



**Benha University**  
**Faculty of Veterinary Medicine**  
**Post Graduate studies and research Affairs**

**POST GRADUATE STUDIES BY-LAW**  
**(CREDIT HOURS SYSTEM)**

**FACULTY OF VETERINARY MEDICINE**  
**BENHA UNIVERSITY**

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## **Introduction**

This time and in view of the successive changes in the higher education system and the increase in demand internally and externally in various life sciences, especially the modern ones, which depend on the diversity of education paths through creativity and innovation according to the competitive advantage of each of them, and follow-up to the relationship of the higher education system with its counterparts in the Arab and international regions, this requires the Faculty of Veterinary Medicine Benha University to keep pace with these rapid changes through the development of postgraduate studies programs within the framework of international standards. The developing of postgraduate studies by-law (Credit hours system) aims to:

### **Upgrading the system of postgraduate studies, research and supporting innovation**

- Develop postgraduate programs in line with the needs of sustainable development plans.
- Develop teaching, learning and training strategies to keep pace with scientific development.
- Develop student assessment strategies in line with similar global scientific systems.
- Implement the faculty research plan.
- Provide a stimulating research environment for scientific research and innovation.
- Raise the research capabilities of the college by producing research with an appropriate quality level.
- Encourage applied scientific research, research teams, and international publishing.



- Apply the ethics of scientific research and protecting intellectual property rights.
- Support effective partnership programs between the faculty, industry and society.
- Maximize benefit of the physical resources available for scientific research.

### **Development of the Faculty's own resources.**

- Support and market the interdisciplinary and applied researches.
- Use Optimally the available resources of scientific research and develop sustainable faculty self-resources.
- Encourage researchers to obtain research projects funded by local and international organization.
- Develop the scientific journal to be indexed at international Data Bases.

### **Strengthening the international standing of the College.**

- Develop postgraduate programs in line with international regulations.
- Increase scientific channels for students, researchers and faculty members exchange.
- Contribute to raising the level of the international rankings of the university and the specialization ranking of the faculty.

### **Foundation of the Faculty:**



A Presidential Decree No. 28/5/1981 was issued to establish the Faculty of Veterinary Medicine, Zagazig University, Benha branch, and at Moshtohor. The study started by accepting students in the preparatory Class and teaching them at the Faculty of Veterinary Medicine in Zagazig in the academic year 1982/1983. Then the study started at the current Faculty headquarters in Moshtohor, starting from the academic year 1983/1984.

### **The internal regulations for postgraduate studies:**

The first internal regulations for postgraduate studies were issued by the Ministerial decree No. (921) on September 15, 1987.

- The Postgraduate Studies Regulations were amended by Ministerial decree No. (512) dated 6/6/1989 No. (169) on 12/12/1991.
- The Postgraduate Studies Regulations were amended by Ministerial decree No. (1912) on 12/26/1996.
- The Postgraduate Studies Regulations were amended by Ministerial decree No. (4166) on 11/6/2013

### **Scientific Departments**

The Faculty consists of (21 ) Scientific departments as listed below.



**Table (1) Scientific departments**

NO	Scientific department
1.	ANATOMY AND EMBRYOLOGY
2.	BIOCHEMISTRY
3.	HISTOLOGY
4.	PHYSIOLOGY
5.	PHARMACOLOGY
6.	BACTERIOLOGY, IMMUNOLOGY AND MYCOLOGY
7.	VIROLOGY
8.	PARASITOLOGY
9.	NUTRITION AND CLINICAL NUTRITION
10.	ANIMAL WEALTH DEVELOPMENT
11.	PATHOLOGY
12.	CLINICAL PATHOLOGY
13.	VETERINARY HYGIENE AND MANAGEMENT
14.	FORENSIC MEDICINE AND TOXICOLOGY
15.	AQUATIC ANIMALS DISEASES AND MANAGEMENT
16.	FOOD HYGIENE AND CONTROL
17.	THERIOGENOLOGY
18.	POULTRY AND RABBIT DISEASES
19.	ZOOZOOSIS
20.	SURGERY, ANESTHESIOLOGY AND RADIOLOGY
21.	ANIMALS MEDICINE

**Post graduates credit hours guidelines**

**Chapter 1: General guidelines**



### **Article (1) scientific degrees**

On the proposal of the Faculty of Veterinary Medicine Council; Benha University Council awards the following degrees and diplomas:

