 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard

Discussion and brain storming.

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library

Making individual reports about beef or dairy operations

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a8	b1 to b4		d1, d6
Practical sessions		b1 to b4	c1 to c4	d3, d6
Self-Learning activities				d2, d3, d4
Distance Teaching and Learning	a1 to a8	b1 to b4	c1 to c4	d1 to d6

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:-

<b>7.a Used methods</b>	Written	Oral examination	Practical	Activities
-------------------------	---------	------------------	-----------	------------



	examination		examination	
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	Allover the academic year
<b>7.c grads</b>	50	20	20	10

6.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a8	b1 to b4		d4
Practical exams			c1 to c4	d2, d3
Oral exams	a1 to a8	b1 to b4		d1
Student activities	a1, a8			d1 to d6

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8.1. Essential books (text books)

- Veterinary Andrology and Artificial Insemination, (2019).
- Reproductive Technologies in Farm Animals, Ian Gordon (2004).
- Ruminant and Camelid Reproductive Ultrasonography, Luc Des Coteaux (2010).
- Equine Reproduction, Physiology, breeding and stud management (2016).

### 8.2. Recommended books

- Veterinary reproduction & obstetrics, G.H. Arthur, et al., ( 2006)
- Veterinary obstetrics & genital diseases, G.R. Riberts (1986).
- Current therapy in Theriogenology, D.A. Morrow (1984)
- Practical Manual of Veterinary Gynecology (2015).

### 8.3.: web sites and jounrnl

- google.com
- arabvet.com
- esarf.tripod.com/index.html.

### 8.4. Periodicals, Web sites, etc.....

- Reproduction in Domestic Animals.
- Biology of Reproduction.
- Theriogenology Journal.
- Zygote.
- Animal Reproduction Science.
- Reproduction.

**Course Coordinator**

**Prof. Dr. Adel A. Ramoun**

**Head of Department**

**Dr. Essam A. Almadaly**



**Course Matrix for achievement of Intended Learning Outcomes**

	Topics	Hours	Knowledge & Understanding								Intellectual Skills				Practical & Professional Skills				General & Transferable Skills					
			1	2	3	4	5	6	7	8	1	2	3	4	1	2	3	4	1	2	3	4	5	6
1	Fertilization	19	X																X	X	X	X	X	X
2	Pregnancy recognition	20	X								X	X							X	X	X	X	X	X
3	Specific proteins for pregnancy diagnosis	24	X			X					X	X	X		X	X			X	X	X	X	X	X
4	Specific proteins for heat stresses	23		X	X					X					X				X	X	X	X	X	X
5	Sperm auto-immunization	21		X	X			X				X	X		X				X	X	X	X	X	X
6	Sperm-iso-immunization	20						X				X	X		X		X		X	X	X	X	X	X
7	Immune-suppression of reproductive hormones	17		X	X		X		X									X	X	X	X	X	X	X



## **COURSE SPECIFICATION**

**(2021 / 2022)**

### **1- Basic Information:**

**Code number: 255/1**

**Course title: Artificial Insemination In Ruminants**

**Academic Year: MD of Veterinary Medicine Program (Premaster year)**

**Total teaching hours: 192 h**

Lectures: **96 h (48 weeks- 2h/week)**

Practical: **96 h (48 weeks- 2h/week)**

### **2- OVERALL AIMS OF THE COURSE:**

*By the end of this course, the student should acquire the concepts, principles and skills related to provide the graduated student with the basic knowledge and detailed information on the semen components and collection, processing and preservation of semen of males ruminants, enable the student to collect, evaluate and preserve the semen from the males ruminant animals, provide candidates the opportunity to have deep skill and attitude in handling recent techniques and diagnostic tools, achieve capability in modern laboratory technology in developing a practical research project.*

### **3- INTENDED LEARNING OUTCOMES (I.L.Os.):**

#### **3-A: KNOWLEDGE and UNDERSTANDING:**

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

- a.1.** Demonstrate concepts about AI application in the field of ruminant reproduction.
- a.2.** Describe the basis of semen biochemistry, metabolism and semen processing.
- a.3.** Know bases of the optimum method for handling, diluting and preservation cow-buffalo semen sample.
- a.4.** Up to date research points in the field of artificial insemination.
- a.5.** Apply knowledge and understanding of the artificial insemination to the critical analysis and discussion of the scientific literature.

#### **3-B: INTELLECTUAL SKILLS:**

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



- b.1.** Detect the possible approach to spread the knowledge of AI application among practitioners and animal owners.
- b.2.** Select the best approach to pertain AI to control venereal infection using the available facilities and information.
- b.3.** Achieve maximum benefit from AI in his community.
- b.4.** Identify, summarize and evaluate prior researches finding in the field of artificial insemination.
- b.5.** Design a plan for optimum application of AI in dairy farms.

### **3- C: PRACTICAL AND PROFESSIONAL SKILLS:**

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

- c.1.** Collect, evaluate, dilute and preserve semen sample in a proper way and under high hygienic standards.
- c.2.** Apply the principles of good experimental design and analysis to their own research project.
- c.3.** Select and perform relevant statistical analysis on data obtained for their own research about semen evaluation.
- c.4.** Plan and execute a research project in the field of AI with a consideration to the technical, ethical and safety issues and associated costs.
- c.5.** Perform essential laboratory skills that underpin techniques associated with semen biology and AI.

### **3- D: GENERAL SKILLS:**

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

- d.1.** Participate in workshops and seminars assigned on theriogenology at level of the stockholders and veterinary practitioners
- d.2.** Demonstrate information retrieval and library skills.
- d.3.** Use information technology to serve the professional practice.
- d.4.** Manage time efficiently.
- d.5.** Recognize interpersonal skills and team working ability by successful completion of collaborative learn assignment and researches project.
- d.6.** Has the ability to learn independently in preparation for career of lifelong learning.

### **4- COURSE CONTENTS:**

Topic	No. of hours		
	Lectures	Practical	Total



Advantages & disadvantages of AI	15	4	19
Sire selection for AI purposes	15	4	19
Methods of semen collection	-	32	32
Techniques of semen evaluation	-	48	48
Semen extenders & extension	18	-	18
Processing of the frozen semen	20	4	24
Handling of the frozen semen	16	-	16
Records & recording systems	12	4	16
<b>Total</b>	<b>96</b>	<b>96</b>	<b>192</b>

### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming.

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library

Making individual reports about beef or dairy operations

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a5	b1 to b5		d1, d6
Practical sessions		b1 to b5	c1 to c5	d3, d6
Self-Learning activities				d2, d3, d4
Distance Teaching and Learning	a1 to a5	b1 to b5	c1 to c5	d1 to d6

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:-



<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	All over the academic year
<b>7.c grads</b>	<b>50</b>	<b>20</b>	<b>20</b>	<b>10</b>

6.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a5	b1 to b5		d4
Practical exams			c1 to c5	d2, d3
Oral exams	a1 to a5	b1 to b5		d1
Student activities	a1, a5			d1 to d6

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8.1. Essential books (text books)

- Veterinary Andrology and Artificial Insemination (2019).
- Reproductive Technologies in Farm Animals, Ian Gordon (2004).
- Ruminant and Camelid Reproductive Ultrasonography, Luc Des Coteaux (2010).
- Equine Reproduction, Physiology, breeding and stud management (2016).

### 8.2. Recommended books

- Veterinary reproduction & obstetrics, G.H. Arthur, et al., ( 2006)
- Veterinary obstetrics & genital diseases, G.R. Riberts (1986).
- Current therapy in Theriogenology, D.A. Morrow (1984)
- Practical Manual of Veterinary Gynecology (2015).

### 8.3.: web sites and journals

- google.com
- arabvet.com
- esarf.tripod.com/index.html.

### 8.4. Periodicals, Web sites, etc.....

- Reproduction in Domestic Animals.



- Biology of Reproduction.
- Theriogenology Journal.
- Zygote.
- Animal Reproduction Science.
- Reproduction.

**Course Coordinator**

**Prof. Dr. Ismail I. El-Kon**

**Head of Department**

**Dr. Essam A. Almadaly**



**Course Matrix for achievement of Intended Learning Outcomes**

	Topics	Hours	Knowledge & Understanding					Intellectual Skills					Practical & Professional Skills					General & Transferable Skills					
			1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	6
1	Advantages & disadvantages of A.I.	7	X					X		X								X	X	X	X	X	X
2	Sire selection for A.I. purposes	31	X					X		X			X				X	X	X	X	X	X	X
3	Methods of semen collection	77			X									X		X		X	X	X	X	X	X
4	Techniques of semen evaluation	48		X	X			X	X	X			X			X		X	X	X	X	X	X
5	Semen extenders & extension	12		X	X			X		X			X	X		X	X	X	X	X	X	X	X
6	Processing of the frozen semen	59			X					X			X		X	X	X	X	X	X	X	X	X
7	Handling of the frozen semen	54			X	X		X	X								X	X	X	X	X	X	X
8	Records & recording systems	48				X	X	X	X		X		X		X	X		X	X	X	X	X	X



## **COURSE SPECIFICATION**

**(2021/2022)**

### **1- Basic Information:**

**Code number: 256/1**

**Course title: Artificial Insemination in Equine**

**Academic Year: MD of Veterinary Medicine Program (Premaster year)**

**Total teaching hours: 192 h**

**Lectures: 96 h (48 weeks- 2h/week)**

**Practical: 96 h (48 weeks- 2h/week)**

### **2- OVERALL AIMS OF THE COURSE:**

*By the end of this course, the student should acquire the concepts, principles and skills related to acquiring a working knowledge of proper breeding management of stallions and semen processing and handling techniques, used in artificial insemination programs, semen evaluation, processing as well as the preservation of semen in stallion and insemination of the female, demonstrate an awareness of the connection with the different disciplines of the world-wide research institutions by reviewing the scientific literature and prepare and upgrade the students for registering to the PhD degrees in field of the theriogenology.*

### **3- INTENDED LEARNING OUTCOMES (I. L.Os.):**

#### **3-A: KNOWLEDGE and UNDERSTANDING:**

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

- a.1.** Discuss advantages and disadvantages of artificial insemination programs compared to natural breeding programs for horses.
- a.2.** Describe important components of a breeding shed to be used in an equine artificial insemination program..
- a.3.** give advantages and disadvantages of the commonly used equine artificial vaginas
- a.4.** Know bases of the optimum method for handling, diluting and preservation stallion, dog and tom-cat semen samples.
- a.5.** Up to date research points in the field of artificial insemination.
- a.6.** Apply knowledge and understanding of the artificial insemination to the critical analysis and discussion of the scientific literature.



a.7. Recognize the different procedures that induce genetic improvement, diseases control and increase fertility in equine studs.

### **3-B: INTELLECTUAL SKILLS:**

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

- b.1. Detect the possible approach to spread the knowledge of AI application in the society and among horse owners.
- b.2. Select the best approach to pertain AI to control venereal infection using the available facilities and information.
- b.3. Achieve maximum benefit from AI in horse community.
- b.4. Identify, summarize and evaluate prior researches finding in the field of artificial insemination.
- b.5. Design a plan for optimum application of AI in equine studs.

### **3- C: PRACTICAL AND PROFESSIONAL SKILLS:**

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

- c.1. Ensure routine semen evaluation and monitoring of stallion .
- c.2. Discuss the proper insemination dose (number of spermatozoa and insemination volume), insemination timing, and insemination technique for artificial insemination in the mare.
- c.3. Describe the role of semen extenders and temperature in maintaining equine spermatozoal viability in vitro.
- c.4. Apply the principles of good experimental design and analysis to their own research project.
- c.5. Perform essential laboratory skills that underpin techniques associated with semen biology and AI.

### **3- D: GENERAL SKILLS:**

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

- d.1. Participate in workshops and seminars assigned on theriogenology at level of the stockholders and veterinary practitioners
- d.2. Demonstrate information retrieval and library skills.
- d.3. Use information technology to serve the professional practice.
- d.4. Manage time efficiently.
- d.5. Recognize interpersonal skills and team working ability by successful completion of collaborative learn assignment and researches project.
- d.6. Has the ability to learn independently in preparation for career of lifelong learning.



#### 4- COURSE CONTENTS:

Topic	No. of hours		
	Lectures	Practical	Total
Advantages & disadvantages of A.I.	5	4	11
Sire selection for A.I. purposes in equines	12	10	22
Methods of semen collection from stallions	8	13	25
Techniques of stallion semen evaluation	-	38	38
Processing of stallion semen	6	6	14
Evaluation of stallion frozen semen	7	12	19
Insemination technique in mares	47	-	47
Records & recording systems	11	13	16
<b>Total</b>	<b>96</b>	<b>96</b>	<b>192</b>

#### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard

Discussion and brain storming.

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library

Making individual reports about beef or dairy operations

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a7	b1 to b5		d1, d6
Practical sessions		b1 to b5	c1 to c5	d3, d6
Self-Learning activities				d2, d3, d4
Distance Teaching and Learning	a1 to a7	b1 to b5	c1 to c5	d1 to d6

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	All over the academic year
<b>7.c grads</b>	<b>50</b>	<b>20</b>	<b>20</b>	<b>10</b>

6.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a7	b1 to b5		d4
Practical exams			c1 to c5	d2, d3
Oral exams	a1 to a7	b1 to b5		d1
Student activities	a1, a7			d1 to d6

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

### 8. LEARNING AND REFERENCE MATERIALS:

#### 8.1. Essential books (text books)

- Veterinary Andrology and Artificial Insemination (2019).
- Reproductive Technologies in Farm Animals, Ian Gordon (2004).
- Ruminant and Camelid Reproductive Ultrasonography, Luc Des Coteaux (2010).
- Equine Reproduction, Physiology, breeding and stud management (2016).

#### 8.2. Recommended books

- Veterinary reproduction & obstetrics, G.H. Arthur, et al., ( 2006)
- Veterinary obstetrics & genital diseases, G.R. Riberts (1986).
- Current therapy in Theriogenology, D.A. Morrow (1984)
- Practical Manual of Veterinary Gynecology (2015).

#### 8.3.: web sites and jounrls

- google.com
- arabvet.com



- [esarf.tripod.com/index.html](http://esarf.tripod.com/index.html).

8.4. Periodicals, Web sites, etc.....

- Reproduction in Domestic Animals.
- Biology of Reproduction.
- Theriogenology Journal.
- Zygote.
- Animal Reproduction Science.
- Reproduction.

**Course Coordinator**

**Prof. Dr. Ismail I. El-Kon**

**Head of Department**

**Dr. Essam A. Almadaly**



**Course Matrix for achievement of Intended Learning Outcomes**

	Topics	Hours	Knowledge & Understanding							Intellectual Skills					Practical & Professional Skills					General & Transferable Skills						
			1	2	3	4	5	6	7	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	6	
1	Advantages & disadvantages of A.I.	11	X							X											X	X	X	X	X	X
2	Sire selection for A.I. purposes in equines	22							X		X	X									X	X	X	X	X	X
3	Methods of semen collection from stallions	25		X	X						X	X									X	X	X	X	X	X
4	Techniques of stallion semen evaluation	38			X	X	X				X	X	X	X	X						X	X	X	X	X	X
5	Processing of stallion semen	14		X	X	X					X					X	X			X	X	X	X	X	X	X
6	Evaluation of stallion frozen semen	19			X		X		X	X							X			X	X	X	X	X	X	X
7	Insemination technique in mares	47										X			X					X	X	X	X	X	X	X
8	Records & recording systems	16					X	X				X	X	X	X				X		X	X	X	X	X	X



## **COURSE SPECIFICATION**

**(2021 / 2022)**

### **1- Basic Information:**

**Code number: 257/1**

**Course title: Artificial Insemination in pet animals**

**Academic Year: MD of Veterinary Medicine Program (Premaster year)**

**Total teaching hours: 144 h**

**Lectures: 48 h (48 weeks- 1h/week)**

**Practical: 96 h (48 weeks- 2h/week)**

### **2- OVERALL AIMS OF THE COURSE:**

*By the end of this course, the student should acquire the concepts, principles and skills related to acquire a working knowledge of proper breeding management of dog and tom-cat, acquire a working knowledge of procedures used for semen evaluation, processing as well as the preservation of semen in dog and tom-cat and insemination of the female, enable the graduated student to inseminate a bitch or a queen and prepare and upgrade the students for registering to the PhD degrees in field of the theriogenology.*

### **3- INTENDED LEARNING OUTCOMES (I.L.Os.):**

#### **3-A: KNOWLEDGE and UNDERSTANDING:**

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

- a.1.** Discuss advantages and disadvantages of artificial insemination programs compared to natural breeding programs for dog and tom-cat.
- a.2.** Describe important components of a breeding shed to be used in dog and tom-cat artificial insemination program..
- a.3.** Give advantages and disadvantages of the commonly used for dog and tom-cat artificial vagina.
- a.4.** Know bases of the optimum method for handling, diluting and preservation stallion, dog and tom-cat semen samples.
- a.5.** Up to date research points in the field of artificial insemination.
- a.6.** Apply knowledge and understanding of the artificial insemination to the critical analysis and discussion of the scientific literature.





a.7. Recognize the different procedures that induce genetic improvement, diseases control and increase fertility in dog and tom-cat studs.

### **3-B: INTELLECTUAL SKILLS:**

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

b.1. Detect the possible approach to spread the knowledge of AI application in the society and among pets owners.

b.2. Construct semen evaluation sheets in pets.

b.3. Interpret the results of tests used for semen evaluation.

b.4. Make judgment on quality of the semen in pets.

### **3- C: PRACTICAL AND PROFESSIONAL SKILLS:**

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

c.1. Perform an adequate collection of semen in pets.

c.2. Conduct perfectly semen evaluation tests in pets

c.3. Perform proper preservation of the semen

c.4. Perform proper insemination in pets.

### **3- D: GENERAL SKILLS:**

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

d.1. Participate in workshops and seminars assigned on theriogenology at level of the stockholders and veterinary practitioners

d.2. Demonstrate information retrieval and library skills.

d.3. Use information technology to serve the professional practice.

d.4. Manage time efficiently.

d.5. Recognize interpersonal skills and team working ability by successful completion of collaborative learn assignment and researches project.

d.6. Has the ability to learn independently in preparation for career of lifelong learning.

## **4- COURSE CONTENTS:**

Topic	No. of hours		
	Lectures	Practical	Total
Advantages & disadvantages of A.I. in pet animals	6	9	15
Methods of semen collection from dog and tom-cat	9	11	20



Techniques of semen evaluation in pet animals	-	43	43
Processing of semen in pet animals	12	11	23
Evaluation of frozen semen in pet animals	15	15	30
Insemination technique in pet animals	6	7	13
<b>Total</b>	<b>48</b>	<b>96</b>	<b>144</b>

### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming.

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library

Making individual reports about beef or dairy operations

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a7	b1 to b4		d1, d6
Practical sessions		b1 to b4	c1 to c4	d3, d6
Self-Learning activities				d2, d3, d4
Distance Teaching and Learning	a1 to a7	b1 to b4	c1 to c4	d1 to d6

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:-**

<u>7.a Used methods</u>	<b>Written examination</b>	<b>Oral examination</b>	<b>Practical examination</b>	<b>Activities</b>
<u>7.b time</u>	At the end of the academic year	At the end of the academic year	At the end of the academic year	All over the academic year
<u>7.c grads</u>	<b>50</b>	<b>20</b>	<b>20</b>	<b>10</b>

<b>6.1. Methods</b>	<b>7. Student Assessment</b>			
	<b>Intended Learning Outcomes Covered</b>			
	<b>KU</b>	<b>IS</b>	<b>PPS</b>	<b>GTS</b>
Written exams	a1 to a7	b1 to b4		d4
Practical exams			c1 to c4	d2, d3
Oral exams	a1 to a7	b1 to b4		d1
Student activities	a1, a7			d1 to d6

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

**8. LEARNING AND REFERENCE MATERIALS:**

8.1. Essential books (text books)

- Veterinary Andrology and Artificial Insemination (2019).
- Reproductive Technologies in Farm Animals, Ian Gordon (2004).
- Ruminant and Camelid Reproductive Ultrasonography, Luc Des Coteaux (2010).
- Equine Reproduction, Physiology, breeding and stud management (2016).

8.2. Recommended books

- Veterinary reproduction & obstetrics, G.H. Arthur, et al., ( 2006)
- Veterinary obstetrics & genital diseases, G.R. Riberts (1986).
- Current therapy in Theriogenology, D.A. Morrow (1984)



- Practical Manual of Veterinary Gynecology (2015).

8.3.: web sites and jouranls

- google.com
- arabvet.com
- esarf.tripod.com/index.html.

8.4. Periodicals, Web sites, etc.....

- Reproduction in Domestic Animals.
- Biology of Reproduction.
- Theriogenology Journal.
- Zygote.
- Animal Reproduction Science.
- Reproduction.

**Course Coordinator**

**Prof. Dr. Adel A. Ramoun**

**Head of Department**

**Dr. Essam A. Almadaly**



**Course Matrix for achievement of Intended Learning Outcomes**

	Topics	Hours	Knowledge & Understanding							Intellectual Skills				Practical & Professional Skills				General & Transferable Skills						
			1	2	3	4	5	6	7	1	2	3	4	1	2	3	4	1	2	3	4	5	6	
1	Advantages & disadvantages of A.I. in pet animals.	15	X							X									X	X	X	X	X	X
2	Methods of semen collection from dog and tom-cat	20		X										X					X	X	X	X	X	X
3	Techniques of semen evaluation in pet animals.	43			X		X	X				X			X				X	X	X	X	X	X
4	Processing of semen in pet animals.	23			X	X	X					X					X		X	X	X	X	X	X
5	Evaluation of frozen semen in pet animals.	30		X		X	X	X		X	X	X			X				X	X	X	X	X	X
6	Insemination technique in pet animals.	13									X		X					X	X	X	X	X	X	X



## **COURSE SPECIFICATION**

**(2021/2022)**

### **1- Basic Information:**

**Code number: 258/1**

**Course title: Embryo Transfer**

**Academic Year: MD of Veterinary Medicine Program (Premaster year)**

**Total teaching hours: 144 h**

**Lectures: 48 h (48 weeks- 1h/week)**

**Practical: 96 h (48 weeks- 2h/week)**

### **2- OVERALL AIMS OF THE COURSE:**

*By the end of this course, the student should acquire the concepts, principles and skills related to define variety of factors may affect oocyte and pre-embryo characteristics and subsequent outcome of assisted reproductive technologies, achieve capability in modern laboratory technology in developing a practical research project, demonstrate an awareness of the connection with the different disciplines of the world-wide research institutions by reviewing the scientific literature, critically review and present their own research data for the protection and promotion of the animal health and prepare and upgrade the students for registering to the PhD degrees in field of the theriogenology.*

### **3- INTENDED LEARNING OUTCOMES (I.L.Os.):**

#### **3-A: KNOWLEDGE and UNDERSTANDING:**

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

- a.1.** Demonstrate advantages and disadvantages of embryo transfer.
- a.2.** Recognize the different methods of oocyte classification and assessing embryo viability.
- a.3.** Describe the technology concerning micromanipulation of gametes, zygotes, and embryos
- a.4.** Know bases of oocyte and embryo metabolism, metabolic controls, and in vitro maturation and culture of embryo
- a.5.** Apply knowledge and understanding of the reproductive efficiency to the critical analysis and discussion of the scientific literature.
- a.6.** Recognize the different procedures that improves the fertility status of the herd.



### **3-B: INTELLECTUAL SKILLS:**

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

- b.1.** Construct a program for embryo transfer.
- b.2.** Perform genetic improvement for good genetic traits through application of E.T.
- b.3.** Identify different techniques used to achieve in vitro fertilization and intra cytoplasmic injection.
- b.4.** Critically evaluate their own research data and develop new approach to solve their research questions related to embryo transfer.
- b.5.** Develop creative approaches for solving technical problems or issues associated with running and researches project.

### **3- C: PRACTICAL AND PROFESSIONAL SKILLS:**

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

- c.1.** Recognize techniques used to achieve fertilization: zona drilling, partial zona dissection and intracytoplasmic sperm injection.
- c.2.** Using of recent techniques and tools necessary identify and correct fertilization abnormalities in farm animals.
- c.3.** Be aware of the framework of the assisted reproductive technologies laboratory.
- c.5.** Plan and execute a research project in the field of assisted reproductive technologies with a consideration to the technical, ethical and safety issues and associated costs.
- c.6.** Perform essential laboratory skills that underpin techniques of oocyte collection, evaluation, classification and preparation for IVF.

### **3- D: GENERAL SKILLS:**

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

- d.1.** Participate in workshops and seminars assigned on theriogenology at level of the stockholders and veterinary practitioners
- d.2.** Demonstrate information retrieval and library skills.
- d.3.** Use information technology to serve the professional practice.
- d.4.** Manage time efficiently.
- d.5.** Recognize interpersonal skills and team working ability by successful completion of collaborative learn assignment and researches project.
- d.6.** Has the ability to learn independently in preparation for career of lifelong learning.



**4- COURSE CONTENTS:**

Topic	No. of hours		
	Lectures	Practical	Total
Advantages & disadvantages of ET	4	12	16
Selection & preparation of donors	6	10	16
Selection & preparation of recipient	6	12	18
Superovulation and insemination	5	15	20
Embryo collection	6	10	16
Evaluation of embryo	4	15	19
Transfer of embryo	7	10	17
IVM,IVF and assisted reproductive technologies	10	12	22
<b>Total</b>	<b>48</b>	<b>96</b>	<b>144</b>

**5- TEACHING & LEARNING METHODS:**

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard Discussion and brain storming.

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library

Making individual reports about beef or dairy operations

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a6	b1 to b5		d1, d6
Practical sessions		b1 to b5	c1 to c6	d3, d6
Self-Learning activities				d2, d3, d4
Distance Teaching	a1 to a6	b1 to b5	c1 to c6	d1 to d6





<b>and Learning</b>				
---------------------	--	--	--	--

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:-**

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	All over the academic year
<b>7.c grads</b>	<b>50</b>	<b>20</b>	<b>20</b>	<b>10</b>

6.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a6	b1 to b5		d4
Practical exams			c1 to c6	d2, d3
Oral exams	a1 to a6	b1 to b5		d1
Student activities	a1, a6			d1 to d6

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

**8. LEARNING AND REFERENCE MATERIALS:**

8.1. Essential books (text books)



- Veterinary Andrology and Artificial Insemination (2019).
- Reproductive Technologies in Farm Animals, Ian Gordon (2004).
- Ruminant and Camelid Reproductive Ultrasonography, Luc Des Coteaux (2010).
- Equine Reproduction, Physiology, breeding and stud management (2016).

#### 8.2. Recommended books

- Veterinary reproduction & obstetrics, G.H. Arthur, et al., ( 2006)
- Veterinary obstetrics & genital diseases, G.R. Riberts (1986).
- Current therapy in Theriogenology, D.A. Morrow (1984)
- Practical Manual of Veterinary Gynecology (2015).

#### 8.3.: web sites and jouranls

- [google.com](http://google.com)
- [arabvet.com](http://arabvet.com)
- [esarf.tripod.com/index.html](http://esarf.tripod.com/index.html).

#### 8.4. Periodicals, Web sites, etc.....

- Reproduction in Domestic Animals.
- Biology of Reproduction.
- Theriogenology Journal.
- Zygote.
- Animal Reproduction Science.
- Reproduction.

**Course Coordinator**

**Prof. Dr. Ismail I. El-Kon**

**Head of Department**

**Dr. Essam A. Almadaly**

**Course Matrix for achievement of Intended Learning Outcomes**

	Topics	Hours	Knowledge & Understanding						Intellectual Skills					Practical & Professional Skills						General & Transferable Skills						
			1	2	3	4	5	6	1	2	3	4	5	1	2	3	4	5	6	1	2	3	4	5	6	
1	Advantages & disadvantages of E.T.	16	x												x						x	x	x	x	x	x
2	Selection & preparation of donors	16		x					x	x						x				x	x	x	x	x	x	x
3	Selection & preparation of recipient	18		x			x		x	x						x					x	x	x	x	x	x
4	Superovulation and insemination	20			x					x		x	x		x						x	x	x	x	x	x
5	Embryo collection	16			x										x	x					x	x	x	x	x	x
6	Evaluation of embryo	19			x					x	x						x				x	x	x	x	x	x
7	Transfer of embryo	17				x						x						x			x	x	x	x	x	x
8	IVM,IVF and assisted reproductive technologies	22				x	x	x			x	x	x			x	x	x			x	x	x	x	x	x



**Kafrelsheikh University**  
Faculty of Veterinary Medicine



---

**Kafrelsheikh University**  
**Faculty of Veterinary Medicine**  
**Department of Surgery, Anesthesiology,**  
**and Radiology.**

# **Program Specification for Master Degree**

## **(2021 - 2022)**

**Program Title:**

**Master of The Veterinary Science**  
**(Veterinary Surgery)**

## **A- Administrative information:**

- 1- **Awarding Body:** Kafrelsheikh University
- 2- **Teaching Body:** Faculty of Veterinary Medicine
- 3- **Department(s) responsible:** Surgery, Anesthesiology and Radiology
- 4- **Programme Title:** Master of Veterinary Surgery
- 5- **Final award:** Master Degree
- 6- **Registration period:** 2-4 years
- 7- **Program Co- coordinator:**
- 8- **External evaluator:**
- 9- **Date of revision:**
- 10- **Date of approval:**

## **B- Professional information:**

### **1-Educational aims of the program**

- Provides graduates the opportunity to develop communication and teaching skills and the experience of scientific research.
- Develops the ability of graduate to engage critically with recent techniques and diagnostic tools in the field of **Surgery, Anesthesiology and Radiology**.
- Supplies the graduates with the most recent knowledge in science and technological applications in **Surgery, Anesthesiology and Radiology**.
- Demonstrates an awareness of the connections between disciplines and develop the ability to engage critically with scientific literature and to critically review and present their own research data for the protection and promotion of the animal health.
- Allows graduates to develop practical research project.
- Enables graduates to achieve competency in modern surgery approaches.

### **2- Academic standards:**

**Academic reference standards (ARS) adopted by the faculty committee No 1 (14/9/2014)**

### **3-Graduate attributes:**

*Upon successful completion of the program, the graduate has the ability for:*

- 1) Perfect application of scientific research basics and methodologies in Surgery, Anesthesiology and Radiology and using its varied tools.
- 2) Application of analytical methods and using it in surgical conditions.
- 3) Application of gained specialized knowledge and integrating them with the relevant knowledge in Surgery, Anesthesiology and Radiology.
- 4) Awareness with ongoing surgical conditions and recent concepts of their pathogenesis and treatment.
- 5) Identification of surgical problems and suggesting suitable and economic

- methods of treatment and control.
- 6) Mastering the proper scope of a rate specialized professional skills, and using appropriate technological means to serve the diagnosis and treatment of injured animals in addition to identification of etiology of these conditions.
  - 7) Effective communication with students, surgeons and animal owners and leading work team.
  - 8) Decision making for suggesting the correct diagnosis, prognosis and intervention decision.
  - 9) Employ available resources efficiently including history, clinical signs, diagnostic imaging and special diagnostic aids.
  - 10) Awareness with his role in society development and help for preservation of a clean environment.
  - 11) Reflection of the commitment to act with integrity, credibility and the rules of profession.
  - 12) Academic and professional self- development and ability for life-long learning and progress by studying new surgical cases.

#### **4-Program outcomes:**

##### **a. Knowledge and understanding:**

*By the end of this program the graduate should be able to:*

- a.1. Specify the advanced novel theories and its principles in the field of Surgery, Anesthesiology and Radiology and related fields.
- a.2. Identify the relation between surgical intervention and its impact on environment.
- a.3. Express scientific progress in the field of Surgery, Anesthesiology and Radiology
- a.4. Realize the legal and ethical basics in the field of Surgery, Anesthesiology and Radiology when dealing with patients and owners.
- a.5. Realize the principles of quality assurance in veterinary Surgery, Anesthesiology and Radiology
- a.6. Identify the ethical and moral aspects s of scientific research especially that involving experimental animals.

##### **b. Intellectual skills:**

*By the end of this program the graduate should be able to:*

- b.1. Find clues for surgical problem even in case of insufficient data.
- b.2. Analyze and judge available data from different resources for accurate diagnosis.
- b.3. Conclude collected data to select the suitable treatment.

- b.4.** Design research plan in Surgery, Anesthesiology and Radiology and/ or write scientific article on a research problem.
- b.5.** Assess risks of professional practices in Surgery, Anesthesiology and Radiology and their possible consequences.
- b.6.** Plan for improvement of surgical skills.
- b.7.** Take critical decisions in different surgical problems.
- b.8.** Judge the correct diagnosis and treatment recommended for each general surgical affection.

**c. Practical and professional skills:**

*By the end of this program the graduate should be able to:*

- c.1.** Employ the basics and recent protocols in the field of Surgery, Anesthesiology and Radiology
- c.2.** Employ the available facilities and equipment in the most effective way.
- c.3.** Schedule an experiment in Surgery; Anesthesiology and Radiology, and Perform statistical data analysis.
- c.4.** Construct a professional and conclusive report.

**d. General and transferable skills:**

*By the end of this program, the graduate should be able to:*

- d.1.** Communicate effectively with his professors, collages and animal owner(s).
- d.2.** Use information technology to serve the professional practice.
- d.3.** Assess himself and identify his personal educational needs.
- d.4.** Utilize different sources of knowledge and information.
- d.5.** Set tools and indicators for assessment of the performance of others.
- d.6.** Demonstrate interpersonal skills and team working ability
- d.7.** Manage time efficiently.
- d.8.** Demonstrate an ability to learn independently for a career of lifelong learning.

**5- Program structure**

**a) Program duration (years):** Master degree from 2-4 years

**b) Premaster courses – at least one academic year**

Course	Lecture (hours/week)	Practical (hours/week)
Fundamental (core) course	3	4
Research methodology	1	3
2-5 Elective Courses Offered by other departments and are selected from the list below	5-6	5-6



according to thesis topic (10-12 hours)

**c) Master of Veterinary Medicine Thesis (at least one academic year)**

- All Master-degree students should prepare a master thesis.
  - The department and the ethical committees must approve the protocol of the research.
  - The thesis should include a review part and a research part.
  - The thesis is supervised by one or more senior staff members of the department responsible for the program and may include other specialties according to the nature of the research.
  - The thesis should be evaluated and approved by a committee of three professors including one of the supervisors and an external professor.
- A number of subsidiary courses are selected from the following list according to the title of the research work*

Subject	Code	Course title	No of hours/week	
			Lecture	Practical Lab
Anatomy and embryology	101/1	<b>1- Applied anatomy</b>	2	2
	102/1	<b>2- Anatomical techniques and surface anatomy</b>	2	2
	103/1	<b>3- Osteology and arthrology</b>	2	2
	104/1	<b>4- Comparative digestive system</b>	2	2
	105/1	<b>5- Comparative uro-genital system</b>	2	2
	106/1	<b>6-Comparative respiratory system</b>	2	2
	107/1	<b>7- Comparative cardiovascular system</b>	2	2
	108/1	<b>8- Comparative nervous system and endocrine glands</b>	2	2
	109/1	<b>9- General and special embryology</b>	2	2
	110/1	<b>10- Avian anatomy</b>	1	2
Histology	111/1	<b>11- cytology and cytochemistry</b>	1	2
	112/1	<b>12- general histology</b>	2	2
	113/1	<b>13- Histology and histochemistry of blood, lymph and cardiovascular system.</b>	1	1
	114/1	<b>14- Comparative histology and histochemistry of body muscles, heart and blood vessels</b>	1	1
	115/1	<b>15- Comparative histology and histochemistry of respiratory system</b>	1	1
	116/1	<b>16-Comparative histology and histochemistry of digestive system</b>	2	2
	117/1	<b>17- Comparative histology and histochemistry of uro-genital system</b>	2	2
	118/1	<b>18- Comparative histology and histochemistry of nervous and endocrine systems</b>	2	2





	119/1	<b>19- Histology and histochemistry of special sensors</b>	1	2
	120/1	<b>20-Histology and histochemistry of skin, hooves, claws and Nails</b>	2	2
	121/1	<b>21- Avian histology</b>	2	2
	122/1	<b>22- Fish histology</b>	1	2
<b>Physiology</b>	123/1	<b>23- Physiology of mammalian endocrine and reproduction</b>	2	2
	124/1	<b>24- poultry physiology (advanced)</b>	2	2
	125/1	<b>25- physiology of muscle and nerve</b>	1	2
	126/1	<b>26- physiology of ruminants</b>	2	2
	127/1	<b>27- physiology of environment, adaptation and cell</b>	2	2
	128/1	<b>28- physiology of blood</b>	2	2
	129/1	<b>29- physiology of digestion, metabolism and energy</b>	2	2
	130/1	<b>30- Physiology in pollution</b>	1	2
	131/1	<b>31- Radioactive isotopes and biological uses</b>	2	2
	132/1	<b>32- Physiology of heights</b>	1	1
	133/1	<b>33-Fish physiology.</b>	1	2
<b>Biochemistry</b>	134/1	<b>34- Basics of biochemistry</b>	2	3
	135/1	<b>35- Metabolism</b>	2	2
	136/1	<b>36- Biochemistry of tissue and body fluids .</b>	2	2
	137/1	<b>37- Biochemistry of hormones and reproduction</b>	2	2
	138/1	<b>38- Feeding biochemistry</b>	2	2
	139/1	<b>39- Clinical biochemistry</b>	2	2
	140/1	<b>40- Avian biochemistry</b>	2	2
	141/1	<b>41- Microbial biochemistry</b>	2	2
	142/1	<b>42- Biochemistry of radiation</b>	1	2
143/1	<b>43- Fish biochemistry</b>			
<b>Animal behavior and management</b>	144/1	<b>44- Behavior and management of ruminants ( specific courses in cattle, buffalo, sheep, camels and goats)</b>	2	3
	145/1	<b>45- Behavior and management of horses</b>	2	3
	146/1	<b>46- Behavior and management of pet animals</b>	1	2
	147/1	<b>47- Behavior and management of laboratory animals</b>	1	2
	148/1	<b>48- Behavior and management of wild animals</b>	2	2
	149/1	<b>49- Behavior and management of poultry</b>	2	2
	150/1	<b>50- Behavior and management of rabbit</b>	1	2
	151/1	<b>51- Behavior of experimental animals</b>	1	2



<b>Nutrition and clinical nutrition</b>	152/1	<b>52- Basics of animal nutrition</b>	2	2
	153/1	<b>53- feedstuff</b>	2	2
	154/1	<b>54- nutrition of farm animals and fish specific courses in ( cattle and buffalo nutrition – sheep and goat nutrition – camel nutrition- equine nutrition – fish nutrition)</b>	2	2
	155/1	<b>55- poultry and rabbit nutrition( advanced)</b>	2	2
	156/1	<b>56- wild animal nutrition</b>	1	2
	157/1	<b>57- laboratory animal nutrition</b>	1	2
	158/1	<b>58- feed additives</b>	1	2
	159/1	<b>59- feedstuff analysis</b>	2	2
	160/1	<b>60- Quality control of feed and feed factories</b>	2	2
	161/1	<b>61- Clinical nutrition and malnutrition</b>	2	2
	162/1	<b>62- Fish nutrition</b>	1	2
<b>Pathology</b>	163/1	<b>63- General pathology and neoplasm( progressive)</b>	2	2
	164/1	<b>64-pathology of microbial and parasitic diseases in animal</b>	2	2
	165/1	<b>65- pathology of bad nutrition</b>	1	2
	166/1	<b>66- pathology of environmental pollution</b>	1	2
	167/1	<b>67- pathology of reproductive diseases</b>	1	2
	168/1	<b>68- Avian pathology</b>	2	2
	169/1	<b>69-Experimental pathology</b>	2	2
	170/1	<b>70- toxins pathology</b>	2	2
	171/1	<b>71- surgical pathology</b>	2	2
	172/1	<b>72- Pathology of experimental animals.</b>		
	173/1	<b>73- Pathology of genetics</b>		
	174/1	<b>74-- Fish pathology</b>	2	2
<b>Clinical pathology</b>	175/1	<b>75- Advanced clinical pathology</b>	2	2
	176/1	<b>76-Organ function tests and body and urine balance</b>	2	2
	177/1	<b>77- Clinical hematology and bone marrow examination</b>	1	2
<b>Bacteriology, immunology and mycology</b>	178/1	<b>78- General bacteriology(advanced)</b>	1	2
	179/1	<b>79-systemic bacteriology</b>	2	3
	182/1	<b>80- Advanced immunology</b>	2	2
	183/2	<b>81- Advanced mycology</b>	1	2
<b>Virology</b>	180/3	<b>82- General virology</b>	1	2
	181/4	<b>83-Systemic virology( specific courses)</b>	2	3
	182/5	<b>84- Advanced immunology</b>	2	2
<b>Mixed courses between</b>	184/1	<b>85- Microbiology of poultry</b>	2	2
	185/1	<b>86- Microbiology of ??????</b>	1	2



<b>Bacteriology and Virology</b>	186/1	<b>87- Microbiology of animal product</b>	2	2
	187/1	<b>88- Fish Microbiology</b>	1	2
<b>81- Advanced immunology</b>			<b>2</b>	<b>2</b>
<b>Parasitology</b>	188/1	<b>89- Veterinary medical entomology and acarology</b>	2	2
	189/1	<b>90-helminthology</b>	2	2
	190/1	<b>91- protozoology</b>	2	2
	191/1	<b>92- Avian and rabbits parasitology</b>	2	2
	192/1	<b>93Malacology and its vet. Importance</b>	1	2
	193/1	<b>94- parasitic Immunology</b>	1	2
	194/1			
	195/1			
	196/1	<b>97- Specific immunology</b>	-	-
	197/1	<b>98- Physiology and biochemistry of parasites</b>	2	2
	198/1	<b>99- Fish parasitology</b>	1	2
<b>Pharmacology</b>	199/1	<b>100- Aeneral pharmacology ( advanced)</b>	2	2
	200/1	<b>101- pharmacology of autonomic nervous system and autocoid</b>	2	2
	201/1	<b>102- pharmacology of central nervous system</b>	2	2
	202/1	<b>103 pharmacology of anesthesia</b>	2	2
	203/1	<b>104- Systemic pharmacology</b>	2	2
	204/1	<b>105- pharmacology of metabolism</b>	2	2
	205/1	<b>106- pharmacology of hormones</b>	2	2
	206/1	<b>107-Chemotherapy</b>	2	2
	207/1	<b>108-Biological evolution of drug</b>	1	1
<b>Hygiene and control of milk and dairy products</b>	208/1	<b>108- Hygiene and control of milk and dairy products</b>	2	2
	209	<b>109- Microbiology of milk and dairy products</b>	2	2
	210/1	<b>110- Milk technology and preservation</b>	2	2
	211/1	<b>111- Food analysis</b>	2	2
	212/1	<b>112- Food poisoning</b>	1	2
	213/1	<b>113- Specific courses on sources of contamination, disturbances of milk production, milk born diseases, hygiene of table egg, edible fats and oils</b>	1	1
	214/1	<b>114- The sanitation of dairy plant</b>	2	2
<b>Control of meat hygiene and their products</b>	215/1	<b>115- Slaughter animal Hygiene</b>	1	2
	216/1	<b>116- Abattoir management and hygiene</b>	2	2
	217/1	<b>117- Hygienic control of meat and their product</b>	2	2
	218/1	<b>118 inspection of poultry meat.</b>	1	2
	219/1	<b>119- Food technology</b>	1	2



	220/1	<b>120- Microbiology of meat and fish meats and their product</b>	2	1
	221/1	<b>121- Chilled meal microbiology</b>	1	2
	222/1	<b>122- Analysis of meat and fish and their product</b>	1	2
	223/1	<b>123- Preservation of meat, poultry, fish and their products</b>	1	2
	224/1	<b>124- Sanitation affairs of meat and fish plants.</b>	2	2
<b>Internal medicine</b>	225/1	<b>125- advanced general medicine</b>	2	2
	226/1	<b>126- disease of ruminants( cattle, buffalo, camels, sheep and goats)</b>	3	3
	227/1	<b>127- diseases of equines</b>	2	2
	228/1	<b>128 diseases of pet animals</b>	2	2
	229/1	<b>129- diseases of wild animals</b>	2	2
	230/1	<b>130- diseases of metabolic disorders</b>	2	2
	231/1	<b>131- nutritional deficiency diseases</b>	2	2
	232/1	<b>132- Skin diseases</b>	1	2
	233/1	<b>133 - diseases of newly born animals</b>	2	2
	234/ 1	<b>134- Stress diseases during animals transport.</b>		
<b>Infectious diseases</b>	235/ 1	<b>135- Infectious diseases of cattle</b>	2	2
	236/ 1	<b>136- Infectious diseases of sheep and goat</b>	2	2
	237/ 1	<b>137- Infectious diseases camel</b>	2	2
	238/ 1	<b>138 Infectious diseases of equine</b>	2	2
	239/ 1	<b>139- Infectious diseases of pet animals</b>	2	2
	240/ 1	<b>140- Infectious diseases lab animals</b>	1	2
	241/ 1	<b>141- Infectious diseases of udder and newly born animals</b>	2	2
	242/ 1	<b>142- Infectious diseases buffaloes</b>	2	1
	243/1	<b>143- Infectious diseases of wild animals.</b>		
<b>Forensic medicine and toxicology</b>	244/1	<b>144- Forensic medicine and veterinary procedures</b>	2	2
	245/1	<b>145- general toxicology</b>	2	2
	246/1	<b>146- environmental toxicology</b>	2	2
	247/1	<b>147- forensic toxicology</b>	2	2
	248/1	<b>148- laboratory diagnostic toxicology</b>	2	2
	249/1	<b>149- Drug toxicology</b>		
<b>Theriogenology</b>	250/1	<b>150- Female infertility (special specific courses in ruminants- equine- pet animals)</b>	2	2
	251/1	<b>151- Male infertility (special specific courses in ruminants- equine- pet animals)</b>	2	2
	252/1	<b>152- Genital diseases.</b>		
	253/1	<b>153 - obstetrics (special specific courses in farm</b>	2	2



		<b>and pet Animals)</b>		
	254/1	<b>153- reproduction and immunity</b>	1	2
	255/1	<b>155- artificial insemination in ruminants</b>	2	2
	256/1	<b>156- artificial insemination in equine</b>	2	2
	257/1	<b>157- artificial insemination in pet animals</b>	1	2
	258/1	<b>158- embryo transfer</b>	1	2
<b>Poultry and rabbit diseases</b>	267/1	<b>167- bacterial diseases of poultry</b>	2	2
	268/1	<b>168- viral diseases of poultry</b>	2	2
	269/1	<b>169- fungal diseases of poultry</b>	2	2
	270/1	<b>170 parasitic diseases of poultry</b>	1	2
	271/1	<b>171 - nutritional diseases of poultry</b>	1	2
	272/1	<b>172-diseases of rabbit (advanced)</b>	2	2
	273/1	<b>173-Diseases of wild and migrating birds</b>	2	2
	274/1	<b>174- Preventive vaccines and their evaluation in poultry</b>	2	2
	275/1	<b>175- Laboratory diagnosis of poultry diseases.</b>		
<b>Animal and environmental hygiene</b>	276/1	<b>176- farm animal hygiene ( advanced)</b>	2	2
	277/1	<b>177- poultry hygiene ( advanced)</b>	2	2
	278/1	<b>178- environmental hygiene and pollution</b>	2	2
	279/1	<b>179- control of contagious diseases</b>	2	2
	280/1	<b>180- eradication of rodents and disease vector</b>	2	2
	281/1	<b>181- insecticides and public health</b>	2	2
	282/1	<b>182-hygiene of animal enclosures- specific courses in :- cattle houses – poultry houses – rabbit houses- pet animals house3s – experimental animals houses</b>	2	2
	283/1	<b>183-disinfections and disinfectants</b>	2	2
	284/1	<b>184- veterinary epidemiology – specific courses in animal environment</b>	2	-
<b>Zoonoses</b>	285/1	<b>185- advanced zoonoses ( specific courses in bacterial and Mycotic diseases – viral diseases – parasitic diseases)</b>	2	2
	286/1	<b>186- role of rodents in transmission of zoonoses</b>	2	2
	287/1	<b>187- role of wild animals in transmission of zoonoses</b>	2	2
	288/1	<b>188- role of birds (special courses in: poultry, wild migrating or pets) in transmission of zoonoses</b>		
<b>Genetics and genetic engineering</b>	289/1	<b>189- Genetics of microorganisms .</b>	1	2
	290/1	<b>190- Genetic engineering( advanced)</b>	1	2
	291/1	<b>191- Cytological genetics</b>	1	-



	292/1	<b>192- Genetics of genuses.</b>	2	-
	293/1	<b>193- physiological genetics</b>	2	-
	294/1	<b>194- Chemical and radiological genetics.</b>	1	2
<b>Animal production</b>	295/1	<b>195- Animal breeding and improvement (advanced).</b>	2	-
	296/1	<b>196- Poultry breeding and improvement (advanced).</b>	2	-
	297/1	<b>197- Cattle and buffalo production (advanced).</b>	2	2
	298/1	<b>198- Sheep and goat production (advanced).</b>	2	2
	299/1	<b>199- Poultry production (advanced).</b>	2	2
	300	<b>200-Rabbit production (advanced).</b>	2	2
	301	<b>201-Improving by artificial insemination in poultry and rabbits.</b>	2	2
<b>Fish diseases and management</b>	302/1	<b>202- Biology of fish.</b>	2	2
	303/1	<b>203-Fish diseases (advanced)</b>	2	2
	304/1	<b>204-Fish farms.</b>	1	2
	305/1	<b>205-Fish breeding.</b>	2	2
<b>Economic and farms management</b>	306/1	<b>206- economics of animals and dairy production</b>	2	-
	307/1	<b>207- economics of poultry farms</b>	2	-
	308/1	<b>208-economics of fish farms</b>	2	-
	309/1	<b>209- feasibility studies</b>	2	-
	310/1	<b>210- farm management</b>	2	-
	311/1	<b>211- economics of beef production</b>	2	-
<b>Biostatistics</b>	312/1	<b>212- Biostatistics (advanced)</b>	2	-
	313/1	<b>213- Experimental design</b>	2	2
	314/1	<b>214- Computer and data processing</b>	2	1

## 6-Teaching and Learning Methods:

*The program features a variety of teaching approaches for different intended learning objectives including:*

- Lectures to gain knowledge and understanding skills
- Writing a review paper to gain the skills of self-learning and presentation
- Practical and lab sessions to gain practical skills
- Seminars

## 7- Students assessments:

The program depends on different assessment ways:

### a. Course assessment:

<b>1- Written examination</b>	<b>For assessment of knowledge, back calling and Intellectual skills</b>
<b>2- Practical examination</b>	<b>For assessment of practical and professional skill</b>
<b>3- Oral examination</b>	<b>For assessment of knowledge and Intellectual skills</b>
<b>4- Student activities</b>	<b>For assessment of knowledge and general and transferable skills</b>

### b. Master Thesis

- Annual reports adopted by the Faculty
- Finally, the assessment of thesis measure the individual student ability to work independently in the field specialization
- Final evaluation and approval by a judging committee of at least three professors including one or more of the supervisors and an external professor. This assesses the ability to write a review article, perform the needed practical steps and to present the results in tables and graphs. In addition, the skills of analysis of results and discussion with previous findings obtained by other authors are also assessed.

### *Assessment of program intended learning outcomes*

<b>Tool or method</b>	<b>ILOs</b>
1- Written	<b>a1-5, b1,2,3,5,6,7,8</b>
2- Oral	<b>a1,3,5, b1,2,6</b>
3- Practical	<b>c1-4</b>
4- Assignments	<b>d1-8</b>
5- Thesis	<b>A2-6- b1-7- c1-4 , d1-8</b>

### 8. Marking scale as follow:-

<b>Excellent</b>	> 90	
<b>Very good</b>	>80	
<b>Good</b>	>70	
<b>Pass</b>	>60	
<b>Fail</b>	<b>Weak</b>	45 to less than 60
	<b>very weak</b>	Less than 45

### 9. Program evaluation methods

<b>Evaluator</b>	<b>Tool</b>	<b>Sample</b>
------------------	-------------	---------------

Postgraduate Student	Questioners	<b>20%</b>
	meeting	<b>1</b>
Postgraduate alumni	Questioners	<b>5</b>
Stakeholders (employers)	Questioners	<b>10</b>
	Meeting	<b>1</b>
External evaluator/External examiner	Reports	<b>1</b>

## 10. Program Admission Requirements:

The Applicant must normally satisfy the faculty of veterinary medicine- Kafrelsheikh University general entrance and requirement. The normal minimum entrance qualification for registration at the faculty on a master's program

- 1- Bachelor degree in Veterinary Medical Sciences of one of the Egyptian Universities or hold a degree in Veterinary Medical Sciences equivalent through the Supreme Council of Universities with general grade at least "Good" and at least grade "Very Good" in specialization.
- 2- Diploma of general grade at least "Good" and at least grade "Very Good" in specialization. The total number of study hours must be not less than 3 weekly in that specialization.
- 3- After he has passed the courses studied during premaster he must perform a research work in a subject approved by the faculty council at least for one year. He must submit the results of this work in thesis that should be approved by the discussion committee.

## 11. Regulations for progression of program

- a) Registration period for the Master in veterinary medicine is at least 2 years after the approval date by the faculty council and it should not exceed a period of 4 years, an extension could be approved by the faculty council depending on the supervisor report that approved by the department council and postgraduate and research committee refers to the universities regulation law.
- b) The student should conduct the courses proposed by both department council and approved by postgraduate and research committee and faculty council and include, 2-5 courses of the postgraduates stated in article (28) in regulation law list and the student will entitled to apply for the exam only after meeting attendance rate for each courses.



- c) The student should pass written, practical and oral exams successfully in all courses, and the examination is held two times annually.
- d) The Faculty council should deprive the student from entering the exam if his attendance rate in the course is less than 75%.
- e) Failure or depriving from entering one or more course did not require reexamination of successful passed courses.
- f) The applicant should conduct an innovate research on the subject that has been registered for at least 2 years from the date of registration approved by the faculty council. And the faculty council depending on a request from the supervisor has the right to authorize the student to do scientific experiments at recognized scientific institute.
- g) The applicant should submit the thesis that accepted by the judging committee in an open discussion and the following policies should be met:
- h) Pass all courses.
- i) The applicant should submit 4 copies of his thesis concerned department council to form committee examining the thesis to be presented to the postgraduate studies committee and the faculty council, and in case of thesis approval by the department council, the applicant will submit 6 copies for the faculty library, 1 copy for public university library before introducing the report of examination committee to the post graduate studies committee and the faculty council.
- j) Registration will be during March and September of each year.
- k) The applicant should submit a request enrolment for the dean who forwards bit to the concerned department council to determine the research subject and the study program and then take calendar after complete documentation on the faculty council for approval.
- l) The thesis title should be identified before being submitted at least 2 months and the judging committee has the right to amend the title without prejudice the subject of research.