- Postgraduate Diploma**
- Master's degree in veterinary medical sciences**
- Doctorate of Philosophy degree in Veterinary Medical Sciences**

#### **First: Academic Degrees:**

- 1. Master's degree in veterinary medical sciences.**
- 2. Doctorate of Philosophy degree in Veterinary Medical Sciences.**

In one of the following specializations (for each of the two degrees) as indicated in the following table:

**Table (2): Scientific majors for Master and PhD degrees**

1. Anatomy and embryology	2. Biochemistry
3. Histology	4. Physiology
5. Pharmacology	6. Bacteriology, immunology and fungi
7. Virology	8. Parasitology
9. Animal, poultry and fish feeding and malnutrition diseases	<b>10. Animal and poultry production and management</b> <b><u>Breeding and Production of animal and poultry</u></b>
<b>11. Veterinary economics and management</b>	12. Genetics and genetic engineering
13. Biostatistics	14. Pathology
15. Clinical pathology	
16. Animal and poultry behavior	17. Animal, poultry and environmental health
18. Forensic medicine, toxicology and veterinary procedures	19. Aquatic animals diseases and management
20. Health control of meat, poultry, fish, fish products and animal sacrifices	21. Meat, milk products, oils, fats and eggs hygiene
22. Obstetrics, reproduction and artificial insemination	23. Poultry and Rabbit Diseases
24. Zoonoses	25. Surgery, anesthesiology and radiology
26. Internal Medicine	27. Infectious diseases

#### **Second: Postgraduate Diploma:**



**Table (3): diplomas in different scientific departments**

#	Department	Diplomas
1.	Anatomy and embryology	Applied anatomy
2.	Biochemistry	Biochemistry and Clinical biochemistry
3.	Histology	Histology and histological techniques
4.	Physiology	General physiology
5.	Pharmacology	Veterinary pharmacology
6.	Bacteriology, immunology and mycology	Animal microbiology
7.	Virology	Virology
8.	Parasitology	Applied parasitology
9.	Nutrition and clinical nutrition	Animal, poultry and fish nutrition; and malnutrition diseases
10.	Animal wealth development	Animal production
		Breeding and Production of animal and poultry
		Economics and veterinary projects management
		Genetics and genetic engineering
11.	Pathology	Pathology
12.	Clinical pathology	Clinical pathology
13.	Veterinary hygiene and management	Animal and poultry behavior and management
		Animal hygiene
14.	Forensic medicine and toxicology	Forensic medicine and toxicology (2 directions) *
15.	Aquatic animals diseases and management	Aquatic animals diseases and management
16.	Food hygiene and control	Meat hygiene and technology
		Quality control in meat, milk and egg factories
17.	Theriogenology	Obstetrics, reproduction and artificial insemination (3 directions) *
18.	Poultry and rabbit diseases	Poultry and rabbit diseases (2 directions) *
19.	Zoonoses	Zoonoses
20.	Surgery, anesthesiology and radiology	Surgery, anesthesiology and radiology (3directions) *
21.	Animals medicine	Farm animals medicine
		Domestic animals medicine (2 directions) *

**\* The curriculum determines the direction of the diploma as shown in diploma programs in scientific departments.**



## **Article (2): Definition of academic degrees**

**Postgraduate Diploma:** This program aims to raise the scientific efficiency in the various disciplines of veterinary medical sciences through studying advanced applied and practical courses.

**Master's degree:** This program aims to develop research capabilities, scientific thinking and development in the specialty, field and subject chosen by the student from of the research plan of the faculty, using modern scientific techniques and methods by studying a number of advanced courses and conducting applied research through an integrated scientific thesis.

**PhD degree:** This program aims to develop independent thought and ability to innovate and add new knowledge in the field, specialty and subject that the student chooses from the research plan of the faculty by following the technical scientific principles and innovative specialized research by studying a number of advanced study courses and conducting applied research through integrated scientific thesis.

**Article (3):** The faculty Council, after approval of the departmental councils and the faculty's Graduate Studies and Research Committee, may create new majors for diplomas in accordance with developments and labor market requirements and obtain approval from the University Council and the Supreme Council of Universities.

## **Article (4): The study system:**

- The study is in credit hours system, and it allows to enroll according to the rules stated in Article (8, 9). Grades are calculated according to Article (16). The system allows the student to be free to choose a set of courses specified by credit hours, while permitting the difference in the number of credit hours a student can study during one week, according to the student's abilities in accordance with Article (34).

- This system provides an opportunity for students to transfer to and from other universities with the possibility of transferring gained credit hours according to the rules.

- The concerned department assigns an academic advisor, from the faculty members, to each collective of graduate students who is responsible for guiding





and following them (including selecting of an academic supervision committee on the thesis).

**The credit hour:** It is a unit of study. It is the equivalent of a theoretical lecture of one hour per week or a practical or practical lesson of two to three hours per week.

**Article (5): The scientific content of courses:**

The Faculty Council approves the scientific content of the graduate studies courses, after specifying them from the relevant department council.

**Article (6): Study dates and enrollment:**

The study is carried out according to the credit hours system, and the academic year is divided into two main semesters of fifteen weeks, in addition to a third summer semester, provided that the weekly studying hours for each course are doubled as follows:

**Fall semester:** It starts on the first of September and continues for 15 weeks, including the final exams period.

**Spring semester:** starts in the second half of February and lasts for 15 weeks, including the final exam period.

**Summer semester:** It starts in July and lasts for a maximum period of 8 weeks, including the exam period, where the weekly study hours allocated to the course are doubled.

**Article (7) admission dates:**

- Registration is open for new entrants to register for postgraduate studies once every year during the month of July. Applications for admission to diplomas and master's and doctorate degrees are submitted to the faculty's postgraduate Department.

- Registration opens for continuing students twice a year (with the start of each major semester), and registration is available for a period of two weeks. Registration for the summer semester takes place at the end of the second semester.



### **Article (8): General conditions for registration:**

- The student must have a bachelor's degree in veterinary medical science or its equivalent from other universities and approved by the Supreme Council of Universities.
- The student must fulfill all the required documents, which are determined by the Department of Graduate Studies and Research.
- That the student meets any requirements set by the relevant department council.
- The applicant must submit his position regarding recruitment, provided that he is exempt from a final exemption from military service, has performed it or has obtained a temporary exemption. This condition does not apply to the teaching assistants in the faculty.
- The approval of the governmental work authority for the study.
- To pay the prescribed tuition fees at the beginning of each semester.

### **Article (9): Conditions for registration:**

- Obtain the approval of the relevant department council and complete the required documents from the Department of Graduate Studies.
- The faculty council may limit the number of students after the approval of the relevant department and within the limits of the regulations organizing this according to the department and faculty capabilities.
- The maximum number of credit hours that a student is allowed to enroll in for the first or second semester is 15 hours, and the minimum number of credit hours for courses registration per semester is 6 credit hours. The minimum recorded hours for thesis is 4 credits per semester.
- Courses are available to the student to register in any semester depending on the number of registered students and specialized faculty members, according to what is decided by the relevant department council after the approval of the faculty council.



- A graduate student may not enroll in more than one diploma or degree in postgraduate studies at the same time, whether inside or outside the university.

#### **Article (10): Conditions for amendment and withdrawal:**

- The student is allowed to change courses with another within two weeks of starting the study after taking the opinion of the scientific department.

- The student is allowed to cancel his previous registration with any course without consequences during the first two weeks of study only (Drop).

- The student is allowed to withdraw (Withdrawal) from any academic course and take back the fees before the end of the fourth week of the beginning of the semester, after completing the relevant form approved by the academic advisor and the withdrawing symbol (W) appears in the certificates and data of his courses.

- Also, the student is allowed to withdraw (Withdrawal) from any course with no fees being recovered before the end of the sixth week of the beginning of the semester, after completing the relevant form approved by the academic advisor, and the withdrawal symbol (W) appears in the certificates and data of his decisions .

- It is not permissible to withdraw after the sixth week of the beginning of the semester study, and the student gets a failing grade (F) if he does not attend the end of term exam or if the attendance percentage is not fulfilled.

- Upon re-examining a course that the student had previously withdrawn from, the (W) will be replaced with the grade obtained upon return.

- The student has the right to re-register in any course in which the required grade has not been achieved, and the re-examination will be paid after paying the study fees, and the approval of the department is required.

#### **Article (11): Study expenses:**

Expenses are paid no later than 4 weeks after the start of each semester. Backward students are allowed to pay the expenses within ten days after the deadline; otherwise the registration will be canceled automatically without any notice.



Expenses include the expenses for registering a degree and determined by the university in accordance with the rules governing its financial regulations, in addition to registration expenses which are equal to the number of credit hours registered in the same semester x cost per hour in the program, according to the rules determined by the financial regulations of the university.