- m) The Faculty council has the right to suspend the student enrolment for a certain period if he has acceptable excuse preventing him from continuing his study or research, and his period will not counted within the period stated in article 25.
- n) The applicant should submit 5 hard copies and 10 electronic copies (CDs) of the thesis after its validity approved by the judging committee and head of department to be distributed to the committee members and faculty library and the judging committee can decide the exchange of the thesis with other universities or printing at the expense of the university.

### **12. Registration will be cancelled in one of the following cases:**

1. If the supervisors report during the registration period is unsatisfactory (2 reports).
2. If he did not submit his thesis before the end of registration period.
3. If the judging committee rejected the thesis twice.

### **13. Examination Regulations**

- a-** Time of written exam, 3 hours for each course that has 3 hours or more for lecture / practical /week. **If has less than 3 hours/week, the time of exam, is 2 hours only.**
- b-**The final degree of each course which has 3 hours (lecture and practical) per week is **100 and less than 3 hours is 50 degrees and divided into 50% for written exam, and 50% for practical and oral exam.**

### **14. Program completion:**

- Successfully completion of the required courses and submission of a thesis.

**Program Coordinator**

**Prof. Dr. Alaa Ghazy Soliman**

**Head of Department**

**Prof. Dr. Gamal Elsayad**



## Matching program ILOs with ARS - Matrix

Program ILOs	ARS																							
	K&U (a)						I.S. (b)							P.P. (c)			G.T. (d)							
	1	2	3	4	5	6	1	2	3	4	5	6	7	1	2	3	1	2	3	4	5	6	7	8
<b>K&amp;U</b>	1	2	3	4	5	6																		
<b>I.S.</b>							2	1	3	4	5	6	7,8											
<b>P.P.</b>														1,3	2	4								
<b>G.T.</b>																	1	2	3	4	5	6	7	8

## Program Specification Matrix

### Master in Veterinary Medical Sciences (Veterinary Surgery)

Courses		Total Contact hours/ course	No. of hours / week			K.U (a)						I.S (b)							P.P (c)			G.T (d)									
						1	2	3	4	5	6	1	2	3	4	5	6	7	1	2	3	1	2	3	4	5	6	7	8		
Code	Name		Lect.	Lab.	Total																										
-	Fundamental (core) course	308	3	4	7	x	x					x	x	x				x	x	x	x	x	x	x	x	x	x	x	x	x	
-	Research methodology	176	1	3	4			x		x		x		x						x	x	x							x		
	Elective courses	10-12 hours/ week																													
						x	x					x	x	x										x	x	x	x	x	x	x	x
<b>Total</b>																															
<b>Thesis</b>								x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	



## ARS for Master in Veterinary Medical Sciences (Veterinary Surgery)

### 1) Graduate attributes

*The graduate should have the ability for:*

- 1) Perfect applying scientific research basics and methodology, and using of its varied tools.
- 2) Apply and use the analytical methodology in Surgery, anesthesiology and Radiology.
- 3) Apply the gained specific knowledge and the relevant ones in professional practice.
- 4) Aware with current problems and recent visions in veterinary surgery.
- 5) Identify the professional problems and suggest the solutions.
- 6) Mastery of an appropriate scale of specific professional skills and the use of an appropriate technological means to serve the professional practice.
- 7) Communicate effectively and able to lead team work
- 8) Decision-making in various professional contexts
- 9) Employment the available resources to achieve the highest benefit and preserve them.
- 10) Aware obviously of his role in the society development and safe society in the light of the global and regional changes.
- 11) Deposit in a manner reflecting the commitment to integrity, credibility, and the professional rules.
- 12) Continuous self-learning in both academic and professional practice.

## A) Knowledge and understanding

<b>Adopted ARS</b>		<b>NARS (Master)</b>
	<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Basics in the field of Surgery, anesthesiology and Radiology and related fields.	Theories and principles in the field of specialization and related fields.
2)	Impact of surgical intervention on animal health and production of milk and meat.	Mutual effect between professional practice and its impact on environment
3)	Scientific progress concerning new diagnostic aids, new methods of anesthesia, and new techniques in Surgery.	Scientific progress in the field of specialization
4)	Ethical and moral principles of dealing with diseased patients and owners.	Legal and ethical basics in professional practice in the field of specialization
5)	Principles and the basics of quality assurance in surgery theater and surgical environment	Principles and basics of quality assurance in the area of specialization
6)	Principles of scientific research especially that involving experimental animals.	Basics and ethics of scientific research

## B) Intellectual skills

<b>Adopted ARS</b>		<b>NARS (Master)</b>
	<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Interpretation of collected data including case history, diagnostic imaging and special diagnostic aids to reach the correct diagnosis for each surgical case.	Analysis and judgment of information in the field of specialization and analog to solve problems.
2)	Taking the right decision concerning surgical interference even in case of rare data.	Solving professional problems even in scarcity of data.
3)	Relating symptoms with diagnostic imaging and other aids to reach the most suitable treatment.	Relating between different knowledge to solve professional problems.
4)	Plan for a research in Surgery, Anesthesiology and Radiology and discussing the findings with those of other surgeons.	Preparing research plan in specialization and/ or writing scientific article on a research problem.
5)	Health and safety risk assessments for the veterinary surgery room including cleaning and sterilization, and surgery room biological hazards disposal.	Risk-assessment of professional practices in specialization.
6)	Development of plans to improve performance of	Planning for improvement of



	surgical operations	professional performance.
7)	Using appropriate intellectual strategy to deal with Intra operative and post-operative complications.	Taking professional decisions in a variety of professional contexts.

### C) Professional and practical skills

Adopted ARS		NARS (Master)
	<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Using of recent tools and techniques to anesthetize and examine animals intended for surgical interference..	Mastering basic and recent professional skills in the field of specialization
2)	Perform surgical operations in a professional manner under field conditions in large and small animals.	Writing and evaluating professional reports.
3)	Use the available facilities and equipment in the most effective way.	
4)	Writing professional case reports and designing follow-up chart with interpretation of data according to the topic of research.	Evaluating existing materials and methods in the area of specialization.

### D) General and transferable skill

Adopted ARS		NARS (Master)
	<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Communicating effectively with teaching staff, colleagues and the community.	Effective communication.
2)	Using information technology in scientific research and publications.	Utilizing information technology to serve development of professional practice.
3)	Demonstrating appropriate attitude towards teaching staff and colleagues.	Self-assessment and determination of personal educational needs.
4)	Identifying and use different sources of information and knowledge.	Using different resources to obtain knowledge and information.
5)	Using appropriate attitude and rules towards teaching staff and colleagues and use evidence	Establishing rules and indicators for assessment of the performance of others.

	based evaluations.	
6)	Respecting the importance of team work.	Team working and leading a team in familiar professional contexts.
7)	Doing good control of timing.	Efficient time management.
8)	Performing continuous self-learning.	Self and continuous learning.

## ثانياً: برامج الماجستير

### ١- مواصفات الخريج

- خريج برنامج الماجستير في أي تخصص يجب أن يكون قادراً على:
١. إجادة تطبيق أساسيات و منهجيات البحث العلمي واستخدام أدواته المختلفة
  ٢. تطبيق المنهج التحليلي واستخدامه في مجال التخصص
  ٣. تطبيق المعارف المتخصصة و دمجها مع المعارف ذات العلاقة في ممارسته المهنية
  ٤. إظهار وعيا بالمشاكل الجارية و الرؤى الحديثة في مجال التخصص
  ٥. تحديد المشكلات المهنية و إيجاد حلول لها
  ٦. إتقان نطاق مناسب من المهارات المهنية المتخصصة، واستخدام الوسائل التكنولوجية المناسبة بما يخدم ممارسته المهنية
  ٧. التواصل بفاعلية و القدرة على قيادة فرق العمل
  ٨. اتخاذ القرار في سياقات مهنية مختلفة
  ٩. توظيف الموارد المتاحة بما يحقق أعلى استفادة و الحفاظ عليها
  ١٠. إظهار الوعي بدوره في تنمية المجتمع و الحفاظ على البيئة في ضوء المتغيرات العالمية و الإقليمية
  ١١. التصرف بما يعكس الالتزام بالنزاهة و المصداقية و الالتزام بقواعد المهنة
  ١٢. تنمية ذاته أكاديمياً و مهنياً و قادراً على التعلم المستمر

### ١٢- المعايير القياسية العامة

#### ١ المعرفة و الفهم

- بانتهاؤ دراسة برنامج الماجستير يجب ان يكون الخريج على فهم و دراية بكل من:
- أ- النظريات و الأساسيات المتعلقة بمجال التعلم وكذا في المجالات ذات العلاقة
  - ب- التأثير المتبادل بين الممارسة المهنية وانعكاسها على البيئة
  - ت- التطورات العلمية في مجال التخصص



- ث -المبادئ الأخلاقية و القانونية للممارسة المهنية في مجال التخصص  
ج -مبادئ و أساسيات الجودة في الممارسة المهنية في مجال التخصص  
ح -أساسيات وأخلاقيات البحث العلمي

### ٢ المهارات الذهنية

- بانتهاء دراسة برنامج الماجستير يجب ان يكون الخريج قادرا على:  
أ -تحليل و تقييم المعلومات في مجال التخصص و القياس عليها لحل المشاكل  
ب -حل المشاكل المتخصصة مع عدم توافر بعض المعطيات  
ت -الربط بين المعارف المختلفة لحل المشاكل المهنية  
ث -إجراء دراسة بحثية و /أو كتابة دراسة علمية منهجية حول مشكلة بحثية  
ج -تقييم المخاطر في الممارسات المهنية في مجال التخصص  
ح -التخطيط لتطوير الأداء في مجال التخصص  
خ -اتخاذ القرارات المهنية في سياقات مهنية متنوعة

### ٣ المهارات المهنية

- بانتهاء دراسة برنامج الماجستير يجب ان يكون الخريج قادرا على:  
أ -إتقان المهارات المهنية الأساسية و الحديثة في مجال التخصص  
ب -كتابة و تقييم التقارير المهنية  
ت -تقييم الطرق و الأدوات القائمة في مجال التخصص

### ٤ المهارات العامة و المنتقلة

- بانتهاء دراسة برنامج الماجستير يجب أن يكون الخريج قادرا على:  
أ -التواصل الفعال بأنواعه المختلفة  
ب -استخدام تكنولوجيا المعلومات بما يخدم الممارسة المهنية  
ت -التقييم الذاتي و تحديد احتياجاته التعليمية الشخصية  
ث -استخدام المصادر المختلفة للحصول على المعلومات و المعارف  
ج -وضع قواعد و مؤشرات تقييم أداء الآخرين  
ح -العمل في فريق ، وقيادة فرق في سياقات مهنية مختلفة  
خ -إدارة الوقت بكفاءة  
د -التعلم الذاتي و المستمر

## Course specification (2021/2022)

### 1 - Basic Information:

Code number        259/1  
Course title:        **General Veterinary Surgery (Advanced)**  
Academic Year:     **Master of Veterinary Medicine Program**  
Total teaching hours: 240 h  
Lectures: 96 hrs. (48 weeks- 2hrs/week)  
Practical: 144 hrs. (48 weeks- 3hrs/week)

### 2 - OVERALL AIMS OF THE COURSE:

The aim of the course is to provide the postgraduate students with an appropriate background covering the general surgical affections and conditions in different animal species.

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- a1. Identify the basis of the inflammatory process and its consequences.
- a2. Distinguish the surgical affections of tendon, joint, and surface body swellings.
- a3. Explain types of fracture and fracture healing.
- a4. Familiarize the different types of incisions, wounds, surgical instruments, suture material, and suture pattern.
- a5. Explain how to manage burns and wounds.
- a6. Recognize the methods of bandage, splint, and cast in animals
- a7. Memorize the surgical antiseptic procedures

#### 3-B: INTELLECTUAL SKILLS:

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

- b1. Evaluate the articles, and collected research papers in general veterinary surgery.
- b2. Differentiate between different types of cyst, burse, wound, and hernias.
- b3. Illustrate how to deal with hernias and muscle injury.
- b4. Analyze different superficial surgical swelling for accurate diagnosis.
- b5. Diagram a plan for treatment of a fracture.
- b6. Conclude the more suitable time for interference in the different surgical conditions.
- b7. Judge and comment accurately upon the obtained results on his given results

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

- c1. Apply principles of surgical asepsis, sterilization and disinfection.
- c2. Handle surgical facilities and equipment effectively.
- c3. Perform preoperative and Intraoperative care of the patient as well as surgeon preparation.
- c4. Practice surgical instrumentation, biomaterials, suturing, and hemostasis.
- c5. Manage the postoperative care.
- c6. Employ maintenance of the surgical environment.

#### 3- D: GENERAL SKILLS:

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

- d1. Perform group working, good management and problem solving ability.



- d2. Conduct good communications.  
d3. Use new technology and has the ability of self-learning.  
d4. Develop the ethical behaviors between students and staff members as well as among the students themselves.

#### 4 - COURSE CONTENTS:

TOPIC	Total hours	Hours for lecture	Hours for practical
Inflammation	9	4	5
Bursitis	4	4	-
Tendon affections	6	6	-
Joint affections	6	6	-
Phelgmon, gangrene	4	4	-
Wounds and their healing	16	4	12
Fracture	18	6	12
Abscess	16	6	10
Cysts	4	4	-
Tumors	4	4	-
Hemorrhage and Hemostasis	18	6	12
Hernias	18	6	12
Fistula and sinus	4	4	-
Burns and scalds	4	4	-
Anti-sepsis and septic procedures	16	4	12
Dressing and bandage	18	6	12
Surgical instruments	16	4	12
Suture materials	16	4	12
Suture patterns	15	6	9
Injections	16	4	12
Clinical cases	12	-	12
<b>Total</b>	<b>240</b>	<b>96</b>	<b>144</b>

#### 5- TEACHING & LEARNING METHODS:

- \* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming
- \* **Practical sessions:**
- \* **Self-Learning activities:** Mini reviews from the web and the library  
Making individual reports about General Veterinary Surgery
- \* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1-a7	b1-b7	-	d1-d4



<b>Practical sessions</b>	-	<b>b1-b7</b>	<b>c1-c6</b>	<b>d1-d4</b>
<b>Self-Learning activities</b>		<b>b1-b7</b>		<b>d1- d2</b>
<b>Distance Teaching and Learning</b>	a1 to a7	b1 to b7	c1 to c6	d1 to d4

\*Lectures and some practical topics may be offered face to face or via distance teaching and learning.

## 6- METHODS FOR DISABLED STUDENTS:

- Discussions with them during practical sessions and lectures
- Giving them advice whenever needed

## 7-student assessment:

<b>7.a: Used method</b>	<b>Written examination</b>	<b>Oral examination</b>	<b>Practical examination</b>
<b>7.b: Time</b>	<b>At the end of the year</b>	<b>At the end of the year</b>	<b>At the end of the year</b>
<b>7.c: Grads</b>	<b>50</b>	<b>25</b>	<b>25</b>

7.2. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a7	b1,5,6,7		
Practical exams		b1,5,6,7	c1 to c6	
Oral exams	a1 to a5	b2,3,4		d4
Student activities				d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Recommended books:

- Equine Surgery 2011 Jörg A. Auer, and John A. Stick
- Manual of Equine Field Surgery, 2016 Wilson, David A., DVM
- Dollar's Veterinary Surgery J.J O'Connor 2019
- Veterinary Surgery 2016 E. R Frank
- Treatment of equine fracture 2014 H.R. Denny
- Current Concepts in Veterinary Surgery, 2019 K. Fouad, M. Saleh and M. Shokry.

### 8-2: SUGGESTED books:

- Kirk and Bistner's Hbk. of Veterinary Procs and Emerg. Trtmt 9<sup>th</sup> ed.. - R. Ford, et al., (Saunders, 2020)



- 
- General Surgery. M.V. Plakhoton, 2010 Fubini, S.L. and Ducharme, N.G. (2017): Farm animal surgery. 2nd Ed. Elsevier.
  - Techniques in Large Animal Surgery, 3rd edition. 2007

### **8-3. Scientific Journals**

- Journal of Veterinary surgery
- Journal of the American Veterinary Medical Association
- Orthopedics and Traumatology.

### **8-4. Scientific websites**

- [The Egyptian Knowledge Bank: https://www.ekb.eg/web/guest/home](https://www.ekb.eg/web/guest/home)
- <https://www.vetsurgeryonline.com/>
- <https://www.acvs.org/> The American College of *Veterinary Surgeons*
- <https://www.veterinary-practice.com/>

**Course Coordinator:**

**Head of Department:**

**Dr. Alaa Ghazy Soliman**

**Prof Dr. Gamal Elsayad**



Course Matrix for achievement of Intended Learning Outcomes

	Topics	hr	knowledge							INTELLECTUAL SKILLS							PRACTICAL AND PROFESSIONAL SKILLS:						General & Transferable Skills					
			1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	1	2	3	4		
1	Inflammation	9	x							x						x	x						x	x	x	x	x	x
2	Bursitis	4	x							x						x	x						x	x	x	x	x	x
3	Tendon affections	6		x						x						x	x						x	x	x	x	x	x
4	Joint affections	6		x						x						x	x						x	x	x	x	x	x
5	Phelgmon, gangrene	4		x						x			x			x	x						x	x	x	x	x	x
6	Wounds and their healing	16					x			x	x	x	x			x	x						x	x	x	x	x	x
7	Fracture	18			x					x				x		x	x						x	x	x	x	x	x
8	Abscess	16		x						x	x	x	x			x	x						x	x	x	x	x	x
9	Cysts	4		x						x			x			x	x						x	x	x	x	x	x
10	Tumors	4		x						x			x			x	x						x	x	x	x	x	x
11	Hemorrhage and Haemostasis	18		x						x			x			x	x						x	x	x	x	x	x
12	Hernias	18		x						x	x	x	x			x	x						x	x	x	x	x	x
13	Fistula and sinus	4		x						x						x	x						x	x	x	x	x	x
14	Burns and scalds	4					x			x						x	x						x	x	x	x	x	x
15	Anti-sepsis and septic procedures	16							x	x						x	x	x					x	x	x	x	x	x
16	Dressing and bandage	18						x		x						x	x						x	x	x	x	x	x
17	Surgical instruments	16				x				x						x	x		x	x	x		x	x	x	x	x	x
18	Suture materials	16				x				x						x	x		x	x	x		x	x	x	x	x	x



19	Suture patterns	15				X				X					X	X		X	X	X	X	X	X	X	X
20	Injections	16													X	X				X	X	X	X	X	X
21	Clinical cases	12													X	X				X	X	X	X	X	X

## Course specification (2021/2022)

### 1 - Basic Information:

**Code number:** 260-1  
**Course title:** Regional Veterinary Surgery  
**Academic Year:** Master of Veterinary Medicine Program  
**Total teaching hours:** 240 h  
Lectures: 96 hrs. (48 weeks- 2hrs/week)  
Practical: 144 hrs. (48 weeks- 3hrs/week)

### 2 - OVERALL AIMS OF THE COURSE:

The aim of the course is to provide the postgraduate students with a basic education in the different surgical affections of the various body systems in different animal species and the main diagnostic tools to for accurate diagnosis the prognosis and method for treatment of each affection

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- a1. Recognize the surgical affections of the respiratory system
- a2. Describe the surgical affection of digestive system
- a3. Contrast the surgical affection of urinary system
- a4. Identify the surgical affection of genital system
- a5. Explain the surgical affection of udder

#### 3-B: INTELLECTUAL SKILLS:

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

- b1. Examine the animals and distinguish the presented clinical signs to reach the most suspected diagnosis.
- b2. Differentiate between different diseases and specify the present illness.
- b3. Illustrate different methods for diagnosing of such surgical affections.
- b4. Select the suitable treatment for each disease either medical and/or surgical.
- b5. Predict the prognosis of each affection after surgery.
- b6. Measure the surgical outcomes of each surgical technique.
- b7. Figure out post-operative complications corresponding to each affection.

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

- c1. Apply a plan for diagnosis and treatment.
- c2. Adapt accurate diagnostic tools or technique.
- c3. Perform preoperative techniques and patient preparation correctly.
- c4. Handle different anesthetic regimen for surgeries.
- c5. Predict the most appropriate surgical techniques for each affection.
- c6. Exercise on different surgeries and procedures.





c7. Solve any post-operative complications.

### 3- D: GENERAL SKILLS:

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

d1- Perform group working, good management and problem solving ability.

d2- Conduct good communications.

d3- Use new technology and has the ability of self-learning.

d4- Develop the ethical behaviors between students and staff members as well as among the students themselves.

### 4 - COURSE CONTENTS:

Topics	No. of hours	Lecture	Practical
Surgery of Respiratory System	50	20	30
Surgery of Digestive System	60	26	34
Surgery of Urinary system	50	20	30
Surgery of the Genital System	50	20	30
Surgery of the udder	30	10	20
<b>Total</b>	<b>240</b>	<b>96</b>	<b>144</b>

### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library

Making individual reports about Regional Veterinary Surgery

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1-a5	b1-b7	-	d1-d4
Practical sessions	-	b1-b7	c1-c7	d1-d4
Self-Learning activities		b1-b7		d1- d2
Distance Teaching and Learning	a1 to a5	b1 to b7	c1 to c7	d1 to d4

\*Lectures and some practical topics may be offered face to face or via distance teaching and learning.

### .6- METHODS FOR DISABLED STUDENTS:

- Discussions with them during practical sessions and lectures



- Giving them advice whenever needed

### 7-student assessment:

<b>7.a: Used method</b>	<b>Written examination</b>	<b>Oral examination</b>	<b>Practical examination</b>
<b>7.b: Time</b>	<b>At the end of the year</b>	<b>At the end of the year</b>	<b>At the end of the year</b>
<b>7.c: Grads</b>	<b>50</b>	<b>25</b>	<b>25</b>

7.2. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a5	b1,5,6,7		
Practical exams		b1,5,6,7	c1 to c7	
Oral exams	a1 to a5	b2,3,4		d4
Student activities				d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Recommended books:

- Equine Surgery 2011 Jörg A. Auer, and John A. Stick
- Manual of Equine Field Surgery, 2016 Wilson, David A., DVM
- Dollar's Veterinary Surgery J.J O'Connor 2019
- Veterinary Surgery 2016 E. R Frank
- Treatment of equine fracture 2014 H.R. Denny
- Current Concepts in Veterinary Surgery, 2019 K. Fouad, M. Saleh and M. Shokry.

### 8-2: SUGGESTED books:

- Kirk and Bistner's Hbk. of Veterinary Procs and Emerg. Trtmt 9<sup>th</sup> ed.. - R. Ford, et al., (Saunders, 2020)
- General Surgery. M.V. Plakhoton, 2010 Fubini, S.L. and Ducharme, N.G. (2017): Farm animal surgery. 2nd Ed. Elsevier.
- Techniques in Large Animal Surgery, 3rd edition. 2007

### 8-3. Scientific Journals

- Journal of Veterinary surgery
- Journal of the American Veterinary Medical Association
- Orthopedics and Traumatology.

### 8-4. Scientific websites

- The Egyptian Knowledge Bank: <https://www.ekb.eg/web/guest/home>



**Kafrelsheikh University**  
Faculty of Veterinary Medicine



- 
- <https://www.vetsurgeryonline.com/>
  - <https://www.acvs.org/> The American College of *Veterinary Surgeons*
  - <https://www.veterinary-practice.com/>

**Course Coordinator:**

**Head of Department:**

**Dr. Alaa Ghazy Soliman**

**Prof Dr. Gamal Elsayad**



## Course specification (2021/2022)

### 1 - Basic Information:

Code number: 261/1

Course title: **surgery of eye, ear, nose, and larynx**

Academic Year: **Master of Veterinary Medicine Program**

Total teaching hours: **192 h**

Lectures: **96 hrs. (48 weeks- 2hrs/week)**

Practical: **96 hrs. (48 weeks- 2hrs/week)**

### 2 - OVERALL AIMS OF THE COURSE:

The aim of the course is to provide the postgraduate students with an appropriate background covering the common and important general surgical emergencies and affections of eye, ear, nose, and larynx

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- a1. Recognize the applied ocular anatomy, examination, affections, and surgical treatment in different animal species.
- a2. List the ear anatomy, examination, affections, and surgical treatment in different animal species.
- a3. Describe the nasal anatomy, examination, affections, and surgical treatment in different animal species.
- a4. Explain the laryngeal anatomy, examination, affections, and surgical treatment in different animal species.

#### 3-B: INTELLECTUAL SKILLS:

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

- b1. Predict the most suspected examination and deferential diagnosis of ocular, auricular, nasal, and laryngeal affections in different animal species.
- b2. Evaluate the different options and tools for ocular, auricular, nasal, and laryngeal surgical interference.
- b3. Plan for ocular, auricular, nasal, and laryngeal surgery in different animals species.
- b4. Predict the surgical outcomes.

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

- c1. Operate systemic examination for diagnosing of ocular, auricular, nasal, and laryngeal surgical conditions.
- c2. Formulate a suitable anesthetic regimen for ocular, auricular, nasal, and laryngeal surgery according to animal species.
- c3. Prepare the animal for surgery and application of pre-operative procedures.
- c4. Use the facility of the surgery theater.
- c5. Solve the corresponding post-operative complications.

### 3- D: GENERAL SKILLS:

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

d1- Perform group working , good management and problem solving ability.

d2- Conduct good communications.

d3- Use new technology and has the ability of self-learning.

d4- Develop the ethical behaviors between students and staff members as well as among the students themselves.

### 4 - COURSE CONTENTS:

Topic	No. of hours	Lecture	Practical
Ophthalmology	48	24	24
Auricular affections	48	24	24
Nasal affections	48	24	24
Laryngeal affections	48	24	24
Total	192	96	96

### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library

Making individual reports about surgery of eye, ear, nose, and larynx

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures *	a1-a4	b1-b4	-	d1-d4
Practical sessions	-	b1-b4	c1-c5	d1-d4
Self-Learning activities		b1-b4		d1- d2
Distance Teaching and Learning	a1 to a4	b1 to b4	c1 to c5	d1 to d4

\*Lectures and some practical topics may be offered face to face or via distance teaching and learning.

### 6- METHODS FOR DISABLED STUDENTS:

- Discussions with them during practical sessions and lectures
- Giving them advice whenever needed

## 7-student assessment:

7.a: Used method	Written examination	Oral examination	Practical examination
7.b: Time	At the end of the year	At the end of the year	At the end of the year
7.c: Grads	50	25	25

7.2. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a5	b1,5,6,7		
Practical exams		b1,5,6,7	c1 to c7	
Oral exams	a1 to a5	b2,3,4		d4
Student activities				d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Recommended books:

- Equine Surgery 2011 Jörg A. Auer, and John A. Stick
- Manual of Equine Field Surgery, 2016 Wilson, David A., DVM
- Dollar's Veterinary Surgery J.J O'Connor 2019
- Veterinary Surgery 2016 E. R Frank
- Treatment of equine fracture 2014 H.R. Denny
- Current Concepts in Veterinary Surgery, 2019 K. Fouad, M. Saleh and M. Shokry.
- BSAVA Manual of Canine and Feline Ophthalmology, 3rd Edition. 2015 [David Gould](#), [Gillian McLellan](#). ISBN: 978-1-905-31942-8

### 8-2: SUGGESTED books:

- Kirk and Bistner's Hbk. of Veterinary Procs and Emerg. Trtmt 9<sup>th</sup> ed.. - R. Ford, et al., (Saunders, 2020)
- General Surgery. M.V. Plakhoton, 2010 Fubini, S.L. and Ducharme, N.G. (2017): Farm animal surgery. 2nd Ed. Elsevier.
- Techniques in Large Animal Surgery, 3rd edition. 2007
- Equine Ophthalmology (2nd ed.) 2011 Brian C. Gilger
- Slatter's Fundamentals of Veterinary Ophthalmology 2008 David J. Maggs

### 8-3. Scientific Journals

- Journal of Veterinary surgery
- Journal of the American Veterinary Medical Association
- Orthopedics and Traumatology.