**Article (12): The code system for courses:**

The courses are coded by placing the code for the teaching department consisting of three letters as shown in table no. (4), followed by the number indicating the course level in the hundreds field as shown in Article (13), then the course number within the courses that the department is teaching in the ones of ones and dozens.

**Table (4): Shows the code for the different scientific departments**

CODE	Department
ANE	ANATOMY AND EMBRYOLOGY
BIO	BIOCHEMISTRY
HIS	HISTOLOGY
PYS	PHYSIOLOGY
PHR	PHARMACOLOGY
BIM	BACTERIOLOGY, IMMUNOLOGY AND MYCOLOGY
VIR	VIROLOGY
PAR	PARASITOLOGY
NCN	NUTRITION AND CLINICAL NUTRITION
AWD	ANIMAL WEALTH DEVELOPMENT
PAT	PATHOLOGY
CPA	CLINICAL PATHOLOGY
VHM	VETERINARY HYGIENE AND MANAGEMENT
FMT	FORENSIC MEDICINE AND TOXICOLOGY
ADM	AQUATIC ANIMALS DISEASES AND MANAGEMENT
FHC	FOOD HYGIENE AND CONTROL
THG	THERIOGENOLOGY
POD	POULTRY AND RABBIT DISEASES
ZON	ZOOZOSES
SAR	SURGERY, ANESTHESIOLOGY AND RADIOLOGY
ANM	ANIMALS MEDICINE



### **Article (13) Academic Courses:**

Each course of graduate studies with a duration of one semester (15 weeks), the course opens for at least (2) students and it is permissible for one student only. This list shows the courses, the credit hours allocated to it, and the departments that teach them.

### **Postgraduate courses are divided into:**

- 1- Courses with a level of 6000 are taught for diploma students.
- 2- Courses with a level of 7000 taught to master students.
- 3- Level 8000 courses taught for PhD students.

### **Article (14):**

Based on the suggestions of the councils of the competent departments and the approval of the university council, the faculty council may amend the conditions of registration and the scientific content of any of the academic decisions mentioned in these regulations to cope with the scientific development in the field of specialization.

### **Article (15):**

Based on the opinion of the councils of the relevant departments, after the approval of the faculty council and the university council, and with the approval of the Veterinary Sector Committee of the Supreme Council of Universities, it is permissible for the Faculty Council to create courses in various graduate programs.

### **Article (16) Grades:**

The student's success is graded as shown in the following tables (6, 7). All graduate programs in the faculty are committed to the percentages corresponding to the grades as follows:

**Table (5): shows grades, corresponding percentages, and number of points**

Points number	Grade		%
3.7125 to less than 4.000	Excellent	A <sup>+</sup>	95% to 100%
3.425 to less than 3.7125		A	90% to less than 95%



3.1375 to less than 3.425	Very good	B <sup>+</sup>	85% to less than 90%
2.850 to less than 3.1375		B	80% to less than 85%
2.5625 to less than 2.850	Good	C <sup>+</sup>	75% to less than 80%
2.275 to less than 2.5625		C	70% to less than 75%
1.9875 to less than 2.275	Poor	D <sup>+</sup>	65% to less than 70%
1.700 to less than 1.9875		D	60% to less than 65%
Less than 1.700	Fail	F	Less than 60%

**Symbols without points and not included in the calculation of the cumulative average, are as follows:**

**Table (6): shows the symbols without points**

Symbol	
<b>W</b>	Student withdrawing from course (Withdrawal)
<b>FW</b>	Forced withdrawal student is compelled from the course
<b>I</b>	Student who did not complete the requirements of the course (Incomplete)
<b>IP</b>	Student registered for the thesis hours and has not yet been completed
<b>S</b>	Student when discussing the scientific thesis successfully (Satisfactory)
<b>U</b>	Student upon failure in the discussion of the scientific thesis (Unsatisfactory)
<b>ABS</b>	Absent student without acceptable excuse (Absent)

**Article (17): Average points:**

The minimum success score for each course is calculated as following:

- The student passes the course if he achieved an average score of 1.7 (D), and the student gets a postgraduate diploma if he achieves an average score at least 2,000 (D+).

- The student must achieve in each of the masters and doctoral courses an average of 2.275 (C) points at least, and any course can be repeated according to article (10). The student also has the right to choose an alternative course for the course that did not achieve the required level unless the course is compulsory and required the approval of the relevant department



- Courses studied at another university and their equivalence are not included in the calculation of the average score, and the calculation of the average is limited to the courses that he studied at the Faculty of Veterinary Medicine, Benha University.

- In case the student is removed from the program, he is not entitled to register for the same program again in the same specialty.

- Students who have studied and passed more than two years after their studies with regard to diploma programs, and whose five years have passed since their studies for master's and doctoral programs, are not counted.

**Article (18) Calculating the Cumulative Average:**

- The points of each course are counted as its credit hours multiplied by the grade for each hour.
- The total score for the student is calculated as the sum of the points of all the courses he studied in the semester.
- The average score for any stage is calculated as the result of dividing the total points obtained in the semester by the total number of course hours.

**GPA is Calculated as follows:**

A- Course credit points = number of credit hours for the course x course points.

B-Cumulative GPA average for each semester (to the nearest three decimal places) according to the following formula:

$$\frac{[\text{Course Grade 1 points}] + [\text{Course Score 2}] + \dots + \dots}{\dots}$$

The total number of credit hours for all courses completed by the student in the semester

**C - The CGPA is calculated according to the following formula:**

The total score for all courses completed by the student

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Total credit hours for all courses



- The course in which the student gets a grade less than the minimum success according to Article (17) is not considered within the credit hours prescribed in the semester, and does not fall within the GPA account.
- A student may retake exam in the courses he has previously studied to improve the cumulative average or achieve the requirements for obtaining the degree, and calculated if his previous grade is greater than or equal to (B-), but if his previous grade is less than or equal to (C +), so the final grade is calculated with a maximum of (B) when calculating the average, and consideration must be given to improving the lower courses first.

### **Article (19) Transfer of credit hours from other universities:**

After approval of the faculty Council and based on the suggestion of the Department Council, the student is allowed to transfer a number of credit hours studied at another university, provided that they are among the requirements for obtaining the degree and that he has succeeded with a grade of no less than C or its equivalent, provided that:

- (A) The total transferred hours do not exceed 30% of the total academic hours necessary to obtain the degree
- (B) It must not have been calculated for him or obtained a certificate
- (C) Those credit hours transferred from another university not counted in the GPA

A student enrolled in one of the post graduate programs at Benha University is allowed to transfer any number of credit hours in which he passed with a grade of at least C or its equivalent previously studied at the University of Benha in a program that has not been completed to any of the graduate programs that he wishes to join if these courses are program requirements and these hours are calculated in the GPA.

### **Article (20) Exams and evaluation rules for the course:**

- Each credit hour shall be allocated at least one hour for the written examination, so that the examination time does not exceed two hours.
- one hundred degrees is assigned to evaluate each course, then the result of the course is determined in points as recorded in Article (16). Courses with one credit hour, fifty degrees are allocated for the course evaluation.





- 50% of the score is devoted to the written examination and the remainder (50%) is allocated to the oral and practical exams, periodic tests, and continuous evaluation.
- For success in any course, the student must obtain at least 40% of the grades assigned to the written examination.
- **Incomplete:** If the student fails to attend the exam on its time due to an accepted excuse, student may retake test at a date determined by the faculty and the department and student takes (I) that means Incomplete.
- To pass any course, it is required to attend all final exams of the course (theory, practical and oral).
- Final examinations are held at the end of each semester according to an announced schedule that includes written, oral and practical examinations. The student's success or failure in any course is estimated with one of the grades as shown in the following table:

**Table (7): Shows the percentages for the degree and courses grades**

#	%	Grade
1.	95% to 100%	A+
2.	90% to less than 95%	A
3.	85% to less than 90%	B+
4.	80% to less than 85%	B
5.	75% to less than 80%	C+
6.	70% to less than 75%	C
7.	65% to less than 70%	D+
8.	60% to less than 65%	D
9.	Less than 60%	F



The student is granted a certificate with course grades in Arabic or in English, stating the course name and grade.

### **Article (21): Attendance:**

- The student who is registered for postgraduate studies is not entitled to take the exam of the course if did not achieve a attendance rate of 75%, and that is based on the report of the subject professor with a briefing to the department council and the approval of the Graduate Studies and Research Committee and the faculty Council.

### **Article (22): Academic Advisor:**

The Department Council determines an academic advisor for students, upon the start of study, from faculty members who continues with him until the end of the study of postgraduate diploma, and is replaced by the scientific supervisor for students registered for the master's and doctorate degrees. The academic advisor provides advice and guidance to the student during his study period and to help him choose the necessary and supplementary courses, and the opinion of the academic advisor is advisory to the student until the end of the student's study of the courses.