---

#### **8-4. Scientific websites**

- [The Egyptian Knowledge Bank: https://www.ekb.eg/web/guest/home](https://www.ekb.eg/web/guest/home)
- <https://www.vetsurgeryonline.com/>
- <https://www.acvs.org/> The American College of *Veterinary Surgeons*
- <https://www.veterinary-practice.com/>

**Course Coordinator:**

**Head of Department:**

**Dr. Alaa Ghazy Soliman**

**Prof Dr. Gamal Elsayad**



### Course Matrix for achievement of Intended Learning Outcomes

	Topics	hr	KNOWLEDGE and UNDERSTANDING				INTELLECTUAL SKILLS				PRACTICAL AND PROFESSIONAL SKILLS:					General & Transferable Skills			
			1	2	3	4	1	2	3	4	1	2	3	4	5	1	2	3	4
1	Ophthalmology	48	X				X	X	X	X	X	X	X	X	X	X	X	X	X
2	Auricular affections	48		X			X	X	X	X	X	X	X	X	X	X	X	X	X
3	Nasal affections	48			X		X	X	X	X	X	X	X	X	X	X	X	X	X
4	Laryngeal affections	48				X	X	X	X	X	X	X	X	X	X	X	X	X	X

## Course specification (2021/2022)

### 1 - Basic Information:

Code number: 262/1  
Course title: **Surgery of the Digestive System**  
Academic Year: **Master of Veterinary Medicine Program**  
Total teaching hours: **192 h**  
Lectures: **96 hrs. (48 weeks- 2hrs/week)**  
Practical: **96 hrs. (48 weeks- 2hrs/week)**

### 2 - OVERALL AIMS OF THE COURSE:

The aim of the course is to provide the postgraduate students with a basic education in the field of surgical affections of the alimentary tract in different animal species and the varieties of diagnostic techniques and the possible options for medical and/or surgical treatment.

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- a1. Describe the detailed surgical anatomy of digestive system with recognition of the differences in different animal species.
- a2. Review various surgical affections of digestive systems and distinguish the differentials in different animal species.
- a3. Identify method of inspect animals with digestive system diseases.
- a4. Identify possible anesthetic regimen for surgery.
- a5. Review the surgical techniques and procedures used to treat different digestive system affections in different animals.
- a6. Tell the suspected post-operative complication.

#### 3-B: INTELLECTUAL SKILLS:

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

- b1. Predict the most suspected diagnosis and differential diagnosis of digestive system diseases in different animals.
- b2. Evaluate the possible options for treatment either medical and/or surgical.
- b3. Assess the patient risk factors and prognosis of each disease.
- b4. Predict the surgical outcomes of each operation.

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

- c1. Use the facility of the surgery theater.
- c2. Prepare the animal for surgery and practice of pre-operative procedures.
- c3. Employ a suitable anesthetic regimen for abdominal surgery according to animal species.
- c4. Operate different surgical techniques in different animal species.
- c5. Solve the post-operative complications.

#### 3- D: GENERAL SKILLS:

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

- d1- Perform group working , good management and problem solving ability.



d2- Conduct good communications.

d3- Use new technology and has the ability of self-learning.

d4- Develop the ethical behaviors between students and staff members as well as among the students themselves.

#### 4 - COURSE CONTENTS:

Topics	No. of hours	Lecture	Practical
Dentistry	24	12	12
Mouth ,Tongue and pharynx	24	12	12
Salivary glands	24	12	12
Esophagus	24	12	12
Simple &Compound Stomach	24	12	12
Rumen and abomasum	24	12	12
Intestine	24	12	12
Rectum and Anus	24	12	12
total	192	96	96

#### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library

Making individual reports about surgery of Digestive System

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1-a6	b1-b4	-	d1-d4
Practical sessions	-	b1-b4	c1-c5	d1-d4
Self-Learning activities		b1-b4		d1- d2
Distance Teaching and Learning	a1 to a6	b1 to b4	c1 to c5	d1 to d4

\*Lectures and some practical topics may be offered face to face or via distance teaching and learning.

#### 6- METHODS FOR DISABLED STUDENTS:

- Discussions with them during practical sessions and lectures
- Giving them advice whenever needed



## 7-student assessment:

<b>7.a: Used method</b>	<b>Written examination</b>	<b>Oral examination</b>	<b>Practical examination</b>
<b>7.b: Time</b>	<b>At the end of the year</b>	<b>At the end of the year</b>	<b>At the end of the year</b>
<b>7.c: Grads</b>	<b>50</b>	<b>25</b>	<b>25</b>

7.2. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a6	b1-b4		
Practical exams		b1-b4	c1 to c5	
Oral exams	a1 to a6	b1-b4		d4
Student activities				d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Recommended books:

- Equine Surgery 2011 Jörg A. Auer, and John A. Stick
- Manual of Equine Field Surgery, 2016 Wilson, David A., DVM
- Dollar's Veterinary Surgery J.J O'Connor **2019**
- Veterinary Surgery **2016** E. R Frank
- Treatment of equine fracture **2014** H.R. Denny
- Current Concepts in Veterinary Surgery, 2019 K. Fouad, M. Saleh and M. Shokry.
- BSAVA Manual of Canine and Feline Ophthalmology, 3rd Edition. 2015 [David Gould](#), [Gillian McLellan](#). ISBN: 978-1-905-31942-8

### 8-2: SUGGESTED books:

- Kirk and Bistner's Hbk. of Veterinary Procs and Emerg. Trtmt 9<sup>th</sup> ed.. - R. Ford, et al., (Saunders, 2020)
- General Surgery. M.V. Plakhoton, 2010 Fubini, S.L. and Ducharme, N.G. (2017): Farm animal surgery. 2nd Ed. Elsevier.
- Techniques in Large Animal Surgery, 3rd edition. 2007
- Equine Ophthalmology (2nd ed.) 2011 Brian C. Gilger
- Slatter's Fundamentals of Veterinary Ophthalmology 2008 David J. Maggs

### 8-3. Scientific Journals

- Journal of Veterinary surgery
- Journal of the American Veterinary Medical Association



- Orthopedics and Traumatology.

#### **8-4. Scientific websites**

- [The Egyptian Knowledge Bank: https://www.ekb.eg/web/guest/home](https://www.ekb.eg/web/guest/home)
- <https://www.vetsurgeryonline.com/>
- <https://www.acvs.org/> The American College of *Veterinary Surgeons*
- <https://www.veterinary-practice.com/>

**Course Coordinator:**

**Head of Department:**

**Dr. Alaa Ghazy Soliman**

**Prof Dr. Gamal Elsayad**



Course Matrix for achievement of Intended Learning Outcomes

	Topics	hrs.	KNOWLEDGE and UNDERSTANDING						INTELLECTUAL SKILLS				PRACTICAL AND PROFESSIONAL SKILLS:					General & Transferable Skills				
			1	2	3	4	5	6	1	2	3	4	1	2	3	4	5	1	2	3	4	
1	Dentistry	24	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
2	Mouth ,Tongue and pharynx	24	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
3	Salivary glands	24	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
4	Esophagus	24	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
5	Simple &Compound Stomach	24	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
6	Rumen and abomasum	24	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
7	Intestine	24	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
8	Rectum and Anus	24	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X



## Course specification (2021/2022)

### 1 - Basic Information:

Code number: 263/1

Course title: Surgical affections of the Limbs, Hoof and Claw

Academic Year: Master of Veterinary Medicine Program

Total teaching hours: 192 h

Lectures: 96 hrs. (48 weeks- 2hrs/week)

Practical: 96 hrs. (48 weeks- 2hrs/week)

### 2 - OVERALL AIMS OF THE COURSE:

The aim of the course is to provide the postgraduate students with a basic education in the field of veterinary surgery of limbs and hoof & claw affections.

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- a1. List various surgical affections of musculoskeletal system.
- a2. Identify the most common affections of the equine hoof.
- a3. Summarize different surgical affections of the claw
- a4. Explain different diagnostic aids and methods for each disease conditions

#### 3-B: INTELLECTUAL SKILLS:

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

- b1. Evaluate the scientific papers essential for his research project.
- b2. Interpret the collected data each surgical case.
- b3. Judge the prognosis of each case and
- b4. Select the most suitable method for treatment of each surgical case.
- b5. Specify the surgery maneuvers.
- b6. Design discharge system for the operated animal.

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

- b1. Practice the most recent and advanced diagnostic techniques and tools necessary to evaluate the lame animals.
- b2. Perform essential skills those support surgical techniques.
- b3. Practice the more sophisticated surgical procedures for the lame conditions in the most effective way.
- b4. Practice the post- operative care and how to deal with postoperative complications.

#### 3- D: GENERAL SKILLS:

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

- d1- Perform group working, good management and problem solving ability.
- d2- Conduct good communications.
- d3- Use new technology and has the ability of self-learning.
- d4- Develop the ethical behaviors between students and staff members as well as among the students themselves.

#### 4 - COURSE CONTENTS:

Topic	No. of hours	Lecture	Practical
Diagnosis of lameness	48	24	24
Surgical affections of the hoof.	36	18	18
Surgical affections of the claw.	36	18	18
Surgical affections of the fore limb.	36	18	18
Surgical affections of the hind limb.	36	18	18
Total	192	96	96

#### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library  
Making individual reports about surgery of Digestive System

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1-a4	b1-b6	-	d1-d4
Practical sessions	-	b1-b6	c1-c4	d1-d4
Self-Learning activities		b1-b6		d1- d2
Distance Teaching and Learning	a1 to a4	b1 to b6	c1 to c4	d1 to d4

\*Lectures and some practical topics may be offered face to face or via distance teaching and learning.

#### 6- METHODS FOR DISABLED STUDENTS:

- Discussions with them during practical sessions and lectures
- Giving them advice whenever needed

#### 7-student assessment:

7.a: Used method	Written examination	Oral examination	Practical examination
7.b: Time	At the end of the year	At the end of the year	At the end of the year





7.c: Grads

50

25

25

7.2. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a4	b1-b6		
Practical exams		b1-b6	c1 to c4	
Oral exams	a1 to a4	b1-b6		d4
Student activities				d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Recommended books:

- Equine Surgery 2011 Jörg A. Auer, and John A. Stick
- Manual of Equine Field Surgery, 2016 Wilson, David A., DVM
- Dollar's Veterinary Surgery J.J O'Connor 2019
- Veterinary Surgery 2016 E. R Frank
- Treatment of equine fracture 2014 H.R. Denny
- Current Concepts in Veterinary Surgery, 2019 K. Fouad, M. Saleh and M. Shokry.

### 8-2: SUGGESTED books:

- Kirk and Bistner's Hbk. of Veterinary Procs and Emerg. Trtmt 9<sup>th</sup> ed.. - R. Ford, et al., (Saunders, 2020)
- General Surgery. M.V. Plakhoton, 2010 Fubini,
- S.L. and Ducharme, N.G. (2017): Farm animal surgery. 2nd Ed. Elsevier.
- Techniques in Large Animal Surgery, 3rd edition. 2007

### 8-3. Scientific Journals

- Journal of Veterinary surgery
- Journal of the American Veterinary Medical Association
- Orthopedics and Traumatology.

### 8-4. Scientific websites

- [The Egyptian Knowledge Bank: https://www.ekb.eg/web/guest/home](https://www.ekb.eg/web/guest/home)
- <https://www.vetsurgeryonline.com/>
- <https://www.acvs.org/> The American College of Veterinary Surgeons
- <https://www.veterinary-practice.com/>

Course Coordinator:

Head of Department:

Dr. Alaa Ghazy Soliman

Prof Dr. Gamal Elsayad



### Course Matrix for achievement of Intended Learning Outcomes

	Topics	hr	KNOWLEDGE and UNDERSTANDING				INTELLECTUAL SKILLS						PRACTICAL AND PROFESSIONAL SKILLS:				General & Transferable Skills			
			1	2	3	4	1	2	3	4	5	6	1	2	3	4	1	2	3	4
1	Diagnosis of lameness	48	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
2	Surgical affections of the hoof.	36		X		X	X	X	X	X	X	X		X	X		X	X	X	X
3	Surgical affections of the claw.	36			X	X	X	X	X	X	X	X		X	X		X	X	X	X
4	Surgical affections of the fore limb.	36				X	X	X	X	X	X	X		X	X		X	X	X	X
5	Surgical affections of the hind limb.	36				X	X	X	X	X	X	X		X	X		X	X	X	X



## Course specification (2021/2022)

### 1 - Basic Information:

Code number: 264/1

Course title: Experimental Surgery

Academic Year: Master of Veterinary Medicine Program

Total teaching hours: 192 h

Lectures: 96 hrs. (48 weeks- 2hrs/week)

Practical: 96 hrs. (48 weeks- 2hrs/week)

### 2 - OVERALL AIMS OF THE COURSE:

The aim of the course is to provide the postgraduate students with a basic education in the field of experimental surgery and the ethics of using experimental animals and select the ideal animal model.

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- a1. Discuss the moral, ethical and legal regulation in scientific research, surgery and experimental animals.
- a2. Recognize the quality principle in research work.
- a3. Outline regimens for anesthetizing experimental animals.
- a4. Describe the outline for experimental surgery.
- a5. Define the different experimental surgical protocols for different body systems.
- a6. Review the diagnostic imaging techniques (radiology & ultrasonography).

#### 3-B: INTELLECTUAL SKILLS:

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

- b1. Design schedule for experimental surgery proposal.
- b2. Select the correct regimens for anesthetizing experimental animals.
- b3. Specify the experimental surgical protocol for different body systems.
- b4. Interpret the diagnostic image correctly

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

- c1. Carry out experimental animal Anesthesia in proper manner.
- c2. Operate suitable technique to operate the experimental animal.
- c3. Use the diagnostic imaging technique efficiently.
- c4. Setup a plan for treatment.

#### 3- D: GENERAL SKILLS:

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

- d1- Perform group working, good management and problem solving ability.
- d2- Conduct good communications.
- d3- Use new technology and has the ability of self-learning.
- d4- Develop the ethical behaviors between students and staff members as well as among the students themselves.

#### 4 - COURSE CONTENTS:

Topic	No. of hours	Lecture	Practical
Experimental Surgery of the gastro-intestinal tract.	48	24	24
Different tech. of skin graft.	24	12	12
Experimental Surgery of the Urinary system	24	12	12
Experimental ophthalmic surgery	24	12	12
Experimental Surgery of the teeth and oral cavity	24	12	12
Experimental surgery of the gland	24	12	12
Experimental orthopedic surgery	24	12	12
<b>Total</b>	<b>192</b>	<b>96</b>	<b>96</b>

#### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library

Making individual reports about experimental surgery

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1-a6	b1-b4	-	d1-d4
Practical sessions	-	b1-b4	c1-c4	d1-d4
Self-Learning activities		b1-b4		d1- d2
Distance Teaching and Learning	a1 to a6	b1 to b4	c1 to c4	d1 to d4

\*Lectures and some practical topics may be offered face to face or via distance teaching and learning.

#### 6- METHODS FOR DISABLED STUDENTS:

- Discussions with them during practical sessions and lectures
- Giving them advice whenever needed

#### 7-student assessment:

7.a: Used method	Written examination	Oral examination	Practical examination
7.b: Time	At the end of the year	At the end of the year	At the end of the year



<b>7.c: Grads</b>	<b>50</b>	<b>25</b>	<b>25</b>
-------------------	-----------	-----------	-----------

7.2. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a4	b1-b6		
Practical exams		b1-b6	c1 to c3	
Oral exams	a1 to a4	b1-b6		d4
Student activities				d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Recommended books:

- Equine Surgery 2011 Jörg A. Auer, and John A. Stick
- Manual of Equine Field Surgery, 2016 Wilson, David A., DVM
- Dollar's Veterinary Surgery J.J O'Connor **2019**
- Veterinary Surgery **2016** E. R Frank
- Treatment of equine fracture **2014** H.R. Denny
- Current Concepts in Veterinary Surgery, 2019 K. Fouad, M. Saleh and M. Shokry.

### 8-2: SUGGESTED books:

- Kirk and Bistner's Hbk. of Veterinary Procs and Emerg. Trtmt 9<sup>th</sup> ed.. - R. Ford, et al., (Saunders, 2020)
- General Surgery. M.V. Plakhoton, 2010 Fubini,
- S.L. and Ducharme, N.G. (2017): Farm animal surgery. 2nd Ed. Elsevier.
- Techniques in Large Animal Surgery, 3rd edition. 2007
- An Atlas of Veterinary Surgery, 2019 John Hickman and Robert G. Walker

### 8-3. Scientific Journals

- Journal of Veterinary surgery
- Journal of the American Veterinary Medical Association
- Orthopedics and Traumatology.

### 8-4. Scientific websites

- [The Egyptian Knowledge Bank: https://www.ekb.eg/web/guest/home](https://www.ekb.eg/web/guest/home)
- <https://www.vetsurgeryonline.com/>
- <https://www.acvs.org/> The American College of Veterinary Surgeons
- <https://www.veterinary-practice.com/>

Course Coordinator:

Head of Department:

Dr. Alaa Ghazy Soliman

Prof Dr. Gamal Elsayad

### Course Matrix for achievement of Intended Learning Outcomes

	Topics	hrs.	KNOWLEDGE and UNDERSTANDING						INTELLECTUAL SKILLS				PRACTICAL AND PROFESSIONAL SKILLS:				General & Transferable Skills				
			1	2	3	4	5	6	1	2	3	4	1	2	3	4	1	2	3	4	
1	Experimental Surgery of the gastro-intestinal tract.	48	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
2	Different tech. of skin graft.	24	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
3	Experimental Surgery of the Urinary system	24	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
4	Experimental ophthalmic surgery	24	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
5	Experimental Surgery of the teeth and oral cavity	24	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
6	Experimental surgery of the gland	24	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
7	Experimental orthopedic surgery	24	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x



## Course specification (2021/2022)

### 1 - Basic Information:

Code number: 265/1

Course title: **Veterinary Anaesthesiology**

Academic Year: **Master of Veterinary Medicine Program**

Total teaching hours: 144 hrs.

Lectures: 48 hrs. (48 weeks- 1hrs/week)

Practical: 96 hrs. (48 weeks- 2hrs/week)

### 2 - OVERALL AIMS OF THE COURSE:

This course aimed to enable the postgraduate students to gain first the experience in different anesthetic regimen for different animal species, anesthetic procedures of each animal species, and different types of Anesthetic drugs.

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- a1. Explain different methods of anesthesia for each animal species especially general anesthesia.
- a2. Discuss the various anesthetic regimens for each animal species with especial references to stages and plans of general anesthesia.
- a3. Identify the most suitable regimen of anesthesia for each condition.
- a4. Express different parts of anesthetic machine.
- a5. Express the intra-operative monitoring for preventing deleterious effects.
- a6. Post-operative follow up of the anesthetized animal.

#### 3-B: INTELLECTUAL SKILLS:

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

- b1. Evaluate the articles and collected research papers in veterinary Anesthesiology.
- b2. Apply suitable anesthetic regimen for each clinical cases.
- b3. Evaluate the ways chosen to anesthetize an animal for surgery.
- b4. Specify the anesthetic regimen combination for each case.
- b5. Interpret the information about the anesthetic risk patients.
- b6. Judge the current methods of anesthetizing such patients.
- b7. Examine anesthetized animals under anesthesia.

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

- c1. Use recent techniques and tools necessary to anesthetizing different animal species.
- c2. Handle general inhalation anesthetic machine.
- c3. Examine animal's vitals under general anesthesia.
- c4. Perform local and regional analgesia.
- c5. Manage animals during recovery from anesthesia.

#### 3- D: GENERAL SKILLS:

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

- d1- Perform group working, good management and problem solving ability.
- d2- Conduct good communications.
- d3- Use new technology and has the ability of self-learning.
- d4- Develop the ethical behaviors between students and staff members as well as among the students themselves.

#### 4 - COURSE CONTENTS:

Topic	No. of hours	Lecture	Practical
Local analgesia	18	6	12
Prineural analgesia about the head	18	6	12
Prineural analgesia about the limb	18	6	12
Prineural analgesia about the trunk.	18	6	12
Spinal analgesia	18	6	12
Narcosis	18	6	12
Premedications	18	6	12
General anesthesia	18	6	12
<b>Total</b>	<b>144</b>	<b>48</b>	<b>96</b>

#### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library

Making individual reports about Veterinary Anaesthesiology

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1-a6	b1-b7	-	d1-d4
Practical sessions	-	b1-b7	c1-c5	d1-d4
Self-Learning activities		b1-b7		d1- d2
Distance Teaching and Learning	a1 to a6	b1 to b7	c1 to c5	d1 to d4

\*Lectures and some practical topics may be offered face to face or via distance teaching and learning.

#### 6- METHODS FOR DISABLED STUDENTS:

- Discussions with them during practical sessions and lectures
- Giving them advice whenever needed

#### 7-student assessment:

7.a: Used method	Written examination	Oral examination	Practical examination
7.b: Time	At the end of the year	At the end of the year	At the end of the year





7.c: Grads

50

25

25

7.2. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a6	b1-b7		
Practical exams		b1-b7	c1 to c5	
Oral exams	a1 to a6	b1-b7		d4
Student activities				d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Recommended books:

- Manual of Equine Anaesthesia and analgesia Doherty, T. J. 2019
- Handbook of Equine Anaesthesia 2nd ed. 2007 Taylor
- Wright's Veterinary Anaesthesia 2019

### 8-2: SUGGESTED books:

- Veterinary Anesthesia, WILLIAM V. LUMB , 3<sup>rd</sup> edition, 2018
- Veterinary Anesthesia, L.W.HALL K.W.CLARKE, 10<sup>th</sup> edition 2014

### 8-3. Scientific Journals

- Journal of Veterinary surgery
- Journal of the American Veterinary Medical Association
- Orthopedics and Traumatology.

### 8-4. Scientific websites

- [The Egyptian Knowledge Bank: https://www.ekb.eg/web/guest/home](https://www.ekb.eg/web/guest/home)
- <https://www.vetsurgeryonline.com/>
- <https://www.acvs.org/> The American College of *Veterinary Surgeons*
- <https://www.veterinary-practice.com/>

Course Coordinator:

Head of Department:

Dr. Alaa Ghazy Soliman

Prof Dr. Gamal Elsayad



Course Matrix for achievement of Intended Learning Outcomes

	Topics	hr	KNOWLEDGE and UNDERSTANDING						INTELLECTUAL SKILLS							PRACTICAL AND PROFESSIONAL SKILLS:					General & Transferable Skills			
			1	2	3	4	5	6	1	2	3	4	5	6	7	1	2	3	4	5	1	2	3	4
1	Local analgesia	18	x	x	x		x	x	x	x	x	x	x	x	x	x			x		x	x	x	x
2	Prineural analgesia about the head	18	x	x	x		x	x	x	x	x	x	x	x	x	x			x		x	x	x	x
3	Prineural analgesia about the limb	18	x	x	x		x	x	x	x	x	x	x	x	x	x			x		x	x	x	x
4	Prineural analgesia about the trunk.	18	x	x	x		x	x	x	x	x	x	x	x	x	x			x		x	x	x	x
5	Spinal analgesia	18	x	x	x		x	x	x	x	x	x	x	x	x	x			x		x	x	x	x
6	Narcosis	18	x	x	x		x	x	x	x	x	x	x	x	x	x				x	x	x	x	x
7	Premedications	18	x	x	x		x	x	x	x	x	x	x	x	x	x			x		x	x	x	x
8	General anesthesia	18	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x	x	x	x



## Course specification (2021/2022)

### 1 - Basic Information:

Code number: 266/1

Course title: Radiology and ultrasonography

Academic Year: Master of Veterinary Medicine Program

Total teaching hours: 192 h

Lectures: 96 hrs. (48 weeks- 2hrs/week)

Practical: 96 hrs. (48 weeks- 2hrs/week)

### 2 - OVERALL AIMS OF THE COURSE:

The aim of the course is to provide the postgraduate students with a basic education in the field of veterinary Radiology and ultrasonography.

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- a1. State different diagnostic imaging procedures of different body systems for different animal species.
- a2. List diagnostic imaging procedures of different systems.
- a3. Identify the different diagnostic imaging tools.
- a4. Know the most suitable exposure factors.
- a5. List the radiographic and ultrasonography artifacts

#### 3-B: INTELLECTUAL SKILLS:

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

- b1. Interpret x-ray films.
- b2. Assess and judge the used methods of radiological examination of the patients.
- b3. Evaluate the articles and collected research papers in veterinary diagnostic imaging.
- b4. Evaluate the current parameters and exposure factors for obtaining diagnostic image.
- b5. Interpret ultrasonic image.

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

- c1. Investigate and evaluate the recent techniques necessary to radiological examination of different animals.
- c2. Operate different radiological examination procedures like, X-ray, Ultrasound for each species.
- c3. Operate X-rays machine effectively.
- c4. Use the ultrasound machine effectively

#### 3- D: GENERAL SKILLS:

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

- d1- Perform group working, good management and problem solving ability.
- d2- Conduct good communications.
- d3- Use new technology and has the ability of self-learning.
- d4- Develop the ethical behaviors between students and staff members as well as among the students themselves.



#### 4 - COURSE CONTENTS:

Topic	No. of hours	Lecture	Practical
General radiographic terminology	16	16	-
X-ray	88	40	48
Ultrasound	88	40	48
Total	192	96	96

#### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library  
Making individual reports about Veterinary Radiology and ultrasonography

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1-a5	b1-b5	-	d1-d4
Practical sessions	-	b1-b5	c1-c4	d1-d4
Self-Learning activities		b1-b5		d1- d2
Distance Teaching and Learning	a1 to a5	b1 to b5	c1 to c4	d1 to d4

\*Lectures and some practical topics may be offered face to face or via distance teaching and learning.

#### 6- METHODS FOR DISABLED STUDENTS:

- Discussions with them during practical sessions and lectures
- Giving them advice whenever needed

#### 7-student assessment:

7.a: Used method	Written examination	Oral examination	Practical examination
7.b: Time	At the end of the year	At the end of the year	At the end of the year
7.c: Grads	50	25	25



7.2. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a5	b1-b4		
Practical exams		b1-b4	c1 to c4	
Oral exams	a1 to a5	b1-b4		d4
Student activities				d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Recommended books:

- Thrall, Donald E. Textbook of veterinary diagnostic radiology. 7<sup>th</sup> ed. Elsevier Health Sciences, **2018**.
- Textbook of gastrointestinal radiology. Vol. 1. Philadelphia, PA: Saunders, **2008**.
- Burk, Ronald L., and Norman Ackerman. Small animal radiology and ultrasonography: a diagnostic atlas and text. No. Ed. 3. WB Saunders Co., **2003**.

### 8-2: SUGGESTED books:

- **Textbook of Gastrointestinal Radiology**. Richard M. Gore, Marc Levine. 5<sup>th</sup> ed. 2021. Elsevier. ISBN: 9780323640824

### 8-3. Scientific Journals

- Journal of Veterinary surgery
- Journal of the American Veterinary Medical Association
- Orthopedics and Traumatology.

### 8-4. Scientific websites

- [The Egyptian Knowledge Bank: https://www.ekb.eg/web/guest/home](https://www.ekb.eg/web/guest/home)
- <https://www.vetsurgeryonline.com/>
- <https://www.acvs.org/> The American College of *Veterinary Surgeons*
- <https://www.veterinary-practice.com/>

Course Coordinator:

Head of Department:

Dr. Alaa Ghazy Soliman

Prof Dr. Gamal Elsayad



**Course Matrix for achievement of Intended Learning Outcomes**

	Topics	hrs.	KNOWLEDGE and UNDERSTANDING					INTELLECTUAL SKILLS					PRACTICAL AND PROFESSIONAL SKILLS:				General & Transferable Skills					
			1	2	3	4	5	1	2	3	4	5	1	2	3	4	1	2	3	4		
1	General radiographic terminology	16	x	x	x	x	x												x	x	x	x
2	X-ray	88	x	x	x	x	x	x	x	x	x			x	x	x			x	x	x	x
3	Ultrasound	88	x	x	x	x	x				x	x	x	x	x		x		x	x	x	x



**Kafrelsheikh University**  
Faculty of Veterinary Medicine



**Kafrelsheikh University**

**Faculty of Veterinary Medicine**

**Department of Virology**

# **Program Specification for Master Degree**

**(2021 - 2022)**

**Program Title:**

**Master of The Veterinary Medicine**

**(Virology)**



## **A- Administrative Information**

1. **Awarding body:-** Kafrelsheikh University
2. **Teaching body:** Faculty of Veterinary Medicine
3. **Department(s) responsible: Virology**
4. **Program Title:** Master of Veterinary Medicine in Virology
5. **Final award: Master Degree**
6. **Registration period: 2-4 years**
7. **Program Coordinator:**
8. **External evaluator:**
9. **Date of revision:**
10. **Date of approval:**

## **B- Professional Information**

### **1- Educational aims of the Program:**

- Provides graduates the opportunity to develop communication and teaching skills and the experience of scientific research.
- Develops the ability of graduate to engage critically with recent techniques and diagnostic tools in the field of Virology.
- Supplies the graduates with the most recent knowledge in science and technological applications in Virology.
- Demonstrates an awareness of the connections between disciplines and develop the ability to engage critically with scientific literature and to critically review and present their own research data for the protection and promotion of the animal health.
- Allows graduates to develop practical research project.
- Enables graduates to achieve competency in modern laboratory technology and characterization of different viruses.

### **2- Academic standards:**

**Academic reference standards (ARS) adopted by the faculty committee No (1) 14-9-2014)**

### **3- Graduate attributes:**

*Upon successful completion of the program, the graduate has the ability for:*

- 1) Perfect application of scientific research basics and methodologies, and using its various tools.
- 2) Application and use of analytical methods in Virology..
- 3) Application of gained specialized knowledge and integrating them with the relevant knowledge in Virology.
- 4) Awareness with ongoing problems and recent visions in field of Virology.
- 5) Identification of professional problems and suggesting solutions.





- 6) Mastering the proper scope of a range specialized professional skills, and using appropriate technological means to serve the professional practice.
- 7) Effective communication and leading work team.
- 8) Decision making under different professional situations.
- 9) Employ available resources efficiently.
- 10) Awareness with his role in society development and community preservation in the light of global and regional variations.
- 11) Reflection of the commitment to act with integrity, credibility and the rules of profession.
- 12) Academic and professional self- development and ability for life-long learning and progress.

#### **4-Programme outcomes [intended learning outcomes (ILOs)]**

##### **a. Knowledge and understanding:**

*On successful completion of this program, postgraduate will be able to:*

- a.1. Recognize principles and basics of Virology and related fields.
- a.2. Realize the principles of diagnosis of viral disease through sampling, isolation and relationship of viral pathogen and their impact on environment
- a.3. Apply their knowledge of Virology advanced research methods by evaluating the utility of those techniques to specific research question.
- a.4. Recognize the advanced concepts in molecular Virology and analyze scientific literature.
- a.5. List the most important methods of decontamination, sterilization and principles of infection control.
- a.6. Outline the regulations and ethics of scientific research.

##### **b. Intellectual skills:**

*At the end of the program, graduate must be able to:*

- b.1. Identification, conceptualization and definition of research problems and questions in the field of virology
- b.2. Interpret results of virological, serological and molecular tests used in his research project.
- b.3. Development of creative approaches to solve technical problems or issues associated with running and researches project.
- b.4. Perform research data & develop new approaches to solving their research questions.
- b.5. Determine an accurate approach and plans for performing scientific research in order to solve the problems in field of Virology. Comprehending areas where further researches necessary and be aware of any which would be beyond current ethical cods.
- b.6. Relate the viruses according to the clinical picture of the infection and their



diagnosis using integrated diagnostic system.

- b.7.** Using appropriate intellectual strategy to deal with laboratory diagnostic problems.

**c. Practical and professional skills:**

*At the end of the programme, graduate must be able to:*

- c.1.** Master the fundamental and recent professional skills in field of Virology necessary to diagnose and characterize the viruses of veterinary importance and prevention of their infection.
- c.2.** Write professional reports with special emphasis to understanding and interpretation of data which help in improving virus pathogenesis and diagnosis.
- c.3.** Assess the existing methods, tests and tools for isolation and identifications of different viruses affecting domestic animals.

**d. General and transferable skills:**

*At the end of the programme, graduate must be able to:*

- d.1.** Communicate effectively in all kinds with all colleagues in the field of virology
- d.2.** Utilize different sources to gain knowledge and information.
- d.3.** Self-evaluate and identify personal learning requirements.
- d.4.** Demonstrate interpersonal skills and team working ability
- d.5.** Demonstrate an ability to learn independently for a career of lifelong learning.
- d.6.** Use information technology to serve the professional practice.
- d.7.** Manage time efficiently.
- d.8.** Set tools and indicators for assessment of the performance of others.

**5-Program structure:**

**a) Program duration (years):** Master degree from 2-4 years

**b) Premaster courses – at least one academic year**

Course	Lecture (hours/week)	Practical (hours/week)
Fundamental (core) course	3	4
Research methodology	1	3
2-5 Elective Courses Offered by other	5-6	5-6



departments and are selected from the list below  
according to thesis topic (10-12 hours)

c) Master of Veterinary Medicine Thesis (at least one academic year)

- All master-degree students should prepare a master thesis.
- The department and the ethical committees must approve the protocol of the research.
- The thesis should include a review part and a research part.
- The thesis is supervised by one or more senior staff members of the department responsible for the program and may include other specialties according to the nature of the research.
- The thesis should be evaluated and approved by a committee of three professors including one of the supervisors and an external professor.

- *A number of subsidiary courses are selected from the following list according to the title of the research work:*

Subject	Code	Course title	No of hours/week	
			Lecture	Practical Lab
Anatomy and embryology	101/1	<b>1- Applied anatomy</b>	2	2
	102/1	<b>2- Anatomical techniques and surface anatomy</b>	2	2
	103/1	<b>3- Osteology and arthrology</b>	2	2
	104/1	<b>4- Comparative digestive system</b>	2	2
	105/1	<b>5- Comparative uro-genital system</b>	2	2
	106/1	<b>6-Comparative respiratory system</b>	2	2
	107/1	<b>7- Comparative cardiovascular system</b>	2	2
	108/1	<b>8- Comparative nervous system and endocrine glands</b>	2	2
	109/1	<b>9- General and special embryology</b>	2	2
	110/1	<b>10- Avian anatomy</b>	1	2



<b>Histology</b>	111/1	<b>11- cytology and cytochemistry</b>	1	2
	112/1	<b>12- general histology</b>	2	2
	113/1	<b>13- Histology and histochemistry of blood, lymph and cardiovascular system.</b>	1	1
	114/1	<b>14- Comparative histology and histochemistry of body muscles, heart and blood vessels</b>	1	1
	115/1	<b>15- Comparative histology and histochemistry of respiratory system</b>	1	1
	116/1	<b>16-Comparative histology and histochemistry of digestive system</b>	2	2
	117/1	<b>17- Comparative histology and histochemistry of uro-genital system</b>	2	2
	118/1	<b>18- Comparative histology and histochemistry of nervous and endocrine systems</b>	2	2
	119/1	<b>19- Histology and histochemistry of special sensors</b>	1	2
	120/1	<b>20-Histology and histochemistry of skin, hooves, claws and Nails</b>	2	2
	121/1	<b>21- Avian histology</b>	2	2
	122/1	<b>22- Fish histology</b>	1	2
	<b>Physiology</b>	123/1	<b>23- Physiology of mammalian endocrine and reproduction</b>	2
124/1		<b>24- poultry physiology (advanced)</b>	2	2
125/1		<b>25- physiology of muscle and nerve</b>	1	2
126/1		<b>26- physiology of ruminants</b>	2	2
127/1		<b>27- physiology of environment, adaptation and cell</b>	2	2
128/1		<b>28- physiology of blood</b>	2	2
129/1		<b>29- physiology of digestion, metabolism and energy</b>	2	2
130/1		<b>30- Physiology in pollution</b>	1	2
131/1		<b>31- Radioactive isotopes and biological uses</b>	2	2



	132/1	<b>32– Physiology of heights</b>	1	1
	133/1	<b>33-Fish physiology.</b>	1	2
<b>Biochemistry</b>	134/1	<b>34- Basics of biochemistry</b>	2	3
	135/1	<b>35- Metabolism</b>	2	2
	136/1	<b>36- Biochemistry of tissue and body fluids .</b>	2	2
	137/1	<b>37- Biochemistry of hormones and reproduction</b>	2	2
	138/1	<b>38- Feeding biochemistry</b>	2	2
	139/1	<b>39- Clinical biochemistry</b>	2	2
	140/1	<b>40- Avian biochemistry</b>	2	2
	141/1	<b>41- Microbial biochemistry</b>	2	2
	142/1	<b>42- Biochemistry of radiation</b>	1	2
	143/1	<b>43- Fish biochemistry</b>		
<b>Animal behavior and management</b>	144/1	<b>44- Behavior and management of ruminants ( specific courses in cattle, buffalo, sheep, camels and goats)</b>	2	3
	145/1	<b>45- Behavior and management of horses</b>	2	3
	146/1	<b>46- Behavior and management of pet animals</b>	1	2
	147/1	<b>47- Behavior and management of laboratory animals</b>	1	2
	148/1	<b>48- Behavior and management of wild animals</b>	2	2
	149/1	<b>49- Behavior and management of poultry</b>	2	2
	150/1	<b>50- Behavior and management of rabbit</b>	1	2
	151/1	<b>51- Behavior of experimental animals</b>	1	2
<b>Nutrition and clinical nutrition</b>	152/1	<b>52- Basics of animal nutrition</b>	2	2
	153/1	<b>53- feedstuff</b>	2	2
	154/1	<b>54- nutrition of farm animals and fish specific courses in ( cattle and buffalo nutrition – sheep and goat nutrition – camel nutrition- equine nutrition – fish nutrition)</b>	2	2
	155/1	<b>55- poultry and rabbit nutrition( advanced)</b>	2	2
	156/1	<b>56- wild animal nutrition</b>	1	2



	157/1	<b>57- laboratory animal nutrition</b>	1	2
	158/1	<b>58- feed additives</b>	1	2
	159/1	<b>59- feedstuff analysis</b>	2	2
	160/1	<b>60- Quality control of feed and feed factories</b>	2	2
	161/1	<b>61- Clinical nutrition and malnutrition</b>	2	2
	162/1	<b>62- Fish nutrition</b>	1	2
<b>Pathology</b>	163/1	<b>63- General pathology and neoplasm( progressive)</b>	2	2
	164/1	<b>64-pathology of microbial and parasitic diseases in animal</b>	2	2
	165/1	<b>65- pathology of bad nutrition</b>	1	2
	166/1	<b>66- pathology of environmental pollution</b>	1	2
	167/1	<b>67- pathology of reproductive diseases</b>	1	2
	168/1	<b>68- Avian pathology</b>	2	2
	169/1	<b>69-Experimental pathology</b>	2	2
	170/1	<b>70- toxins pathology</b>	2	2
	171/1	<b>71- surgical pathology</b>	2	2
	172/1	<b>72- Pathology of experimental animals.</b>		
	173/1	<b>73- Pathology of genetics</b>		
	174/1	<b>74-- Fish pathology</b>	2	2
<b>Clinical pathology</b>	175/1	<b>75- Advanced clinical pathology</b>	2	2
	176/1	<b>76-Organ function tests and body and urine balance</b>	2	2
	177/1	<b>77- Clinical hematology and bone marrow examination</b>	1	2
<b>Bacteriology, immunology and mycology</b>	178/1	<b>78- General bacteriology(advanced)</b>	1	2
	179/1	<b>79-systemic bacteriology</b>	2	3
	182/1	<b>80- Advanced immunology</b>	2	2
	183/2	<b>81- Advanced mycology</b>	1	2
<b>Mixed courses between Bacteriology and Virology</b>	184/1	<b>85- Microbiology of poultry</b>	2	2
	185/1	<b>86- Microbiology of invertebrate</b>	1	2
	186/1	<b>87- Microbiology of animal product</b>	2	2
	187/1	<b>88- Fish Microbiology</b>	1	2
<b>Parasitology</b>	188/1	<b>89- Veterinary medical entomology and</b>	2	2



		<b>acarology</b>		
	189/1	<b>90-helminthology</b>	2	2
	190/1	<b>91- protozoology</b>	2	2
	191/1	<b>92- Avian and rabbits parasitology</b>	2	2
	192/1	<b>93Malacology and its vet. Importance</b>	1	2
	193/1	<b>94- parasitic Immunology</b>	1	2
	194/1	<b>95- Clinical parasitology</b>	2	2
	195/1	<b>96-Wild life parasitology</b>	1	2
	196/1	<b>97-Special vet. Parasitology</b>	2	2
	197/1	<b>98- Physiology and biochemistry of parasites</b>	2	2
	198/1	<b>99- Fish parasitology</b>	1	2
<b>Pharmacology</b>	199/1	<b>100- Aeneral pharmacology ( advanced)</b>	2	2
	200/1	<b>101- pharmacology of autonomic nervous system and autocoid</b>	2	2
	201/1	<b>102- pharmacology of central nervous system</b>	2	2
	202/1	<b>103 pharmacology of anesthesia</b>	2	2
	203/1	<b>104- Systemic pharmacology</b>	2	2
	204/1	<b>105- pharmacology of metabolism</b>	2	2
	205/1	<b>106- pharmacology of hormones</b>	2	2
	206/1	<b>107-Chemotherapy</b>	2	2
	207/1	<b>108-Biological evolution of drug</b>	1	1
<b>Hygiene and control of milk and dairy products</b>	208/1	<b>108- Hygiene and control of milk and dairy products</b>	2	2
	209	<b>109- Microbiology of milk and dairy products</b>	2	2
	210/1	<b>110- Milk technology and preservation</b>	2	2
	211/1	<b>111- Food analysis</b>	2	2
	212/1	<b>112- Food poisoning</b>	1	2
	213/1	<b>113- Specific courses on sources of contamination, disturbances of milk production, milk born diseases, hygiene of table egg, edible fats and oils</b>	1	1
	214/1	<b>114- The sanitation of dairy plant</b>	2	2



<b>Control of meat hygiene and their products</b>	215/1	<b>115- Slaughter animal Hygiene</b>	1	2
	216/1	<b>116- Abattoir management and hygiene</b>	2	2
	217/1	<b>117- Hygienic control of meat and their product</b>	2	2
	218/1	<b>118 inspection of poultry meat.</b>	1	2
	219/1	<b>119- Food technology</b>	1	2
	220/1	<b>120- Microbiology of meat and fish meats and their product</b>	2	1
	221/1	<b>121- Chilled meal microbiology</b>	1	2
	222/1	<b>122- Analysis of meat and fish and their product</b>	1	2
	223/1	<b>123- Preservation of meat, poultry, fish and their products</b>	1	2
	224/1	<b>124- Sanitation affairs of meat and fish plants.</b>	2	2
<b>Internal medicine</b>	225/1	<b>125- advanced general medicine</b>	2	2
	226/1	<b>126- disease of ruminants( cattle, buffalo, camels, sheep and goats)</b>	3	3
	227/1	<b>127- diseases of equines</b>	2	2
	228/1	<b>128 diseases of pet animals</b>	2	2
	229/1	<b>129- diseases of wild animals</b>	2	2
	230/1	<b>130- diseases of metabolic disorders</b>	2	2
	231/1	<b>131- nutritional deficiency diseases</b>	2	2
	232/1	<b>132- Skin diseases</b>	1	2
	233/1	<b>133 - diseases of newly born animals</b>	2	2
	234/ 1	<b>134- Stress diseases during animals transport.</b>		
<b>Infectious diseases</b>	235/ 1	<b>135- Infectious diseases of cattle</b>	2	2
	236/ 1	<b>136- Infectious diseases of sheep and goat</b>	2	2
	237/ 1	<b>137- Infectious diseases camel</b>	2	2
	238/ 1	<b>138 Infectious diseases of equine</b>	2	2
	239/ 1	<b>139- Infectious diseases of pet animals</b>	2	2
	240/ 1	<b>140- Infectious diseases lab animals</b>	1	2
	241/ 1	<b>141- Infectious diseases of udder and newly born animals</b>	2	2
	242/ 1	<b>142- Infectious diseases buffaloes</b>	2	1
	243/1	<b>143- Infectious diseases of wild animals.</b>		





<b>Forensic medicine and toxicology</b>	244/1	<b>144- Forensic medicine and veterinary procedures</b>	2	2
	245/1	<b>145- general toxicology</b>	2	2
	246/1	<b>146- environmental toxicology</b>	2	2
	247/1	<b>147- forensic toxicology</b>	2	2
	248/1	<b>148- laboratory diagnostic toxicology</b>	2	2
	249/1	<b>149- Drug toxicology</b>		
<b>Theriogenology</b>	250/1	<b>150- Female infertility (special specific courses in ruminants- equine- pet animals)</b>	2	2
	251/1	<b>151- Male infertility (special specific courses in ruminants- equine- pet animals)</b>	2	2
	252/1	<b>152- Genital diseases.</b>		
	253/1	<b>153 - obstetrics (special specific courses in farm and pet Animals)</b>	2	2
	254/1	<b>153- reproduction and immunity</b>	1	2
	255/1	<b>155- artificial insemination in ruminants</b>	2	2
	256/1	<b>156- artificial insemination in equine</b>	2	2
	257/1	<b>157- artificial insemination in pet animals</b>	1	2
	258/1	<b>158- embryo transfer</b>	1	2
<b>Veterinary Surgery</b>	259/1	<b>159- General surgery (advanced)</b>	2	2
	260/1	<b>160- Special surgery( organs)</b>	2	3
	261/1	<b>161- surgery of eye, ear, nose and larynx</b>	2	2
	262/1	<b>162 digestive system surgery</b>	2	2
	263/1	<b>163- surgery of the limbs, hoof and claws</b>	2	2
	264/1	<b>164- experimental surgery</b>	2	2
	265/1	<b>165- anesthesiology</b>	1	1
	266/1	<b>166- radiology and ultrasonography</b>	2	2
<b>Poultry and rabbit diseases</b>	267/1	<b>167- bacterial diseases of poultry</b>	2	2
	268/1	<b>168- viral diseases of poultry</b>	2	2
	269/1	<b>169- fungal diseases of poultry</b>	2	2
	270/1	<b>170 parasitic diseases of poultry</b>	1	2
	271/1	<b>171 - nutritional diseases of poultry</b>	1	2



	272/1	<b>172-diseases of rabbit (advanced)</b>	2	2
	273/1	<b>173-Diseases of wild and migrating birds</b>	2	2
	274/1	<b>174- Preventive vaccines and their evaluation in poultry</b>	2	2
	275/1	<b>175- Laboratory diagnosis of poultry diseases.</b>		
<b>Animal and environmental hygiene</b>				
	276/1	<b>176- farm animal hygiene ( advanced)</b>	2	2
	277/1	<b>177- poultry hygiene ( advanced)</b>	2	2
	278/1	<b>178- environmental hygiene and pollution</b>	2	2
	279/1	<b>179- control of contagious diseases</b>	2	2
	280/1	<b>180- eradication of rodents and disease vector</b>	2	2
	281/1	<b>181- insecticides and public health</b>	2	2
	282/1	<b>182-hygiene of animal enclosures- specific courses in :- cattle houses – poultry houses – rabbit houses- pet animals house3s – experimental animals houses</b>	2	2
	283/1	<b>183-disinfections and disinfectants</b>	2	2
	284/1	<b>184- veterinary epidemiology – specific courses in animal environment</b>	2	-
<b>Zoonoses</b>				
	285/1	<b>185- advanced zoonoses ( specific courses in bacterial and Mycotic diseases – viral diseases – parasitic diseases)</b>	2	2
	286/1	<b>186- role of rodents in transmission of zoonoses</b>	2	2
	287/1	<b>187- role of wild animals in transmission of zoonoses</b>	2	2
	288/1	<b>188- role of birds (special courses in: poultry, wild migrating or pets) in transmission of zoonoses</b>		
<b>Genetics and genetic engineering</b>				
	289/1	<b>189- Genetics of microorganisms.</b>	1	2
	290/1	<b>190- Genetic engineering( advanced)</b>	1	2
	291/1	<b>191- Cytological genetics</b>	1	-
	292/1	<b>192- Genetics of Populations</b>	2	-
	293/1	<b>193- physiological genetics</b>	2	-
	294/1	<b>194- Chemical and radiological genetics.</b>	1	2



<b>Animal production</b>	295/1	<b>195- Animal breeding and improvement (advanced).</b>	2	-
	296/1	<b>196- Poultry breeding and improvement(advanced).</b>	2	-
	297/1	<b>197- Cattle and buffalo production (advanced).</b>	2	2
	298/1	<b>198- Sheep and goat production (advanced).</b>	2	2
	299/1	<b>199- Poultry production (advanced).</b>	2	2
	300	<b>200-Rabbit production (advanced).</b>	2	2
	301	<b>201-Improving by artificial insemination in poultry and rabbits.</b>	2	2
<b>Fish diseases and management</b>	302/1	<b>202- Biology of fish.</b>	2	2
	303/1	<b>203-Fish diseases (advanced)</b>	2	2
	304/1	<b>204-Fish farms.</b>	1	2
	305/1	<b>205-Fish breeding .</b>	2	2
<b>Economic and farms management</b>	306/1	<b>206- economics of animals and dairy production</b>	2	-
	307/1	<b>207- economics of poultry farms</b>	2	-
	308/1	<b>208-economics of fish farms</b>	2	-
	309/1	<b>209- feasibility studies</b>	2	-
	310/1	<b>210- farm management</b>	2	-
	311/1	<b>211- economics of beef production</b>	2	-
<b>Biostatistics</b>	312/1	<b>212- Biostatistics (advanced)</b>	2	-
	313/1	<b>213- Experimental design</b>	2	2
	314/1	<b>214- Computer and data processing</b>	2	1

## 6-Teaching and Learning Methods:

*The program features a variety of teaching approaches for different intended learning objectives including:*

- Lectures to gain knowledge and understanding skills
- Writing a review paper to gain the skills of self-learning and presentation
- Practical and lab sessions to gain practical skills
- Seminars

## 7- Students assessments:

The program depends on different assessment ways:

### a. Course assessment:



<b>1- Written examination</b>	<b>For assessment of knowledge, back calling and Intellectual skills</b>
<b>2- Practical examination</b>	<b>For assessment of practical and professional skill</b>
<b>3- Oral examination</b>	<b>For assessment of knowledge and Intellectual skills</b>
<b>4- Student activities</b>	<b>For assessment of knowledge and general and transferable skills</b>

### **b. Master Thesis**

- Annual reports adopted by the Faculty
- Finally, the assessment of thesis measure the individual student ability to work independently in the field specialization
- Final evaluation and approval by a judging committee of at least three professors including one or more of the supervisors and an external professor. This assesses the ability to write a review article, perform the needed practical steps and to present the results in tables and graphs. In addition, the skills of analysis of results and discussion with previous findings obtained by other authors are also assessed.

#### *Assessment of program intended learning outcomes*

<b>Tool or method</b>	<b>ILOs</b>
1- Written	a1,2,3; b1,2,3
2- Oral	a1,2,5; b2,3,4,6
3- Practical	b1,7; c1-3
4- Assignments	a1,2; b4; d1-8
5- Thesis	a4-7; b4-7, c1-5, d1-8

### **8. Marking scale as follow:-**

<b>Excellent</b>	> 90	
<b>Very good</b>	>80	
<b>Good</b>	>70	
<b>Pass</b>	>60	
<b>Fail</b>	<b>Weak</b>	45 to less than 60
	<b>very weak</b>	Less than 45

### **9. Program evaluation methods**

<b>Evaluator</b>	<b>Tool</b>	<b>Sample</b>
Postgraduate Student	Questioners	<b>20%</b>



	meeting	1
Postgraduate alumni	Questioners	5
Stakeholders (employers)	Questioners	10
	Meeting	1
External evaluator/External examiner	Reports	1

## 10. Program Admission Requirements:

The Applicant must normally satisfy the faculty of veterinary medicine- kafrelsheikh University general entrance and requirement. The normal minimum entrance qualification for registration at the faculty on a master's program

- 1- Bachelor degree in Veterinary Medical Sciences of one of the Egyptian Universities or hold a degree in Veterinary Medical Sciences equivalent through the Supreme Council of Universities with general grade at least "Good" and at least grade "Very Good" in specialization.
- 2- Diploma of general grade at least "Good" and at least grade "Very Good" in specialization. The total number of study hours must be not less than 3 weekly in that specialization.
- 3- After he has passed the courses studied during premaster he must perform a research work in a subject approved by the faculty council at least for one year. He must submit the results of this work in thesis that should be approved by the discussion committee.

## 11. Regulations for progression of program

- a) Registration period for the Master in veterinary medicine is at least 2 years after the approval date by the faculty council and it should not exceed a period of 4 years, an extension could be approved by the faculty council depending on the supervisor report that approved by the department council and postgraduate and research committee refers to the universities regulation law.
- b) The student should conduct the courses proposed by both department council and approved by postgraduate and research committee and faculty council and include, 2-5 courses of the postgraduates stated in article (28) in regulation law list and the student will entitled to apply for the exam only after meeting attendance rate for each courses.
- c) The student should pass written, practical and oral exams successfully in all courses, and the examination is held two times annually.
- d) The Faculty council should deprive the student from entering the exam if his attendance rate in the course is less than 75%.



- e) Failure or depriving from entering one or more course did not require reexamination of successful passed courses.
- f) The applicant should conduct an innovate research on the subject that has been registered for at least 2 years from the date of registration approved by the faculty council. And the faculty council depending on a request from the supervisor has the right to authorize the student to do scientific experiments at recognized scientific institute.
- g) The applicant should submit the thesis that accepted by the judging committee in an open discussion and the following policies should be met:
- h) Pass all courses.
- i) The applicant should submit 4 copies of his thesis concerned department council to form committee examining the thesis to be presented to the postgraduate studies committee and the faculty council, and in case of thesis approval by the department council, the applicant will submit 6 copies for the faculty library, 1 copy for public university library before introducing the report of examination committee to the post graduate studies committee and the faculty council.
- j) Registration will be during March and September of each year.
- k) The applicant should submit a request enrolment for the dean who forwards bit to the concerned department council to determine the research subject and the study program and then take calendar after complete documentation on the faculty council for approval.
- l) The thesis title should be identified before being submitted at least 2 months and the judging committee has the right to amend the title without prejudice the subject of research.
- m) The Faculty council has the right to suspend the student enrolment for a certain period if he has acceptable excuse preventing him from continuing his study or research, and his period will not counted within the period stated in article 25.
- n) The applicant should submit 5 hard copies and 10 electronic copies (CDs) of the thesis after its validity approved by the judging committee and head of department to be distributed to the committee members and faculty library and the judging committee can decide the exchange of the thesis with other universities or printing at the expense of the university.