### **Article (23) Suspension of registration:**

- The suspension of enrollment for a graduate student is in accordance with the rules to be decided by the University's Graduate Studies and Research Council and it is required to take place before the end of the original period of enrollment or registration, and the registration may not be suspended while studying any of the credit hours decisions.
- The suspension period is not counted within the periods stipulated in the program.
- The Faculty Council may, upon the suggestion of the department's department, suspend the registration of the student for postgraduate studies (Master - PhD) six semesters separate or related to a maximum limit, in the following cases:
  1. Sick conditions, provided that the student presents the necessary sick certificates approved by the university's medical department



2. Accompanying the husband or wife to travel abroad provided that the student submits proof of that.
  3. Cases of recruitment to the armed forces, and submitting evidence of that.
  4. Childcare leave provided that an approved certificate from the workplace is presented for workers or the child's birth certificate.
  5. Training grants and official assignments in which the student is dispatched through his work authority.
  6. And other cases accepted by the Faculty Board.
- At the end of the suspension period, the suspension must be lifted at the request of the student.

#### **Article (24) Cancellation of registration:**

**The registration for the graduate student is canceled in the following cases:**

- Failure to meet the minimum required credit hours in the specified period.
- Exhaustion of opportunities to enter the exam (4 opportunities).
- If the prescribed period has passed and he did not submit his thesis.
- Breaching moral and academic values such as cases of fraud and breaches of scientific trust.
- Submit two consecutive reports over two academic semesters from the supervisor stating that the student is not serious about completing the research segment, after warning the student for three consecutive times.
- If the discussion committee rejects thesis twice successively.
- The student submitted a request to cancel the registration, and to approve his application after it was approved by Prof. Dr. Vice President for Graduate Studies

#### **Article (25): Re-registration:**

- It is permissible to re-enroll the student if the cancellation was not due to a disciplinary penalty a year after the cancellation of the one-time enrollment, according to the provisions of the Universities Organizing Law.



- If the student is re-enrolled after passing the courses in the same subject, the Ph.D. student is granted a maximum of four semesters and the master student is two semesters and the thesis judging committee is not formed until after the end of this period.

### **Common general rules for master's and doctorate degrees**

#### **Article (26) Common General Provisions:**

- 1. Registration dates:** Applications for registration are submitted during the month of July of each year. The student is considered enrolled from the date of approval of the Faculty Board. The student submits the application for enrollment to the Department of Graduate Studies, and then the application is referred to the relevant department council to determine the academic advisor and academic courses for presentation to the faculty council.
- 2. General Conditions:** The student is required to provide evidence that:
  - A.** Pass the English proficiency test during the preliminary year. The English language test means the TOEFL certificate awarded by the AMIDEAST or the Elts certificate granted by the British Council or the language proficiency certificate granted by a specialized center in the university according to the rules established by the university council and the validity of the English language proficiency certificate for two years. And taking into account the rules approved by the Supreme Council of Universities in this regard.
  - B.** Obtaining the International Computer Driving License (ICDL) before forming the Governance and Discussion Committee of its mission.

#### **Article (27) Supervising the thesis:**

- After the student passes the preliminary courses, the faculty council is appointed based on relevant department council and the approval of the Graduate Studies and Research Committee of the student supervision committee from among the faculty members working in the faculty (lecturers may participate in the supervision committee of the master's thesis one year after obtaining a PhD and after three Years of degree to supervise the PhD student), and with the approval of the Faculty Board, one or more members (professors or associate professors) who are



specialists from outside the university may participate in the supervision, provided that the number external supervisors not exceed internal supervisors.

- In all cases, the number of supervisors must not exceed three for the master's degree and four for the PhD, and it is not permissible to solely supervise the thesis.
- In the event that one of the supervisors travels abroad, the Faculty Council has the right to leave the Supervisory Committee as it is or add a member or remove the supervisor who has traveled abroad from the Supervision Committee or both, based on the proposal of the relevant department council and the approval of the Graduate Studies and Research Committee according to the report submitted by the supervisor before approving his travel, provided that the student has completed 75% of the research plan for the subject of the study.
- The Faculty Council may amend the Supervision Committee for lifting or addition, based on the proposal of the main supervisor and the approval of the relevant department council and the Committee for Graduate Studies and Research and approval of Vice President for Graduate Studies and Research. The student may not defend until six months after approval have passed in the event that a new supervisor is added.
- Every six months, the main supervisor submits a report to the relevant department council on the student's progress in his studies, and the supervising committee can recommend the continuation of the enrollment or its cancellation.
- In the event of the death of the supervisor: The supervisor who died after a joint participation in supervision supervises all material, moral and scientific rights, and a new supervisor may be appointed after the approval of the department council.
- It is not permissible for the faculty member to participate in supervising the scientific thesis submitted by a relative up to the fourth degree, and this applies to the Judging and Discussion Committee. Likewise, it is not permissible for more than one faculty member to participate in supervising the scientific thesis if there is a relative degree in between.

#### **Article (28): Changing the subject of the research:**

Upon the request of the supervisor, the department council may change the student's research subject for one time only, if the change is essential in this case the student's registration is considered from the date of changing the



research topic and the new research topic is approved by the Graduate Studies and Research Committee and the Faculty Council then from the Vice President of Graduate Studies. In the event of a title change of the subject of the thesis, the student may not be discussed six months before approval. The Judging and Discussion Committee may make an amendment to the title of the thesis without prejudice to the topic of the research.

### **Article (29): Scientific Thesis:**

- Upon completion of the master's / doctorate student's preparation of the draft thesis and its signature from the main supervisor, the main supervisor submits to the department board concerned in preparation for presentation to the faculty board as follows:

1. A report for the scientific trustworthiness and plagiarism.
2. A report on the validity of the thesis, indicating the title of the thesis in both Arabic and English, and bearing the signatures of supervisors.
3. Request to form a judging committee among three candidates, one of whom is the supervisor or supervisors, and supervisors have one vote.
4. A paper copy of the thesis, and an electronic one in writing in accordance with the instructions for writing academic theses.
5. Copies of the thesis to deliver to the Judging and Discussion Committee.

- After authorizing the thesis from the Judging Committee and making the necessary adjustments, the student submits 2 copies of the thesis approved by the Judging Committee and the supervisors, in addition to a CD containing the thesis, a summary and an abstract in Arabic, and a summary in the English language approved by the main supervisor and supervisors to the Department of Graduate Studies in the faculty.

### **Article (30): Thesis judging Committee:**

- On the proposal of the relevant department council, the faculty council forms a committee to judge and discuss the thesis from three members, one of whom is the supervisor or supervisors, with one vote next to two members from among the professors or assistant professors in the Egyptian universities or who have their academic level, provided that one of them is at least one external for the Master's



thesis, and outside the university for the doctoral thesis, the committee is chaired by the oldest members.

- The degree is not granted to academic thesis for students to whom a new supervisor is added, except after at least six months have passed since the supervisor was added, bearing in mind that the remaining enrollment period allows the student to do so.
- The Vice Chancellor for Graduate Studies and Research depends on the formation of a judgment committee on the thesis, after approval of the College Board. And the validity period of the judgment committee for the thesis (three months) from the date of its approval.
- The committee chosen by the department council to judge the thesis is required to be in the field of research specialization, and one of the members of the ruling committee must be from outside the college or from outside the university according to the nature of the thesis.
- The discussion may take place in the presence of only two members, and on the condition that one of them is a supervisor, in case of one of the members apologizes.
- Each member of the judging Committee submits an individual report on the thesis, and the committee submits a collective report on the thesis, and all of them are presented to the relevant department council, then to the college's postgraduate studies and research committee, then to the college's council in preparation for submission to the university's council.
- The committee may recommend in its collective report one of the two recommendations to accept the thesis or reject the thesis, and the refusal is absolute.
- The letter may be sent back to the student to complete what the committee deems necessary and gives the student an opportunity of no more than six months from the date of the discussion, provided that the maximum limit for granting the degree is not exceeded. In this case, the student is re-discussed and the committee submits a collective report to the relevant department council.
- In the case of a master's or doctorate, a collective report from the committee that states that thesis is not valid for the degree if supervisors differ on the feasibility of



the student continuing the research / or the thesis's validity for discussion, the judgment is made to a committee proposed by the Graduate Studies Committee and the College Council.

• It is permissible to use an evaluator from outside Egypt for the doctoral thesis, and the evaluator is chosen according to the following criteria:

- Evaluator is at least professor or an assistant professor.
- The number of thesis he evaluates in the faculty should not exceed three thesis in the academic year.
- The evaluator's specialization should be similar to that of the thesis
- That the evaluator's approval letter not passed more than two months to form discussion committee.
- The validity period of forming the discussion committee from the date of approval is six months, at most.