**12. Registration will be cancelled in one of the following cases:**



1. If the supervisors report during the registration period is unsatisfactory (2 reports).
2. If he did not submit his thesis before the end of registration period.
3. If the judging committee rejected the thesis twice.

### **13. Examination Regulations**

- a-** Time of written exam, 3 hours for each course that has 3 hours or more for lecture / practical /week. **If has less than 3 hours/week, the time of exam, is 2 hours only.**
- b-**The final degree of each course which has 3 hours (lecture and practical) per week is **100 and less than 3 hours is 50 degrees and divided into 50% for written exam, and 50% for practical and oral exam.**

### **14. Program completion:**

- Successfully completion of the required courses and submission of a thesis.

**Program Coordinator**

**Dr. Noura fysal Morsy Alkhalefa**

**Head of Department**

**Prof. Dr. Bassiouni Abd Elkader  
Heleil**



## Matching program ILOs with ARS - Matrix

Program ILOs	ARS																							
	K&U (a)						I.S. (b)							P.P. (c)			G.T. (d)							
	1	2	3	4	5	6	1	2	3	4	5	6	7	1	2	3	1	2	3	4	5	6	7	8
K&U	1	2	3	4	5	6																		
I.S.							1	2	3	4	5	6	7											
P.P.														1	2	3								
G.T.																	1	2	3	4	5	6	7	8









---

## **ARS for Master in Veterinary Medicine (Virology)**

### **1) Graduate attributes**

*The graduate should have the ability for:*

- 1) Perfect application of scientific research basics and methodologies, and using its varied tools.
- 2) Application and use of analytical methods in virology.
- 3) Application of gained specialized knowledge and integrating them with the relevant knowledge in virology.
- 4) Awareness with ongoing problems and recent visions in field of virology.
- 5) Identification of professional problems and suggesting solutions.
- 6) Mastering the proper scope of a rate specialized professional skills, and using appropriate technological means to serve the professional practice.
- 7) Effective communication and leading work team.
- 8) Decision making under different professional situations.
- 9) Employ available resources efficiently.
- 10) Awareness with his role in society development and community preservation in the light of global and regional variations.
- 11) Reflection of the commitment to act with integrity, credibility and the rules of profession.
- 12) Academic and professional self- development and ability for life-long learning and progress.

## A) Knowledge and understanding

<b>Adopted ARS</b>		<b>NARS (Master)</b>	
	<i>By the end of this program the graduate should understand and accommodate the following:</i>		<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Theories and principles in the field of virology and related fields.		Theories and principles in the field of specialization and related fields.
2)	General rules for diagnosis of viral diseases through sampling, isolation and identification of viruses.		Mutual effect between professional practice and its impact on environment
3)	Application of his knowledge of virology research methods by evaluating the utility of those techniques to specific research question about diagnosis of certain viruses		Scientific progress in the field of specialization
4)	Applying his knowledge and understanding of molecular structure of viruses to the critical analysis and discussion of the scientific literature.		Legal and ethical basics in professional practice in the field of specialization
5)	Health and safety risk assessments for the veterinary virology laboratory.		Principles and basics of quality assurance in the area of specialization
6)	Basics and ethics of scientific research.		Basics and ethics of scientific research

## B) Intellectual skills

<b>Adopted ARS</b>		<b>NARS (Master)</b>	
	<i>By the end of this program the graduate should understand and accommodate the following:</i>		<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Identification, conceptualization and definition of research problems and questions.		Analysis and judgment of information in the field of specialization and analog to solve problems.
2)	Critical evaluation of his own research data and develop new approach to solve their research questions.		Solving professional problems even in scarcity of data.
3)	Development of creative approaches to solve technical problems or issues associated with running and researches project.		Relating between different knowledge to solve professional problems.
4)	Identification, summarizing and evaluating prior researches finding in a specific area.		Preparing research plan in specialization and/ or writing scientific article on a research problem.
5)	Comprehending areas where further researches necessary and be aware of any which would be beyond current ethical cods.		Risk-assessment of professional practices in specialization.

6)	Development of plans to improve performance in laboratory practice with automation.	Planning for improvement of professional performance.
7)	Using appropriate intellectual strategy to deal with laboratory diagnostic problems.	Taking professional decisions in a variety of professional contexts.

### C) Professional and practical skills

Adopted ARS		NARS (Master)
	<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Mastering basic and recent professional skills of veterinary virology, diagnosis, and prevention of dissemination of animal viral diseases	Mastering basic and recent professional skills in the field of specialization
2)	Writing and evaluating diagnostic reports about viral diseases.	Writing and evaluating professional reports.
3)	Evaluating existing materials and methods used for veterinary virology.	Evaluating existing materials and methods in the area of specialization.

### D) General and transferable skill

Adopted ARS		NARS (Master)
	<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Communicating effectively with teaching staff, colleagues and the community.	Effective communication.
2)	Using information technology in scientific research and publications.	Utilizing information technology to serve development of professional practice.
3)	Demonstrating appropriate attitude towards teaching staff and colleagues.	Self-assessment and determination of personal educational needs.
4)	Identifying and use different sources of information and knowledge.	Using different resources to obtain knowledge and information.
5)	Using appropriate attitude and rules towards teaching staff and colleagues and use evidence based evaluations.	Establishing rules and indicators for assessment of the performance of others.
6)	Respecting the importance of team work.	Team working and leading a team in

		familiar professional contexts.
7)	Doing good control of timing.	Efficient time management.
8)	Performing continuous self-learning.	Self and continuous learning.

## ثانيا :برامج الماجستير

### ١- مواصفات الخريج

- خريج برنامج الماجستير في أي تخصص يجب أن يكون قادرا على:
- ١ .إجادة تطبيق أساسيات و منهجيات البحث العلمي واستخدام أدواته المختلفة
  - ٢ .تطبيق المنهج التحليلي واستخدامه في مجال التخصص
  - ٣ .تطبيق المعارف المتخصصة و دمجها مع المعارف ذات العلاقة في ممارسته المهنية
  - ٤ .إظهار وعيا بالمشاكل الجارية و الرؤى الحديثة في مجال التخصص
  - ٥ .تحديد المشكلات المهنية و إيجاد حلول لها
  - ٦ .إتقان نطاق مناسب من المهارات المهنية المتخصصة، واستخدام الوسائل التكنولوجية المناسبة بما يخدم ممارسته المهنية
  - ٧ .التواصل بفاعلية و القدرة على قيادة فرق العمل
  - ٨ .اتخاذ القرار في سياقات مهنية مختلفة
  - ٩ .توظيف الموارد المتاحة بما يحقق أعلى استفادة و الحفاظ عليها
  - ١٠ . إظهار الوعي بدوره في تنمية المجتمع و الحفاظ على البيئة في ضوء المتغيرات العالمية و الإقليمية
  - ١١ . التصرف بما يعكس الالتزام بالنزاهة و المصداقية و الالتزام بقواعد المهنة
  - ١٢ . تنمية ذاته أكاديميا و مهنيا و قادرا علي التعلم المستمر

### ١٢ -المعايير القياسية العامة

#### ١ المعرفة و الفهم

- بانتهاة دراسة برنامج الماجستير يجب ان يكون الخريج على فهم و دراية بكل من:
- أ -النظريات و الأساسيات المتعلقة بمجال التعلم وكذا في المجالات ذات العلاقة

- ب -التأثير المتبادل بين الممارسة المهنية وانعكاسها علي البيئة  
ت -التطورات العلمية في مجال التخصص  
ث -المبادئ الأخلاقية و القانونية للممارسة المهنية في مجال التخصص  
ج -مبادئ و أساسيات الجودة في الممارسة المهنية في مجال التخصص  
ح -أساسيات وأخلاقيات البحث العلمي

### ٢ المهارات الذهنية

- بانتهاء دراسة برنامج الماجستير يجب ان يكون الخريج قادرا على:  
أ -تحليل و تقييم المعلومات في مجال التخصص و القياس عليها لحل المشاكل  
ب -حل المشاكل المتخصصة مع عدم توافر بعض المعطيات  
ت -الربط بين المعارف المختلفة لحل المشاكل المهنية  
ث -إجراء دراسة بحثية و /أو كتابة دراسة علمية منهجية حول مشكلة بحثية  
ج -تقييم المخاطر في الممارسات المهنية في مجال التخصص  
ح -التخطيط لتطوير الأداء في مجال التخصص  
خ -اتخاذ القرارات المهنية في سياقات مهنية متنوعة

### ٣ المهارات المهنية

- بانتهاء دراسة برنامج الماجستير يجب ان يكون الخريج قادرا على:  
أ -إتقان المهارات المهنية الأساسية و الحديثة في مجال التخصص  
ب -كتابة و تقييم التقارير المهنية  
ت -تقييم الطرق و الأدوات القائمة في مجال التخصص

### ٤ المهارات العامة و المنتقلة

- بانتهاء دراسة برنامج الماجستير يجب أن يكون الخريج قادرا على:  
أ -التواصل الفعال بأنواعه المختلفة  
ب -استخدام تكنولوجيا المعلومات بما يخدم الممارسة المهنية  
ت -التقييم الذاتي و تحديد احتياجاته التعليمية الشخصية  
ث -استخدام المصادر المختلفة للحصول على المعلومات و المعارف  
ج -وضع قواعد و مؤشرات تقييم أداء الآخرين  
ح -العمل في فريق ، وقيادة فرق في سياقات مهنية مختلفة  
خ -إدارة الوقت بكفاءة  
د -التعلم الذاتي و المستمر

---

## COURSE SPECIFICATION (2021 / 2022)

### 1 - Basic Information:

Code number: .....

Course title: **Virology (Basic)**

Academic Year: **Master of Veterinary Medicine Program**

Total teaching hours: 336 h

Lectures: 144 hrs. (48 weeks- 3hrs/week)

Practical: 192 hrs. (48 weeks- 4hrs/week)

### 2 - OVERALL AIMS OF THE COURSE:

*By the end of this course, the student should acquire the concepts, principles and skills related to viruses and skills of diagnosis, isolation and identification of different viral diseases.*

### 3 - INTENDED LEARNING OUTCOMES (I. L. Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

- a.1. Describe morphology, physiology, viral replication of viruses and infection cycle.
- a.2. Explain viral pathogenesis, viral immunity and method of disease induction.
- a.3. List methods of viral diagnosis, virus control and prevention.
- a.4. Recognize RNA& DNA viruses that affect different host species and their zoonotic importance if present.

#### 3-B: INTELLECTUAL SKILLS:

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

- b.1. Interpret the results of serological techniques.
- b.2. Evaluate viral and molecular reports.
- b.3. Detect the causal relationship of microbes and diseases according to evidence.
- b.4. Categorize virus families according to replication strategy.

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

- c.1. Test samples for virus identification.
- c.2. Isolate viruses by different methods.
- c.3. Perform serological tests for virus identification..
- c.4. Distinguish the basic principles of virus isolation via cell culture and Embryonated eggs.
- c.5. Do the simple approach to the modern molecular virology and their laboratory applications.

#### 3- D: GENERAL SKILLS:

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

- d.1. Communicate effectively with his professors, and collages.
- d.2. Utilize different sources of knowledge and information
- d.3. Use information technology to serve the professional practice.
- d.4. Manage time efficiently.



#### 4 - COURSE CONTENTS:

Topic	No. of hours		
	Lectures	Practical	Total
1- Introduction on viruses	14	---	14
2- Virus morphology and symmetry.	14	28	42
3- Physical and chemical proprieties of viruses.	14	48	62
4- Virus purification and concentration.	14	20	34
5- Virus replication.	14	24	38
6- Virus pathogenesis.	14	---	14
7- Virus damage to tissues.	14	---	14
8- Virus isolation and identification	28	48	76
9- Classification of viruses	18	24	42
Total	144	192	336

#### 5- TEACHING & LEARNING METHODS:

\* **Advanced lectures:** PowerPoint presentations including videos, and whiteboard  
Discussion and brain storming

\* **Practical sessions:**

\* **Self-Learning activities:** Mini reviews from the web and the library  
Making individual reports about virology

\* **Distance Teaching and Learning:** Using the Microsoft Teams platform, when necessary, such as during COVID-19 pandemics or when onsite (face-to-face) education is halted due to weather emergencies or other reasons. Distance teaching may be offered synchronous or non-synchronous.

Teaching and Learning Methods	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Advanced lectures*	a1 to a4	b1 to b4		d1, d4
Practical sessions		b1 to b4	c1 to c5	d2, d4
Self-Learning activities				d2, d3, d4
Distance Teaching and Learning	a1 to a4	b1 to b4	c1 to c5	d1 to d4

\*Lectures and some practical topics may be offered face to face or via distance teaching and 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:-

<b>7.a Used methods</b>	Written examination	Oral examination	Practical examination	Activities
<b>7.b time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year	All over the academic year
<b>7.c grads</b>	50	20	20	10

6.1. Methods	7. Student Assessment			
	Intended Learning Outcomes Covered			
	KU	IS	PPS	GTS
Written exams	a1 to a4	b1 to b4		d4
Practical exams			c1 to c5	d2, d3
Oral exams	a1 to a4	b1 to b4		d1
Student activities	a1, a4,			d1 to d4

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: Essential Books

- Maclachlan N., Dubovi E.J. (2016): Fenner's Veterinary Virology, Fifth Edition
- Sharma, S.N. (2009): Veterinary Virology volume 4
- Jane Flint, Vincent R. Racaniello, Glenn F. Rall, Theodora Hatzioannou, Anna Marie Skalka 2020: Principles of Virology, Volume 1: Molecular Biology, 5th Edition.
- Viral Vectors in Veterinary Vaccine Development A Textbook Thiru Vanniasinkam, Suresh K. Tikoo, Siba K. Samal, 2020

### 8-2: Recommended books:

- Principles of virology: molecular biology, pathogenesis and control of animal viruses. 2nd ed. Flint et al. 2004
- Zuckerman A.J., Banatvala J.E., Schoub B.D., Griffiths P.D., Mortimer P. (2009): Principles and Practice of Clinical Virology, 6th Edition

### Scientific Journals

- Virology Journal
- Viruses Journal
- Journal of Virological methods
- Journal of virology research and advances in Vaccine
- Journal of virological sciences
- Journal of virology

### Scientific websites

- The Egyptian Knowledge Bank: <https://www.ekb.eg/web/guest/home>
- [www.Sciencedirect.com](http://www.Sciencedirect.com)
- [www.OIE.int.com](http://www.OIE.int.com)
- [www.Fao.org](http://www.Fao.org)



**Kafrelsheikh University**  
Faculty of Veterinary Medicine



- 
- [www.Ivis.org](http://www.Ivis.org)
  - [www.pubmed.gov](http://www.pubmed.gov)
  - [www.asmnews@asmusa.org](mailto:www.asmnews@asmusa.org)

**Course Coordinator**

**Head of Department**

**Dr. Asmaa Magouz**

**Prof. Dr. Basiouny Hulail**







**Kafrelsheikh University**  
Faculty of Veterinary Medicine



**Kafrelsheikh University**

**Faculty of Veterinary Medicine**

**Department of Hygiene & Preventive Medicine**

# **Program Specification for Master Degree**

## **(2021 - 2022)**

**Program Title:**

**Master of The Veterinary Science**  
**(Zoonoses)**



## **A. ADMINISTRATIVE INFORMATION:-**

- 1- **Awarding Body:** Kafrelsheikh University
- 2- **Teaching Body:** Faculty of Veterinary Medicine
- 3- **Department responsible:** **Animal Hygiene and preventive medicine**
- 4- **Program Title:** Master of Veterinary Medical Sciences in **Zoonoses**
- 5- **Final award:** Master Degree
- 6- **Registration period:** 2-4 years
- 7- **Program Coordinator:**. Dr. Waleed maged
- 8- **External evaluator:** **prof.dr. kamal kamal Metwally**

## **B- Professional information:**

### **1-Educational aims of the Program:**

- Provides graduates the opportunity to develop communication and teaching skills and the experience of scientific research.
- Develops the ability of graduate to engage critically with recent techniques and diagnostic tools in the field of zoonoses.
- Supplies the graduates with the most recent knowledge in science and technological applications in zoonoses.
- Demonstrates an awareness of the connections between disciplines and develop the ability to engage critically with scientific literature and to critically review and present their own research data for the protection and promotion of the animal health.
- Allows graduates to develop practical research project.
- Enables graduates to achieve competency in modern laboratory technology.

### **2- Academic standards:**

Academic reference standards (ARS) adopted by the faculty committee No 1 (14/9/2014)

### **3-Graduate attributes:**

**The graduate must have the ability to:**

- 3.1. Perfect applying scientific research basics and methodology, and using of its varied tools .
- 3.2. Apply and use the analytical methodology in field of Zoonoses.
- 3.3. Apply the gained specific knowledge and the relevant ones in professional practice.
- 3.4. Aware with current problems and recent visions in the field of Zoonoses.



- 3.5. Identify the professional problems and suggest the solutions.
- 3.6. Mastery of an appropriate scale of specific professional skills and the use of an appropriate technological means to serve the professional practice.
- 3.7. Communicate effectively and able to lead team work
- 3.8. Decision-making in various professional contexts
- 3.9. Employment the available resources to achieve the highest benefit and preserve them.
- 3.10. Aware obviously of his role in the society development and community preservation in the light of the global and regional changes.
- 3.11. Deposit in a manner reflecting the commitment to integrity, credibility, and the professional rules.

#### **4-Program intended learning outcomes:**

##### **A. Knowledge and understanding:**

**On successful completion of this Program, the graduate will be able to :**

- a.1. Recognize the Professional theories, principles and knowledge in field of Zoonoses.
- a.2 Realize the Interaction of professional practice and its reflection on the community
- a.3 Recognize the Scientific developments in field of Zoonoses.
- a.4 Recognize the Ethical and Legal principles for professional practice in field of Zoonoses.
- a. 5 Recognize the Basics and principles of the Quality of professional practice in field of Zoonoses.
- a. 6 Recognize the basics and ethics of scientific research.

##### **B. Intellectual skills:**

**On successful completion of this Program, the graduate will be able to :**

- b.1. Analyze and judge the data about evidences in Zoonoses.
- b.2. Solve problems about the cause of infestation or infection in addition to identification of the zoonotic importance of the disease.
- b.3. Relating data in microbiology, virology, parasitology with those of Zoonoses to solve professional problems.
- b.4. Identification, summarizing and evaluating prior researches finding in Zoonoses and publishing scientific articles in conferences and specialized journals.
- b.5. Comprehending areas where further researches are necessary and be aware with any trials beyond current ethical cods.
- b.6. Development of plans to improve performance in zoonotic laboratory practice with automation.
- b.7. Using appropriate intellectual strategy to deal with laboratory diagnostic problems.



### **C. Practical and professional skills:**

**At the end of the program, graduate must be able to:**

- c.1. Investigate using recent techniques and tools necessary to diagnose and characterize pathogens of zoonotic importance.
- c.2. Apply principles of good experimental design and analysis to his own research project
- c.3. Plan a research project in the field of Zoonoses with a consideration to the available materials and methods and technical, ethical and safety issues.
- c.4. Perform essential laboratory skills that underpin techniques associated with sampling, pathogen isolation different techniques for pathogen detection

### **D. General and transferable skills:**

**At the end of the program, graduate must be able to:**

- d.1. Communicate effectively with teaching staff, colleagues and the community.
- d.2. Use information technology in scientific research and publications.
- d.3. Demonstrate appropriate attitude towards teaching staff and colleagues.
- d.4. Identify and use different sources of information and knowledge.
- d.5. Use appropriate attitude and rules towards teaching staff and colleagues and use evidence based evaluations.
- d.6. Respect the importance of team work.
- d.7. Do good control of timing.
- d.8. Perform continuous self-learning..

### **5- program structure:**

#### **a) Premaster courses – at least one academic year**

	Lecture (hours/week)	Practical (hours/week)
Fundamental (core) course	3	4
Research methodology	1	3
2-5 Elective Courses (10-12 hours)	Offered by other departments and are selected from the list below according to thesis topic	

- b) MVSc Thesis (at least one academic year)
  - All master-degree students should prepare a master thesis.
  - The department and the ethical committees must approve the protocol of the research.
  - The thesis should include a review part and a research part.
  - The thesis is supervised by one or more senior staff members of the department responsible for the program and may include other specialties according to the nature of the research.



- The thesis should be evaluated and approved by a committee of three professors including one of the supervisors and an external professor.

*A number of subsidiary courses are selected from the following list according to the title of the research work:*

Subject	Code	Course title	No of hours/week	
			Lecture	Practical Lab
Anatomy and embryology	101/1	<b>1- Applied anatomy</b>	2	2
	102/1	<b>2- Anatomical techniques and surface anatomy</b>	2	2
	103/1	<b>3- Osteology and arthrology</b>	2	2
	104/1	<b>4- Comparative digestive system</b>	2	2
	105/1	<b>5- Comparative uro-genital system</b>	2	2
	106/1	<b>6-Comparative respiratory system</b>	2	2
	107/1	<b>7- Comparative cardiovascular system</b>	2	2
	108/1	<b>8- Comparative nervous system and endocrine glands</b>	2	2
	109/1	<b>9- General and special embryology</b>	2	2
	110/1	<b>10- Avian anatomy</b>	1	2
Histology	111/1	<b>11- cytology and cytochemistry</b>	1	2
	112/1	<b>12- general histology</b>	2	2
	113/1	<b>13- Histology and histochemistry of blood, lymph and cardiovascular system.</b>	1	1
	114/1	<b>14- Comparative histology and histochemistry of body muscles, heart and blood vessels</b>	1	1
	115/1	<b>15- Comparative histology and histochemistry of respiratory system</b>	1	1
	116/1	<b>16-Comparative histology and histochemistry of digestive system</b>	2	2
	117/1	<b>17- Comparative histology and histochemistry of uro-genital system</b>	2	2
	118/1	<b>18- Comparative histology and histochemistry of nervous and endocrine systems</b>	2	2
	119/1	<b>19- Histology and histochemistry of special sensors</b>	1	2
	120/1	<b>20-Histology and histochemistry of skin, hooves, claws and</b>	2	2



		<b>Nails</b>		
<b>Physiology</b>	121/1	<b>21- Avian histology</b>	2	2
	122/1	<b>22- Fish histology</b>	1	2
	123/1	<b>23- Physiology of mammalian endocrine and reproduction</b>	2	2
	124/1	<b>24- poultry physiology (advanced)</b>	2	2
	125/1	<b>25- physiology of muscle and nerve</b>	1	2
	126/1	<b>26- physiology of ruminants</b>	2	2
	127/1	<b>27- physiology of environment, adaptation and cell</b>	2	2
	128/1	<b>28- physiology of blood</b>	2	2
	129/1	<b>29- physiology of digestion, metabolism and energy</b>	2	2
	130/1	<b>30- Physiology in pollution</b>	1	2
	131/1	<b>31- Radioactive isotopes and biological uses</b>	2	2
	132/1	<b>32- Physiology of heights</b>	1	1
	133/1	<b>33-Fish physiology.</b>	1	2
<b>Biochemistry</b>	134/1	<b>34- Basics of biochemistry</b>	2	3
	135/1	<b>35- Metabolism</b>	2	2
	136/1	<b>36- Biochemistry of tissue and body fluids .</b>	2	2
	137/1	<b>37- Biochemistry of hormones and reproduction</b>	2	2
	138/1	<b>38- Feeding biochemistry</b>	2	2
	139/1	<b>39- Clinical biochemistry</b>	2	2
	140/1	<b>40- Avian biochemistry</b>	2	2
	141/1	<b>41- Microbial biochemistry</b>	2	2
	142/1	<b>42- Biochemistry of radiation</b>	1	2
143/1	<b>43- Fish biochemistry</b>			
<b>Animal behavior and management</b>	144/1	<b>44- Behavior and management of ruminants ( specific courses in cattle, buffalo, sheep, camels and goats)</b>	2	3
	145/1	<b>45- Behavior and management of horses</b>	2	3
	146/1	<b>46- Behavior and management of pet animals</b>	1	2
	147/1	<b>47- Behavior and management of laboratory animals</b>	1	2
	148/1	<b>48- Behavior and management of wild animals</b>	2	2
	149/1	<b>49- Behavior and management of poultry</b>	2	2
	150/1	<b>50- Behavior and management of rabbit</b>	1	2
	151/1	<b>51- Behavior of experimental animals</b>	1	2
<b>Nutrition and clinical nutrition</b>	152/1	<b>52- Basics of animal nutrition</b>	2	2
	153/1	<b>53- feedstuff</b>	2	2
	154/1	<b>54- nutrition of farm animals and fish specific courses in ( cattle and buffalo nutrition – sheep and goat nutrition – camel nutrition- equine</b>	2	2



		<b>nutrition – fish nutrition)</b>		
	155/1	<b>55- poultry and rabbit nutrition( advanced)</b>	2	2
	156/1	<b>56- wild animal nutrition</b>	1	2
	157/1	<b>57- laboratory animal nutrition</b>	1	2
	158/1	<b>58- feed additives</b>	1	2
	159/1	<b>59- feedstuff analysis</b>	2	2
	160/1	<b>60- Quality control of feed and feed factories</b>	2	2
	161/1	<b>61- Clinical nutrition and malnutrition</b>	2	2
	162/1	<b>62- Fish nutrition</b>	1	2
<b>Pathology</b>	163/1	<b>63- General pathology and neoplasm( progressive)</b>	2	2
	164/1	<b>64-pathology of microbial and parasitic diseases in animal</b>	2	2
	165/1	<b>65- pathology of bad nutrition</b>	1	2
	166/1	<b>66- pathology of environmental pollution</b>	1	2
	167/1	<b>67- pathology of reproductive diseases</b>	1	2
	168/1	<b>68- Avian pathology</b>	2	2
	169/1	<b>69-Experimental pathology</b>	2	2
	170/1	<b>70- toxins pathology</b>	2	2
	171/1	<b>71- surgical pathology</b>	2	2
	172/1	<b>72- Pathology of experimental animals.</b>		
	173/1	<b>73- Pathology of genetics</b>		
	174/1	<b>74-- Fish pathology</b>	2	2
<b>Clinical pathology</b>	175/1	<b>75- Advanced clinical pathology</b>	2	2
	176/1	<b>76-Organ function tests and body and urine balance</b>	2	2
	177/1	<b>77- Clinical hematology and bone marrow examination</b>	1	2
<b>Bacteriology, immunology and mycology</b>	178/1	<b>78- General bacteriology(advanced)</b>	1	2
	179/1	<b>79-systemic bacteriology</b>	2	3
	182/1	<b>80- Advanced immunology</b>	2	2
	183/2	<b>81- Advanced mycology</b>	1	2
<b>Virology</b>	180/3	<b>82- General virology</b>	1	2
	181/4	<b>83-Systemic virology( specific courses)</b>	2	3
	182/5	<b>84- Advanced immunology</b>	2	2
<b>Mixed courses between Bacteriology and Virology</b>	184/1	<b>85- Microbiology of poultry</b>	2	2
	185/1	<b>86- Microbiology of ??????</b>	1	2
	186/1	<b>87- Microbiology of animal product</b>	2	2
	187/1	<b>88- Fish Microbiology</b>	1	2
		<b>81- Advanced immunology</b>	2	2
<b>Parasitology</b>	188/1	<b>89- Veterinary medical entomology and acarology</b>	2	2
	189/1	<b>90-helminthology</b>	2	2



	190/1	<b>91- protozoology</b>	2	2
	191/1	<b>92- Avian and rabbits parasitology</b>	2	2
	192/1	<b>93Malacology and its vet. Importance</b>	1	2
	193/1	<b>94- parasitic Immunology</b>	1	2
	194/1			
	195/1			
	196/1		-	-
	197/1	<b>98- Physiology and biochemistry of parasites</b>	2	2
	198/1	<b>99- Fish parasitology</b>	1	2
<b>Pharmacology</b>	199/1	<b>100- Aeneral pharmacology ( advanced)</b>	2	2
	200/1	<b>101- pharmacology of autonomic nervous system and autocoid</b>	2	2
	201/1	<b>102- pharmacology of central nervous system</b>	2	2
	202/1	<b>103 pharmacology of anesthesia</b>	2	2
	203/1	<b>104- Systemic pharmacology</b>	2	2
	204/1	<b>105- pharmacology of metabolism</b>	2	2
	205/1	<b>106- pharmacology of hormones</b>	2	2
	206/1	<b>107-Chemotherapy</b>	2	2
	207/1	<b>108-Biological evolution of drug</b>	1	1
<b>Hygiene and control of milk and dairy products</b>	208/1	<b>108- Hygiene and control of milk and dairy products</b>	2	2
	209	<b>109- Microbiology of milk and dairy products</b>	2	2
	210/1	<b>110- Milk technology and preservation</b>	2	2
	211/1	<b>111- Food analysis</b>	2	2
	212/1	<b>112- Food poisoning</b>	1	2
	213/1	<b>113- Specific courses on sources of contamination, disturbances of milk production, milk born diseases, hygiene of table egg, edible fats and oils</b>	1	1
	214/1	<b>114- The sanitation of dairy plant</b>	2	2
<b>Control of meat hygiene and their products</b>	215/1	<b>115- Slaughter animal Hygiene</b>	1	2
	216/1	<b>116- Abattoir management and hygiene</b>	2	2
	217/1	<b>117- Hygienic control of meat and their product</b>	2	2
	218/1	<b>118 inspection of poultry meat.</b>	1	2
	219/1	<b>119- Food technology</b>	1	2
	220/1	<b>120- Microbiology of meat and fish meats and their product</b>	2	1
	221/1	<b>121- Chilled meal microbiology</b>	1	2
	222/1	<b>122- Analysis of meat and fish and their product</b>	1	2
	223/1	<b>123- Preservation of meat, poultry, fish and their products</b>	1	2
	224/1	<b>124- Sanitation affairs of meat and fish plants.</b>	2	2



<b>Internal medicine</b>	225/1	<b>125- advanced general medicine</b>	2	2
	226/1	<b>126- disease of ruminants( cattle, buffalo, camels, sheep and goats)</b>	3	3
	227/1	<b>127- diseases of equines</b>	2	2
	228/1	<b>128 diseases of pet animals</b>	2	2
	229/1	<b>129- diseases of wild animals</b>	2	2
	230/1	<b>130- diseases of metabolic disorders</b>	2	2
	231/1	<b>131- nutritional deficiency diseases</b>	2	2
	232/1	<b>132- Skin diseases</b>	1	2
	233/1	<b>133 - diseases of newly born animals</b>	2	2
234/ 1	<b>134- Stress diseases during animals transport.</b>			
<b>Infectious diseases</b>	235/ 1	<b>135- Infectious diseases of cattle</b>	2	2
	236/ 1	<b>136- Infectious diseases of sheep and goat</b>	2	2
	237/ 1	<b>137- Infectious diseases camel</b>	2	2
	238/ 1	<b>138 Infectious diseases of equine</b>	2	2
	239/ 1	<b>139- Infectious diseases of pet animals</b>	2	2
	240/ 1	<b>140- Infectious diseases lab animals</b>	1	2
	241/ 1	<b>141- Infectious diseases of udder and newly born animals</b>	2	2
	242/ 1	<b>142- Infectious diseases buffaloes</b>	2	1
	243/1	<b>143- Infectious diseases of wild animals.</b>		
<b>Forensic medicine and toxicology</b>	244/1	<b>144- Forensic medicine and veterinary procedures</b>	2	2
	245/1	<b>145- general toxicology</b>	2	2
	246/1	<b>146- environmental toxicology</b>	2	2
	247/1	<b>147- forensic toxicology</b>	2	2
	248/1	<b>148- laboratory diagnostic toxicology</b>	2	2
	249/1	<b>149- Drug toxicology</b>		
<b>Theriogenology</b>	250/1	<b>150- Female infertility (special specific courses in ruminants- equine- pet animals)</b>	2	2
	251/1	<b>151- Male infertility (special specific courses in ruminants- equine- pet animals)</b>	2	2
	252/1	<b>152- Genital diseases.</b>		
	253/1	<b>153 - obstetrics (special specific courses in farm and pet Animals)</b>	2	2
	254/1	<b>153- reproduction and immunity</b>	1	2
	255/1	<b>155- artificial insemination in ruminants</b>	2	2
	256/1	<b>156- artificial insemination in equine</b>	2	2
	257/1	<b>157- artificial insemination in pet animals</b>	1	2
	258/1	<b>158- embryo transfer</b>	1	2



<b>Veterinary Surgery</b>	259/1	<b>159- General surgery (advanced)</b>	2	2
	260/1	<b>160- Special surgery( organs)</b>	2	3
	261/1	<b>161- surgery of eye, ear, nose and larynx</b>	2	2
	262/1	<b>162 digestive system surgery</b>	2	2
	263/1	<b>163- surgery of the limbs, hoof and claws</b>	2	2
	264/1	<b>164- experimental surgery</b>	2	2
	265/1	<b>165- anesthesiology</b>	1	1
	266/1	<b>166- radiology and ultrasonography</b>	2	2
<b>Poultry and rabbit diseases</b>	267/1	<b>167- bacterial diseases of poultry</b>	2	2
	268/1	<b>168- viral diseases of poultry</b>	2	2
	269/1	<b>169- fungal diseases of poultry</b>	2	2
	270/1	<b>170 parasitic diseases of poultry</b>	1	2
	271/1	<b>171 - nutritional diseases of poultry</b>	1	2
	272/1	<b>172-diseases of rabbit (advanced)</b>	2	2
	273/1	<b>173-Diseases of wild and migrating birds</b>	2	2
	274/1	<b>174- Preventive vaccines and their evaluation in poultry</b>	2	2
	275/1	<b>175- Laboratory diagnosis of poultry diseases.</b>		
<b>Animal and environmental hygiene</b>	276/1	<b>176- farm animal hygiene ( advanced)</b>	2	2
	277/1	<b>177- poultry hygiene ( advanced)</b>	2	2
	278/1	<b>178- environmental hygiene and pollution</b>	2	2
	279/1	<b>179- control of contagious diseases</b>	2	2
	280/1	<b>180- eradication of rodents and disease vector</b>	2	2
	281/1	<b>181- insecticides and public health</b>	2	2
	282/1	<b>182-hygiene of animal enclosures- specific courses in :- cattle houses – poultry houses – rabbit houses- pet animals house3s – experimental animals houses</b>	2	2
	283/1	<b>183-disinfections and disinfectants</b>	2	2
	284/1	<b>184- veterinary epidemiology – specific courses in animal environment</b>	2	-
<b>Genetics and genetic engineering</b>	289/1	<b>189- Genetics of microorganisms .</b>	1	2
	290/1	<b>190- Genetic engineering( advanced)</b>	1	2
	291/1	<b>191- Cytological genetics</b>	1	-
	292/1	<b>192- Genetics of genuses.</b>	2	-
	293/1	<b>193- physiological genetics</b>	2	-
	294/1	<b>194- Chemical and radiological genetics.</b>	1	2
<b>Animal production</b>	295/1	<b>195- Animal breeding and improvement (advanced).</b>	2	-
	296/1	<b>196- Poultry breeding and improvement(advanced).</b>	2	-



	297/1	<b>197- Cattle and buffalo production (advanced).</b>	2	2
	298/1	<b>198- Sheep and goat production (advanced).</b>	2	2
	299/1	<b>199- Poultry production (advanced).</b>	2	2
	300	<b>200-Rabbit production (advanced).</b>	2	2
	301	<b>201-Improving by artificial insemination in poultry and rabbits.</b>	2	2
<b>Fish diseases and management</b>	302/1	<b>202- Biology of fish.</b>	2	2
	303/1	<b>203-Fish diseases (advanced)</b>	2	2
	304/1	<b>204-Fish farms.</b>	1	2
	305/1	<b>205-Fish breeding .</b>	2	2
<b>Economic and farms management</b>	306/1	<b>206- economics of animals and dairy production</b>	2	-
	307/1	<b>207- economics of poultry farms</b>	2	-
	308/1	<b>208-economics of fish farms</b>	2	-
	309/1	<b>209- feasibility studies</b>	2	-
	310/1	<b>210- farm management</b>	2	-
	311/1	<b>211- economics of beef production</b>	2	-
<b>Biostatistics</b>	312/1	<b>212- Biostatistics (advanced)</b>	2	-
	313/1	<b>213- Experimental design</b>	2	2
	314/1	<b>214- Computer and data processing</b>	2	1

## 6-Teaching and Learning:

- The program features a variety of teaching approaches for different intended learning objectives, including a combination of lectures, seminars, presentation, practical lab assignments, research work and library work leading to write thesis. Teaching staff specifically refer to reference studies in Zoonoses illustrate important theoretical, ethical, methodological and practical issues to the students.

## 7- Student assessments:

*The program depends on different assessment ways:*

### a. Course assessment:

#### 1. written exam

- To assess understanding the overall aim of the course, knowledge and understanding, intellectual skills and general and transferable skills

#### 2. Practical exam

- To assess abilities of recognition and recall as well as the student's acquired practical and professional skills.

#### 3. Oral exam

- To assess skills of intellectual analysis and discussion beside the basic scientific





knowledge.

**b. Master Thesis**

- Annual reports adopted by the Faculty
- Finally, the assessment of thesis measure the individual student ability to work independently in the field specialization
- Final evaluation and approval by a judging committee of at least three professors including one or more of the supervisors and an external professor. This assesses the ability to write a review article, perform the needed practical steps and to present the results in tables and graphs. In addition, the skills of analysis of results and discussion with previous findings obtained by other authors are also assessed

*Assessment of program intended learning outcomes*

Tool or method	ILOs
Written	a1-2; b2,3,7
Oral	a1-2; b2,3,7
Practical	b1,2,3,7,; c1-4;
Thesis	a3-6, b4,5,6,7; c1-4, d1-8

**8-Marking scale as follow:-**

<b>Excellent</b>		> 90
<b>Very good</b>		>80
<b>Good</b>		>70
<b>Pass</b>		>60
<b>Fail</b>	<b>Weak</b>	45 to less than 60
	<b>very weak</b>	Less than 45

**9-Evaluation of Program outcomes**

Code	Evaluator	Tools	Sample
<b>1</b>	<b>Postgraduate students</b>	<b>Questioners</b>	<b>20%</b>
<b>2</b>	<b>Stakeholder</b>	<b>Questioners &amp; Open discussion</b>	<b>10</b>
<b>3</b>	<b>Alumni</b>	<b>Questioners</b>	<b>5</b>
<b>4</b>	<b>External examiners</b>	<b>Questioners</b>	<b>1</b>
<b>5</b>	<b>External evaluators</b>	<b>report</b>	<b>1</b>

**10. Program Entrance Requirements:**



-The Applicant must normally satisfy the faculty of veterinary medicine- kafrelsheikh University general entrance and requirement. The normal minimum entrance qualification for registration at the faculty on a masters Program in Zoonoses at least one of the following:

- 1- Bachelor degree in Medical veterinary science of one of the Egyptian universities or hold a degree in Medical veterinary science equivalent through the Supreme Council of Universities with general grade at least “Good” and at least grade Very Good” in specialization or the average courses covered the specialization
- 2- Diploma of Zoonoses of at least grade “Good”.
- 3- Applications with an appropriate technical qualification, or equivalent qualification and experience from overseas are also welcomed.

### 11. Regulations for progression Of Program

- a) Registration period for the MVSc in veterinary medical science is at least 2 years after the approval date by the faculty council and it should not exceed a period of 4 years, an extension could be approved by the faculty council depending on the supervisor report that approved by the department council and postgraduate and research committee refers to the universities regulation law.
- b) The student should conduct the courses proposed by both department council and approved by postgraduate and research committee and faculty council and include, 5 courses of the postgraduates stated in article (28) in regulation law list and the student will entitled to apply for the exam only after meeting attendance rate for each courses.
- c) -The student should pass written, practical and oral exams successfully in all courses, and the grade will be estimated according to one of the estimates stated in the article (34c).
- d) -The Faculty council should deprive the student from entering the exam if his attendance rate in the course is less than 75%.
- e) -Failure or depriving from entering one or more course did not requires reexamination of successful passed courses.
- f) -The applicant should conduct an innovate research on the subject that has been registered for at least 2 years from the date of registration approved by the faculty council. And the faculty council depending on a request from the supervisor has the right to authorize the student to do scientific experiments at recognized scientific institute.
- g) -The applicant should submit the thesis that accepted by the judging committee in an open discussion and the following policies should be met:
- h) -Pass all courses.
- i)-The applicant should submit 4 copies of his thesis concerned department council to form committee examining the thesis to be presented to the postgraduate studies committee and the faculty council, and in case of thesis approval by the department council, the applicant will submit 6 copies for the faculty library, 1 copy for public university library before introducing the report of examination committee to the post graduate studies committee and the faculty council.
- j)-Registration will be during March and September of each year.



- k) -The applicant should submit a request enrolment for the dean who forwards it to the concerned department council to determine the research subject and the study program and then take calendar after complete documentation on the faculty council for approval.
- l)-The thesis title should be identified before being submitted at least 2 months and the judging committee has the right to amend the title without prejudice the subject of research.
- m) -The Faculty council has the right to suspend the student enrolment for a certain period if he has acceptable excuse preventing him from continuing his study or research, and his period will not counted within the period stated in article 16 &20.
- n) The applicant should submit 10 copies of the thesis after its validity approved by the judging and discussion committee to be distributed to the committee members and faculty library and the judging and discussion committee can decide the exchange of the thesis with other universities or printing at the expense of the university.

#### **12-Registration will be cancelled in one of the following cases:**

- If the supervisors report during the registration period is unsatisfactory (2 reports).
- If he did not submit his thesis before the end of registration period.
- If the judging committee rejected the thesis twice.

#### **13-Examination Regulations**

- Time of written exam, 3 hours for each course that have 3 hours or more for lecture / practical /week. If the curriculum less than 3 hours/week, the time of exam, is 2 hours only.
- The final degree of each course which have 3 hours (lecture and practical) per week is 100 and less than 3 hours is 50 degrees and divided into 50% for written exam, and 50% for practical and oral exam.

#### **14-Program completion:**

- Successfully completion of the required courses.
- Approved completion of the research experiments.
- Successfully pass of thesis open defense examination.

Program coordinator:

Dr Walled Majed

Head of department

PROF.DR. Tarek Mousa Balabel



## Matching program ILOs with ARS - Matrix

Program ILOs	ARS																											
	K&U (a)						I.S. (b)							P.P. (c)				G.T. (d)										
	1	2	3	4	5	6	1	2	3	4	5	6	7	1	2	3	4	1	2	3	4	5	6	7	8			
K&U	1	2	3	4	5	6																						
I.S.							1	2	3	4	5	6	7															
P.P.														1	2	3	4											
G.T.																		1	2	3	4	5	6	7	8			



**Program Specification Matrix**

**Master in Veterinary Medical Sciences (Zoonoses)**

Name of student: **می علی محمد الشافعی**

Courses		Total Contact hours/ course	No. of hours / week			K.U (a)						I.S (b)							P.P (c)					G.T (d)							
Code	Name		Lect.	Lab.	Total	1	2	3	4	5	6	1	2	3	4	5	6	7	1	2	3	4	5	1	2	3	4	5	6	7	8
-	Fundamental (core) course	336	3	4	7	x	x					x	x	x	x	x		x	x	x	x			x	x		x	x	x	x	
-	Research methodology	192	1	3	4				x	x	x				x	x	x								x		x	x		x	x
146	Behavior and management of pet animals	176	1	2	3	x										x	x					x		x		x	x	x		x	
183	Advanced mycology	176	1	2	3	x								x	x	x	x	x			x		x	x	x		x	x	x	x	
149	Behavior and management of poultry	192	2	2	4	x								x				x			x		x	x	x		x	x	x	x	
<b>Total</b>		<b>1008</b>	<b>8</b>	<b>13</b>	<b>21</b>																										
<b>Thesis</b>							x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	

## **ARS for Master in Veterinary Medical Sciences (Zoonoses)**

### **1) Graduate attributes**

*The graduate should have the ability for:*

- 1) Perfect application of scientific research basics and methodologies in Zoonoses, and using its varied tools.
- 2) Application and use of analytical methods in detection of pathogens and identification of animal reservoir.
- 3) Application of gained specialized knowledge and integrating them with the relevant knowledge in Zoonoses.
- 4) Awareness with ongoing hygienic and field problems and recent concepts of pathogens interactions.
- 5) Identification of zoonotic problems and suggesting suitable and economic methods of prevention and control.
- 6) Mastering the proper scope of a rate specialized professional skills, and using appropriate technological means to serve the diagnosis and treatment of problems in addition to identification of the source of infection.
- 7) Effective communication with students, veterinarians and physician and leading work team.
- 8) Decision making for suggesting the cause of infection.
- 9) Employ available resources efficiently in epidemiology.
- 10) Awareness with his role in society development and fighting diseases for preservation of a human health.
- 11) Reflection of the commitment to act with integrity, credibility and the rules of profession.
- 12) Academic and professional self- development and ability for life-long learning and progress by studying new cases.

### **A) Knowledge and understanding**

<b>Adopted ARS</b>		<b>NARS (Master)</b>	
	<i>By the end of this program the graduate should understand and accommodate the following:</i>		<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Theories and principles in the field of Zoonoses and related fields.		Theories and principles in the field of specialization and related fields.
2)	The impact of combating pathogens on animal and human health		Mutual effect between professional practice and its impact on environment
3)	Scientific progress in the field of zoonotic diseases and methods of diseases transfer from animal to human and vice versa		Scientific progress in the field of specialization
4)	Moral and ethical principles in controlling outbreaks and epidemic problems		Legal and ethical basics in professional practice in the field of specialization
5)	Health and safety risk assessments for the Zoonoses laboratory.		Principles and basics of quality assurance in the area of specialization
6)	Basics and ethics of scientific research especially that involving pathogenic bacterial, fungi, viruses and parasites		Basics and ethics of scientific research

## B) Intellectual skills

<b>Adopted ARS</b>		<b>NARS (Master)</b>
	<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Analysis of data about evidences in Zoonoses.	Analysis and judgment of information in the field of specialization and analog to solve problems.
2)	Solving problems about the cause of infestation or infection in addition to identification of the zoonotic importance of the disease	Solving professional problems even in scarcity of data.
3)	Relating data in microbiology, virology, parasitology with those of Zoonoses to solve professional problems	Relating between different knowledge to solve professional problems.
4)	Identification, summarizing and evaluating prior researches finding in Zoonoses and publishing scientific articles in conferences and specialized journals	Preparing research plan in specialization and/ or writing scientific article on a research problem.
5)	Comprehending areas where further researches are necessary and be aware with any trials beyond current ethical cods.	Risk-assessment of professional practices in specialization.
6)	Development of plans to improve performance in zoonotic laboratory practice with automation.	Planning for improvement of professional performance.
7)	Using appropriate intellectual strategy to deal with laboratory diagnostic problems.	Taking professional decisions in a variety of professional contexts.

## C) Professional and practical skills

<b>Adopted ARS</b>		<b>NARS (Master)</b>
	<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Investigating using recent techniques and tools necessary to diagnose and characterize pathogens of zoonotic importance.	Mastering basic and recent professional skills in the field of specialization
2)	Application of the principles of good experimental design and analysis to his own research project	Writing and evaluating professional reports.
3)	Planning a research project in the field of Zoonoses with a consideration to the available materials and methods and technical, ethical and safety issues.	Evaluating existing materials and methods in the area of specialization.
4)	Performing essential laboratory skills that underpin techniques associated with sampling, pathogen isolation different techniques for pathogen detection	

## D) General and transferable skill

Adopted ARS		NARS (Master)
	<i>By the end of this program the graduate should understand and accommodate the following:</i>	<i>By the end of this program the graduate should understand and accommodate the following:</i>
1)	Communicating effectively with teaching staff, colleagues and the community.	Effective communication.
2)	Using information technology in scientific research and publications.	Utilizing information technology to serve development of professional practice.
3)	Demonstrating appropriate attitude towards teaching staff and colleagues.	Self-assessment and determination of personal educational needs.
4)	Identifying and use different sources of information and knowledge.	Using different resources to obtain knowledge and information.
5)	Using appropriate attitude and rules towards teaching staff and colleagues and use evidence based evaluations.	Establishing rules and indicators for assessment of the performance of others.
6)	Respecting the importance of team work.	Team working and leading a team in familiar professional contexts.
7)	Doing good control of timing.	Efficient time management.
8)	Performing continuous self-learning.	Self and continuous learning.

ثانيا :برامج الماجستير

### ١- مواصفات الخريج

خريج برنامج الماجستير في أي تخصص يجب أن يكون قادرا على:

١. إجادة تطبيق أساسيات و منهجيات البحث العلمي واستخدام أدواته المختلفة
٢. تطبيق المنهج التحليلي واستخدامه في مجال التخصص
٣. تطبيق المعارف المتخصصة و دمجها مع المعارف ذات العلاقة في ممارسته المهنية
٤. إظهار وعيا بالمشاكل الجارية و الرؤى الحديثة في مجال التخصص
٥. تحديد المشكلات المهنية و إيجاد حلول لها
٦. إتقان نطاق مناسب من المهارات المهنية المتخصصة، واستخدام الوسائل التكنولوجية المناسبة بما يخدم ممارسته المهنية
٧. التواصل بفاعلية و القدرة على قيادة فرق العمل
٨. اتخاذ القرار في سياقات مهنية مختلفة
٩. توظيف الموارد المتاحة بما يحقق أعلى استفادة و الحفاظ عليها
١٠. إظهار الوعي بدوره في تنمية المجتمع و الحفاظ على البيئة في ضوء المتغيرات العالمية و الإقليمية
١١. التصرف بما يعكس الالتزام بالنزاهة و المصداقية و الالتزام بقواعد المهنة
١٢. تنمية ذاته أكاديميا و مهنيا و قادرا على التعلم المستمر

### ١٢ - المعايير القياسية العامة

#### ١ المعرفة و الفهم

بانتهاؤ دراسة برنامج الماجستير يجب ان يكون الخريج على فهم و دراية بكل من:

- أ -النظريات و الأساسيات المتعلقة بمجال التعلم وكذا في المجالات ذات العلاقة
- ب -التأثير المتبادل بين الممارسة المهنية وانعكاسها علي البيئة



- ت -التطورات العلمية في مجال التخصص  
ث -المبادئ الأخلاقية و القانونية للممارسة المهنية في مجال التخصص  
ج -مبادئ و أساسيات الجودة في الممارسة المهنية في مجال التخصص  
ح -أساسيات وأخلاقيات البحث العلمي

### ٢ المهارات الذهنية

- بانتهاج دراسة برنامج الماجستير يجب ان يكون الخريج قادرا على:  
أ -تحليل و تقييم المعلومات في مجال التخصص و القياس عليها لحل المشاكل  
ب -حل المشاكل المتخصصة مع عدم توافر بعض المعطيات  
ت -الربط بين المعارف المختلفة لحل المشاكل المهنية  
ث -إجراء دراسة بحثية و /أو كتابة دراسة علمية منهجية حول مشكلة بحثية  
ج -تقييم المخاطر في الممارسات المهنية في مجال التخصص  
ح -التخطيط لتطوير الأداء في مجال التخصص  
خ -اتخاذ القرارات المهنية في سياقات مهنية متنوعة

### ٣ المهارات المهنية

- بانتهاج دراسة برنامج الماجستير يجب ان يكون الخريج قادرا على:  
أ - إتقان المهارات المهنية الأساسية و الحديثة في مجال التخصص  
ب -كتابة و تقييم التقارير المهنية  
ت -تقييم الطرق و الأدوات القائمة في مجال التخصص

### ٤ المهارات العامة و المنتقلة

- بانتهاج دراسة برنامج الماجستير يجب أن يكون الخريج قادرا على:  
أ -التواصل الفعال بأنواعه المختلفة  
ب -استخدام تكنولوجيا المعلومات بما يخدم الممارسة المهنية  
ت -التقييم الذاتي و تحديد احتياجاته التعليمية الشخصية  
ث -استخدام المصادر المختلفة للحصول على المعلومات و المعارف  
ج -وضع قواعد و مؤشرات تقييم أداء الآخرين  
ح -العمل في فريق ، وقيادة فرق في سياقات مهنية مختلفة  
خ -إدارة الوقت بكفاءة  
د -التعلم الذاتي و المستمر

**DEPARTMENT HYGIENE AND PREVENTIVE MEDICINE**  
**Basic Course specification**  
**(2021 - 2022)**

**1 - Basic Information:**

Code number:--.

Course title: **Zoonoses**

Academic Year: **premaster year of M. V. Sc. Programme**

Total teaching hours: 336 hrs

Lectures: 144 hrs

Practical: 192 hrs

**2 - OVERALL AIMS OF THE COURSE:**

- To provide professional knowledge on principles of zoonoses.
- To demonstrate professional knowledge of the epidemiology of zoonotic disease.
- To implement the advanced tools for diagnosis of zoonotic diseases.
- To implement the advanced approaches for prevention and control of zoonotic diseases.
- To plan and execute research work, evaluate outcomes and draw conclusions

**3 - INTENDED LEARNING OUTCOMES (I. L. Os.):**

**3-A: KNOWLEDGE and UNDERSTANDING:**

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

- A1- Describe the principles and concepts of veterinary zoonoses.
- A2- Memorize the public health importance of zoonotic diseases.
- A3- Recognize the etiology of zoonotic diseases
- A4- Define the principles of epidemiology and their role in disease prevention and control.
- A5- List appropriate methods for diagnosis of zoonotic diseases in man & animals.
- A6- Recite the clinical picture of zoonotic diseases in man & animals.

**3-B: INTELLECTUAL SKILLS:**

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

- B1- Use principles and concepts of zoonoses in solving zoonotic problems in man and animals.
- B2-analyze data about occurrence, distribution and possible risk factors of zoonotic diseases.
- B3- design strategy for prevention and control of zoonotic diseases.
- B4- recommend the appropriate method for diagnosis of zoonotic diseases.

**3- C: PRACTICAL AND PROFESSIONAL SKILLS:**

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

- C1- Identify and solve zoonotic problems in man and animals.
- C2- Collect and analyze data of zoonotic diseases.
- C3- diagnose the zoonotic diseases.

C4- Construct proper surveillance programs for zoonotic diseases.

### **3- D: GENERAL SKILLS:**

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

D1- Work in team.

D2- Demonstrate the ability to perform and analyze data, and to write a research report.

D3- Communicate effectively (in writing, verbally and IT).

D4- Use IT to prepare, process, present and transmit information.

### **4 - COURSE CONTENTS:**

<b>TOPIC</b>	<b>Total hours</b>	<b>Hours for lecture</b>	<b>Hours for practical</b>
<b>Introduction to zoonotic diseases</b>	<b>12</b>	<b>6</b>	<b>6</b>
<b>Bacterial zoonotic diseases</b>	<b>80</b>	<b>34</b>	<b>46</b>
<b>Mycotic zoonotic diseases</b>	<b>40</b>	<b>15</b>	<b>25</b>
<b>Chlamydial and Rickettsial diseases</b>	<b>40</b>	<b>15</b>	<b>25</b>
<b>Parasitic zoonotic diseases</b>	<b>80</b>	<b>35</b>	<b>45</b>
<b>Viral zoonotic diseases</b>	<b>84</b>	<b>39</b>	<b>45</b>
<b>Total</b>	<b>336</b>	<b>144</b>	<b>192</b>

### **5- TEACHING & LEARNING METHODS:**

#### **\*Lectures**

- Using data show to display slides, photos and videos, white board

#### **\*Practical and small group sessions:**

- Practical training: Practical demonstrations, practice of skills, and discussions

#### **\* Self learning**

- Library researches.
- Internet researches.
- Discussion in the researches.
- Preparation of posters
- Preparation of scientific reports.

#### **\* Audiovisual**

- Video show.

### **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:-

<u>7.a Used methods</u>	Written examination	Oral examination	Practical examination
<u>7.b Time</u>	At the end of the academic year	At the end of the academic year	At the end of the academic year
<u>7.c Grades</u>	50	20	30

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: BASIC MATERIALS:

- Text books: available for students in the faculty library.
- Overhead and slide projectors and data show presentations used during teaching.

### 8-2: Recmended books:

- Zoonoses and communicable diseases common to man and animals. Pan American Health Organization, 2003.
- Waterborne zoonoses: identification, causes, and control. Cotruvo, J (2004).
- Zoonoses: biology, clinical practice, and public health control. Palmer et al., (1998).

### 8.4: web sites and jouranls .....and so on

- www.pubmed.com
- www.oie.int
- www.who.int
- www.cdc.gov
- Transboundary and emerging diseases (Journal)
- Zoonoses and Public health (Journal)
- Vector Borne and Zoonotic Diseases (Journal)

## 9.1.Course content ILOs Matrex:

TOPIC	K.U (A)	IS (B)	P.P.S (C)	G.T.S (D)
Introduction to zoonotic diseases	A1-A2-A3-A4	-	C1	-
Bacterial zoonotic diseases	A2-A3-A4-A5-A6	B1-B2-B3-B4	C1-C2-C3-C4	D1-D2-D3-D4
Mycotic zoonotic diseases	A2-A3-A4-A5-A6	B1-B2-B3-B4	C1-C2-C3-C4	D1-D2-D3-D4
Chlamydial and Rickettsial diseases	A2-A3-A4- A5-A6	B1-B2-B3-B4	C1-C2-C3-C4	D1-D2-D3-D4
Parasitic zoonotic diseases	A2-A3-A4-A5-A6	B1-B2-B3-B4	C1-C2-C3-C4	D1-D2-D3-D4

<b>Viral zoonotic diseases</b>	A2-A3-A4-A5-A6	B1-B2-B3-B4	C1-C2-C3-C4	D1-D2-D3-D4
--------------------------------	----------------	-------------	-------------	-------------

## 9.2. Assessment Ilos matrix:

<b>Methods</b>	<b>I.L.O.S Evaluation</b>				<b>Marks allocated</b>
	<b>K.U (A)</b>	<b>I.S (B)</b>	<b>P.P.S (C)</b>	<b>G.T.S (D)</b>	
Written examination	A1.A2.A3.A4.A5 A6	B1,B2,B3		D2,D4	<b>50</b>
Oral examination	A1.A2.A3.A4. A6	B1.B2.B3.B4		D3	<b>25</b>
Practical examination		B1.B2.B3	C1.C2.C3.C4	D1.	<b>25</b>

**Course Coordinator:**

**Head of Department:**

**Dr. Walid Elmonir**

**Prof. Dr. Tarek Mousa Balabel**

## DEPARTMENT OF HYGIENE AND PREVENTIVE MEDICINE

### Course specification

(2021 - 2022)

#### 1 - Basic Information:

Code number: 285 (1)

Course title: Zoonotic Diseases (Advanced)

Academic Year: M. V. Sc. Programme

Total teaching hours: 192 hrs

Lectures: 96hrs

Practical: 96 hrs

#### 2 - OVERALL AIMS OF THE COURSE:

- To provide basic and detailed knowledge on principles of zoonoses.
- To demonstrate knowledge of the epidemiology of zoonotic disease.
- To implement the basic principles of prevention and control of zoonotic diseases.
- To understand the risks of occupational zoonoses (especially veterinarian) as well as food borne zoonoses and the appropriate methods to avoid these risks.
- To plan and execute research work, evaluate outcomes and draw conclusions

#### 3 - INTENDED LEARNING OUTCOMES (I. L.Os.):

##### 3-A: KNOWLEDGE and UNDERSTANDING:

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

A1- Describe the principles and concepts of veterinary zoonoses.

A2- Memorize the public health importance of zoonotic diseases.

A3- Recognize the etiology of zoonotic diseases

A4- Define the principles of epidemiology and their role in disease prevention and control.

A5- List appropriate methods for diagnosis of zoonotic diseases in man & animals.

A6- Recite the clinical picture of zoonotic diseases in man & animals.

##### 3-B: INTELLECTUAL SKILLS:

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

B1- Use principles and concepts of zoonoses in solving zoonotic problems in man and animals.

B2-analyze data about occurrence, distribution and possible risk factors of zoonotic diseases.

B3- design strategy for prevention and control of zoonotic diseases.

B4- recommend the appropriate method for diagnosis of zoonotic diseases.

##### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

C1- Identify and solve zoonotic problems in man and animals.

C2- Collect and analyze data of zoonotic diseases.

C3- diagnose the zoonotic diseases.

C4- Construct proper surveillance programs for zoonotic diseases.

### **3- D: GENERAL SKILLS:**

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

D1- Work in team.

D2- Demonstrate the ability to perform and analyze data, and to write a research report.

D3- Communicate effectively (in writing, verbally and IT).

D4- Use IT to prepare, process, present and transmit information.

## **4 - COURSE CONTENTS:**

<b>TOPIC</b>	<b>Total hours</b>	<b>Hours for lecture</b>	<b>Hours for practical</b>
<b>Introduction to zoonotic diseases</b>	12	6	6
<b>Bacterial zoonotic diseases</b>	60	30	30
<b>Mycotic zoonotic diseases</b>	12	6	6
<b>Chlamydial and Rickettsial diseases</b>	12	6	6
<b>Parasitic zoonotic diseases</b>	48	24	24
<b>Viral zoonotic diseases</b>	48	24	24
<b>Total</b>	<b>192</b>	<b>96</b>	<b>96</b>

## **5- TEACHING & LEARNING METHODS:**

### **\*Lectures**

- Using data show to display slides, photos and videos, white board

### **\*Practical and small group sessions:**

- Practical training: Practical demonstrations, practice of skills, and discussions

### **\* Self learning**

- Library researches.
- Internet researches.
- Discussion in the researches.
- Preparation of posters
- Preparation of scientific reports.

### **\* Audiovisual**

- Video show.

## **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:-**

<b><u>7.a Used methods</u></b>	<b>Written examination</b>	<b>Oral examination</b>	<b>Practical examination</b>
--------------------------------	----------------------------	-------------------------	------------------------------

<b>7.b Time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year
<b>7.c Grades</b>	50	25	25

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: BASIC MATERIALS:

- Text books: available for students in the faculty library.
- Overhead and slide projectors and data show presentations used during teaching.

### 8-2: Recmended books:

- Zoonoses and communicable diseases common to man and animals. Pan American Health Organization, 2003.
- Waterborne zoonoses: identification, causes, and control. Cotruvo, J (2004).
- Zoonoses: biology, clinical practice, and public health control. Palmer et al., (1998).

### 8.4: web sites and jouranls .....and so on

- www.pubmed.com
- www.oie.int
- www.who.int
- www.cdc.gov
- Transboundary and emerging diseases (Journal)
- Zoonoses and Public health (Journal)
- Vector Borne and Zoonotic Diseases (Journal)

## 9.1.Course content ILOs Matrex:

TOPIC	K.U (A)	IS (B)	P.P.S (C)	G.T.S (D)
Introduction to zoonotic diseases	A1-A2-A3-A4	-	C1	-
Bacterial zoonotic diseases	A2-A3-A4-A5-A6	B1-B2-B3-B4	C1-C2-C3-C4	D1-D2-D3-D4
Mycotic zoonotic diseases	A2-A3-A4-A5-A6	B1-B2-B3-B4	C1-C2-C3-C4	D1-D2-D3-D4
Chlamydial and Rickettsial diseases	A2-A3-A4- A5-A6	B1-B2-B3-B4	C1-C2-C3-C4	D1-D2-D3-D4
Parasitic zoonotic diseases	A2-A3-A4-A5-A6	B1-B2-B3-B4	C1-C2-C3-C4	D1-D2-D3-D4
Viral zoonotic diseases	A2-A3-A4-A5-A6	B1-B2-B3-B4	C1-C2-C3-C4	D1-D2-D3-D4

## 9.2.Assessment Ilos matrix:

Methods	I.L.O.S Evaluation				Marks allocated
	K.U (A)	IS (B)	P.P.S (C)	G.T.S (D)	
Written examination	A1.A2.A3.A4.A5 A6	B1,B2,B3		D2	50



Oral examination	A1.A2.A3.A4. A6	B1.B2.B3.B4		D3.D4	<b>25</b>
Practical examination		B1.B2.B3	C1.C2.C3.C4	D1.D3.D4	<b>25</b>

**Course Coordinator:**

**Dr. Walid Elmonir**

**Head of Department:**

**Prof. Dr. Tarek Mousa Balabel**

# DEPARTMENT OF HYGIENE AND PREVENTIVE MEDICINE

## Course specification

(2021 - 2022)

### 1 - Basic Information:

**Code number: 286 (1)**

**Course title: Rodent-Borne zoonoses**

**Academic Year: M. V. Sc. Programme**

**Total teaching hours: 192hrs**

**Lectures: 96 hrs**

**Practical: 96 hrs**

### 2 - OVERALL AIMS OF THE COURSE:

- To provide basic and detailed knowledge on rodent-borne zoonoses.
- To demonstrate knowledge of the epidemiology of rodent-borne zoonoses.
- To implement the basic principles of prevention and control of rodent-borne zoonoses.
- To understand the risks of occupational zoonoses (laboratory animals) and the appropriate methods to avoid these risks.

### 3 - INTENDED LEARNING OUTCOMES (I. L.Os.):

#### 3-A: KNOWLEDGE and UNDERSTANDING:

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

A1- Describe the principles and concepts of veterinary zoonoses.

A2- Memorize the public health importance of rodent-borne zoonoses.

A3- Recognize the etiology of rodent-borne zoonoses.

A4- Define the principles of epidemiology and its role prevention and control of rodent-borne zoonoses.

A5- List appropriate methods for diagnosis of zoonotic diseases transmitted by rodent.

A6- Recite the clinical picture of zoonotic diseases transmitted by rodent.

#### 3-B: INTELLECTUAL SKILLS:

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

B1- Use principles and concepts of zoonoses in solving zoonotic problems caused by rodent.

B2- analyze data about occurrence, distribution and possible risk factors of rodent-borne zoonoses.

B3- design strategy for prevention and control of rodent-borne zoonoses.

B4- recommend the appropriate method for diagnosis of rodent-borne zoonoses.

#### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

C1- Identify and solve zoonotic problems caused by rodent.

C2- Collect and analyze data of rodent-borne zoonoses.

C3-diagnose the rodent-borne zoonoses.

C4- Construct proper surveillance programs for rodent-borne zoonoses.

### **3- D: GENERAL SKILLS:**

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

D1- Work in team.

D2- Demonstrate the ability to perform and analyze data, and to write a research report.

D3- Communicate effectively (in writing, verbally and IT).

D4- Use IT to prepare, process, present and transmit information.

## **4 - COURSE COTENTS:**

<b>TOPIC</b>	<b>Total hours</b>	<b>Hours for lecture</b>	<b>Hours for practical</b>
<b>Introduction</b>	<b>12</b>	<b>6</b>	<b>6</b>
<b>Rodent-borne Bacterioses</b>	<b>80</b>	<b>40</b>	<b>40</b>
<b>Rodent-borne - Mycoses</b>	<b>20</b>	<b>10</b>	<b>10</b>
<b>Rodent-borne Parasitioses</b>	<b>40</b>	<b>20</b>	<b>20</b>
<b>Rodent-borne Viroses</b>	<b>40</b>	<b>20</b>	<b>20</b>
<b>Total</b>	<b>192</b>	<b>96</b>	<b>96</b>

## **5- TEACHING & LEARNING METHODS:**

### **\*Lectures**

- Using data show to display slides, photos and videos, white board

### **\*Practical and small group sessions:**

- Practical training: Practical demonstrations, practice of skills, and discussions

### **\* Self learning**

- Library researches.
- Internet researches.
- Discussion in the researches.
- Preparation of posters
- Preparation of scientific reports.

### **\* Audiovisual**

- Video show.

## **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:-**

<b><u>7.a Used methods</u></b>	<b>Written examination</b>	<b>Oral examination</b>	<b>Practical examination</b>
<b><u>7.b Time</u></b>	At the end of the academic year	At the end of the academic year	At the end of the academic year
<b><u>7.c Grades</u></b>	50	25	25

## 8. LEARNING AND REFERENCE MATERIALS:

### **8-1: BASIC MATERIALS:**

- Text books: available for students in the faculty library.
- Overhead and slide projectors and data show presentations used during teaching.

### **8-2: Recmended books:**

- Zoonoses and communicable diseases common to man and animals. Pan American Health Organization, 2003.
- Waterborne zoonoses: identification, causes, and control. Cotruvo, J (2004).
- Zoonoses: biology, clinical practice, and public health control. Palmer et al., (1998).

### **8.4: web sites and jouranls .....and so on**

- www.pubmed.com
- www.oie.int
- www.who.int
- www.cdc.gov
- Transboundary and emerging diseases (Journal)
- Zoonoses and Public health (Journal)
- Vector Borne and Zoonotic Diseases (Journal)

## 9.1.Course content ILOs Matrex:

TOPIC	K.U (A)	I.S (B)	P.P.S (C)	G.T.S (D)
<b>Introduction</b>	A1-A4	-	C1	-
<b>Rodent-borne Bacterioses</b>	A2-A3-A4-A5-A6	B1-B2-B3-B4	C1-C2-C3-C4	D1-D2-D3-D4
<b>Rodent-borne Mycoses</b>	A2-A3-A4-A5-A6	B1-B2-B3-B4	C1-C2-C3-C4	D1-D2-D3-D4
<b>Rodent-borne Parasitioses</b>	A2-A3-A4-A5-A6	B1-B2-B3-B4	C1-C2-C3-C4	D1-D2-D3-D4
<b>Rodent-borne Viroses</b>	A2-A3-A4-A5-A6	B1-B2-B3-B4	C1-C2-C3-C4	D1-D2-D3-D4

## 9.2.Assessment Ilos matrix:

Methods	I.L.O.S Evaluation				Marks allocated
	K.U (A)	I.S (B)	P.P.S (C)	G.T.S (D)	
Written examination	A1.A2.A3.A4.A5 A6	B1,B2,B3		D2	50
Oral examination	A1.A2.A3.A4.A5 A6	B1.B2.B3.B4		D3.D4	25
Practical examination		B1.B2.B3	C1.C2.C3.C4	D1.D3.D4	25

**Course Coordinator:**

**Head of Department:**

**Dr. Walid Elmonir**

**Prof. Dr. Tarek Mousa Balabel**

**DEPARTMENT OF HYGIENE AND PREVENTIVE MEDICINE**  
**Course specification**  
**(2021 - 2022)**

**1 - Basic Information:**

**Code number: 287 (1)**  
**Course title: Wild animal-Borne zoonoses**  
**Academic Year: M. V. Sc. Programme**

**Total teaching hours: 192hrs**

**Lectures: 96 hrs**

**Practical: 96 hrs**

**2 - OVERALL AIMS OF THE COURSE:**

- To provide basic and detailed knowledge on wild animal-borne zoonoses.
- To demonstrate knowledge of the epidemiology of wild animal-borne zoonoses.
- To implement the basic principles of prevention and control of wild animal-borne zoonoses.
- To understand the risks of occupational zoonoses (zoo keepers) and the appropriate methods to avoid these risks.

**3 - INTENDED LEARNING OUTCOMES (I. L.Os.):**

**3-A: KNOWLEDGE and UNDERSTANDING:**

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

- A1- Describe the principles and concepts of veterinary zoonoses.
- A2- Memorize the public health importance of wild animal-borne zoonoses.
- A3- Recognize the etiology of wild animal-borne zoonoses.
- A4- Define the principles of epidemiology and their role in disease prevention and control.
- A5- List appropriate methods for diagnosis of zoonotic diseases transmitted by wild animal.
- A6- Recite the clinical picture of zoonotic diseases transmitted by wild animal.

**3-B: INTELLECTUAL SKILLS:**

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

- B1- Use principles and concepts of zoonoses in solving zoonotic problems caused by wild animal.
- B2-analyze data about occurrence, distribution and possible risk factors of wild animal-borne zoonoses.
- B3-design strategy for prevention and control of wild animal-borne zoonoses.
- B4- recommend the appropriate method for diagnosis of wild animal-borne zoonoses.

**3- C: PRACTICAL AND PROFESSIONAL SKILLS:**

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

- C1- Identify and solve zoonotic problems caused by wild animal.
- C2- Collect and analyze data of wild animal-borne zoonoses.

C3- diagnose the wild animal-borne zoonoses.

C4- Construct proper surveillance programs of wild animal-borne zoonoses.

### **3- D: GENERAL SKILLS:**

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

D1- Work in team.

D2- Demonstrate the ability to perform and analyze data, and to write a research report.

D3- Communicate effectively (in writing, verbally and IT).

D4- Use IT to prepare, process, present and transmit information.

## **4 - COURSE CONTENTS:**

<b>TOPIC</b>	<b>Total hours</b>	<b>Hours for lecture</b>	<b>Hours for practical</b>
<b>Introduction</b>	<b>12</b>	<b>6</b>	<b>6</b>
<b>Wild animal-borne Bacterioses</b>	<b>80</b>	<b>40</b>	<b>40</b>
<b>Wild animal-borne Mycoses</b>	<b>20</b>	<b>10</b>	<b>10</b>
<b>Wild animal-borne Parasitoses</b>	<b>40</b>	<b>20</b>	<b>20</b>
<b>Wild animal-borne Viroses</b>	<b>40</b>	<b>20</b>	<b>20</b>
<b>Total</b>	<b>192</b>	<b>96</b>	<b>96</b>

## **5- TEACHING & LEARNING METHODS:**

### **\*Lectures**

- Using data show to display slides, photos and videos, white board

### **\*Practical and small group sessions:**

- Practical training: Practical demonstrations, practice of skills, and discussions

### **\* Self learning**

- Library researches.
- Internet researches.
- Discussion in the researches.
- Preparation of posters
- Preparation of scientific reports.

### **\* Audiovisual**

- Video show.

## **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:-**

<b><u>7.a Used methods</u></b>	<b>Written examination</b>	<b>Oral examination</b>	<b>Practical</b>
--------------------------------	----------------------------	-------------------------	------------------

			<b>examination</b>
<b>7.b Time</b>	At the end of the academic year	At the end of the academic year	At the end of the academic year
<b>7.c Grades</b>	50	25	25

## 8. LEARNING AND REFERENCE MATERIALS:

### 8-1: BASIC MATERIALS:

- Text books: available for students in the faculty library.
- Overhead and slide projectors and data show presentations used during teaching.

### 8-2: Recmended books:

- Zoonoses and communicable diseases common to man and animals. Pan American Health Organization, 2003.
- Waterborne zoonoses: identification, causes, and control. Cotruvo, J (2004).
- Zoonoses: biology, clinical practice, and public health control. Palmer et al., (1998).

### 8.4: web sites and jouranls .....and so on

- www.pubmed.com
- www.oie.int
- www.who.int
- www.cdc.gov
- Transboundary and emerging diseases (Journal)
- Zoonoses and Public health (Journal)
- Vector Borne and Zoonotic Diseases (Journal)

### 9.1.Course content ILOs Matrex:

TOPIC	K.U (A)	I.S (B)	P.P.S (C)	G.T.S (D)
<b>Introduction</b>	A1-A4	-	C1	-
<b>Wild animal-borne Bacterioses</b>	A2-A3-A4-A5-A6	B1-B2-B3-B4	C1-C2-C3-C4	D1-D2-D3-D4
<b>Wild animal-borne Mycoses</b>	A2-A3-A4-A5-A6	B1-B2-B3-B4	C1-C2-C3-C4	D1-D2-D3-D4
<b>Wild animal-borne Parasitioses</b>	A2-A3-A4-A5-A6	B1-B2-B3-B4	C1-C2-C3-C4	D1-D2-D3-D4
<b>Wild animal-borne Viroses</b>	A2-A3-A4-A5-A6	B1-B2-B3-B4	C1-C2-C3-C4	D1-D2-D3-D4

### 9.2.Assessment Ilos matrix:

Methods	I.L.O.S Evaluation				Marks allocated
	K.U (A)	I.S (B)	P.P.S (C)	G.T.S (D)	
Written examination	A1.A2.A3.A4.A5 A6	B1,B2,B3		D2	50
Oral examination	A1.A2.A3.A4.A5 A6	B1.B2.B3.B4		D3.D4	25



Practical examination		B1.B2.B3	C1.C2.C3.C4	D1.D3.D4	<b>25</b>
-----------------------	--	----------	-------------	----------	-----------

**Course Coordinator:**

**Dr. Walid Elmonir**

**Head of Department:**

**Prof. Dr. Tarek Mousa Balabel**

## DEPARTMENT OF HYGIENE AND PREVENTIVE MEDICINE

### Course specification

(2021 - 2022)

#### 1 - Basic Information:

Code number: 288 (1)

Course title: Poultry-Borne zoonoses

Academic Year: M. V. Sc. Programme

Total teaching hours: 192 hrs

Lectures: 96 hrs

Practical: 96 hrs

#### 2 - OVERALL AIMS OF THE COURSE:

- To provide basic and detailed knowledge on poultry-borne zoonoses.
- To demonstrate knowledge of the epidemiology of poultry-borne zoonoses.
- To implement the basic principles of prevention and control of poultry-borne zoonoses.
- To understand the risks of occupational zoonoses (farm workers) and the appropriate methods to avoid these risks.

#### 3 - INTENDED LEARNING OUTCOMES (I. L.Os.):

##### 3-A: KNOWLEDGE and UNDERSTANDING:

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

A1- Describe the principles and concepts of veterinary zoonoses.

A2- Memorize the public health importance of poultry-borne zoonoses.

A3- Recognize the etiology of poultry-borne zoonoses.

A4- Define the principles of epidemiology and its role in prevention and control of poultry zoonoses.

A5- List the appropriate methods for diagnosis of zoonotic diseases transmitted by poultry.

A6- Recite the clinical picture of zoonotic diseases transmitted by poultry.

##### 3-B: INTELLECTUAL SKILLS:

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

B1- Use principles and concepts of zoonoses in solving zoonotic problems caused by poultry.

B2- analyze data about occurrence, distribution and possible risk factors of poultry-borne zoonoses.

B3- design strategy for prevention and control of poultry-borne zoonoses.

B4- recommend the appropriate method for diagnosis of poultry-borne zoonoses.

##### 3- C: PRACTICAL AND PROFESSIONAL SKILLS:

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

C1- Identify and solve zoonotic problems caused by poultry.

C2- Collect and analyze data of poultry-borne zoonoses.

C3- Diagnose the poultry-borne zoonoses.

C4- Construct proper surveillance programs for poultry-borne zoonoses.

### **3- D: GENERAL SKILLS:**

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

D1- Work in team.

D2- Demonstrate the ability to perform and analyze data, and to write a research report.

D3- Communicate effectively (in writing, verbally and IT).

D4- Use IT to prepare, process, present and transmit information.

## **4 - COURSE CONTENTS:**

TOPIC	Total hours	Hours for lecture	Hours for practical
Introduction	12	6	6
Poultry-borne Bacterioses	80	40	40
Poultry-borne Mycoses	20	10	10
Poultry-borne Parasitoses	40	20	20
Poultry-borne Viroses	40	20	20
Total	192	96	96

## **5- TEACHING & LEARNING METHODS:**

### **\*Lectures**

- Using data show to display slides, photos and videos, white board

### **\*Practical and small group sessions:**

- Practical training: Practical demonstrations, practice of skills, and discussions

### **\* Self learning**

- Library researches.
- Internet researches.
- Discussion in the researches.
- Preparation of posters
- Preparation of scientific reports.

### **\* Audiovisual**

- Video show.

## **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:-**

<b><u>7.a Used methods</u></b>	<b>Written examination</b>	<b>Oral examination</b>	<b>Practical examination</b>
<b><u>7.b Time</u></b>	At the end of the academic year	At the end of the academic year	At the end of the academic year
<b><u>7.c Grades</u></b>	50	25	25

## 8. LEARNING AND REFERENCE MATERIALS:

### **8-1: BASIC MATERIALS:**

- Text books: available for students in the faculty library.
- Overhead and slide projectors and data show presentations used during teaching.

### **8-2: Recmonded books:**

- Zoonoses and communicable diseases common to man and animals. Pan American Health Organization, 2003.
- Waterborne zoonoses: identification, causes, and control. Cotruvo, J (2004).
- Zoonoses: biology, clinical practice, and public health control. Palmer et al., (1998).

### **8.4: web sites and jouranls .....and so on**

- [www.pubmed.com](http://www.pubmed.com)
- [www.oie.int](http://www.oie.int)
- [www.who.int](http://www.who.int)
- [www.cdc.gov](http://www.cdc.gov)
- Transboundary and emerging diseases (Journal)
- Zoonoses and Public health (Journal)
- Vector Borne and Zoonotic Diseases (Journal)

## 9.1.Course content ILOs Matrex:

TOPIC	K.U (A)	I.S (B)	P.P.S (C)	G.T.S (D)
<b>Introduction</b>	A1-A4	-	C1	-
<b>Poultry-borne Bacterioses</b>	A2-A3-A4-A5-A6	B1-B2-B3-B4	C1-C2-C3-C4	D1-D2-D3-D4
<b>Poultry-borne Mycoses</b>	A2-A3-A4-A5-A6	B1-B2-B3-B4	C1-C2-C3-C4	D1-D2-D3-D4
<b>Poultry-borne Parasitioses</b>	A2-A3-A4-A5-A6	B1-B2-B3-B4	C1-C2-C3-C4	D1-D2-D3-D4
<b>Poultry-borne Viroses</b>	A2-A3-A4-A5-A6	B1-B2-B3-B4	C1-C2-C3-C4	D1-D2-D3-D4

## 9.2. Assessment Ilos matrix:

Methods	I.L.O.S Evaluation				Marks allocated
	K.U (A)	I.S (B)	P.P.S (C)	G.T.S (D)	
Written examination	A1.A2.A3.A4.A5. A6	B1,B2,B3		D2	50
Oral examination	A1.A2.A3.A4.A5. A6	B1.B2.B3.B4		D3.D4	25
Practical examination		B1.B2.B3	C1.C2.C3.C4	D1.D3.D4	25

**Course Coordinator:**

**Dr. Walid Elmonir**

**Head of Department:**

**Prof. Dr. Tarek Mousa Balabel**