## **Chapter 2: Academic Degrees for Postgraduate Studies**

### **First: Postgraduate Diploma**

#### **Article (31) Registration Conditions:**

The student's registration for any of the postgraduate diplomas stated in Article (1) require:

- To have a bachelor's degree in veterinary medical science from an Egyptian university, and postgraduate diplomas specializing in physiology, histology, biochemistry, clinical pathology, pharmacology, bacteria, fungi and immunology, parasites and forensic medicine for graduates of medical colleges, and biochemistry subjects may be registered. Pharmacology, bacteria, fungi and immunology, forensic medicine and toxicology for graduates of pharmacy colleges, biochemistry subject for graduates of faculties of science, biochemistry division, special chemistry, biochemistry and Chemical nutrition.
- Passed at least one year since obtaining bachelor's degree for graduates of the College of Science, and international students may be accepted on terms determined by the College Board.
- Graduates of the College of Veterinary Medicine, Human Medicine and Pharmacy can register to obtain a diploma in one of the scientific disciplines without being bound by a year's requirement for graduation.

#### **Article (32): The study period:**

- Applying for enrollment in a postgraduate diploma will be during July.
- The period of study for obtaining a postgraduate diploma is two semesters, the first of which begins during the month of September and the second during the



month of February. The student may not remain enrolled to this degree for more than four semesters.

- The student enrolled in the graduate diploma will study courses with a total of 30 credit hours (except for a 24-hour animal microbiology diploma and a clinical biochemistry diploma of 26 hours) for two semesters. The student studies in the first semester three courses in the specialization subject (3 credit hours), including 2 elective courses and two assistant courses outside of the specialization subject (3 hours) for each course, and the second semester the student studies 2 courses in the specialization subject each of them 3 credit hours in addition to 3 courses outside of the specialization subject, including an elective course. Elective courses limit the orientations of each diploma according to their nature. For one-way diplomas, all courses are compulsory.

While Diploma in Biochemistry and Clinical, the student study: General Biochemistry (2 hours), Clinical Biochemistry (2 hours), Physiology (2 hours), Clinical Pathology (one hour) and histology (one hour) over two semesters in addition to 2 practical hours for each course .

As for the diploma of animal microbiology, the student studies bacteria, fungi, immunology and virology in two semesters, each of them 3 credit hours.

- It is required to achieve attendance rate of at least 75% of the total hours of the course in accordance with Article (25) to enter the exam the first time, and this ratio is not required for those who repeat the exam in the same course. If the student is absent without an acceptable excuse for one semester, his enrollment will be canceled.

- Postgraduate Diploma exams are held at the end of each semester in all courses that have been registered in addition to the courses in which the student has



previously failed and the student is not granted more than the upper limit of the D + estimate (69%) if he succeeds in these courses.

- The student gets a postgraduate diploma in the specialty field if all the specific courses have been studied in a period of no more than two years and an average score of no less than 2.000
- A student may not be enrolled in more than one diploma.



## **Second: Master's degree in veterinary medical sciences**

### **Article (33) registration rules for the master's degree:**

For enrollment in a master's degree, the student must:

- Have a bachelor's degree in veterinary medical science from an Egyptian university or have a degree in veterinary medical science equivalent from the Supreme Council of Universities with grade (good) and grade (very good) in specialization least or average courses covered by the specialization subject.
- Students who hold one of the postgraduate diplomas referred to in Article (1) may also be accepted with a general grade (good) and at least a (very good) grade in the specialization subject or the average of the courses covered by the specialization subject.
- Students who hold a postgraduate diploma in veterinary medical science from an Egyptian university may be accepted under the same conditions.
- A foreign student with a bachelor's degree in veterinary medical science and an equivalent from the Supreme Council of Universities is admitted with an acceptable general grade and at least grade (good) in the major.
- It is permissible to enroll for a master's degree in anatomy, histology, physiology and biochemistry, clinical pathology, pharmacology, bacteria, fungi and immunology, virology, parasites, forensic medicine, toxicology, surgery, anesthesia and radiology for students with a Bachelor of Medicine from a university Egyptian or an equivalent degree to it. A Master's degree in biochemistry, pharmacology, forensic medicine and toxicology may also be registered for those who hold a bachelor's degree in pharmaceutical sciences from an Egyptian university or an equivalent degree. The Master's degree in biochemistry may also be registered for students holding a Bachelor of Science



degree, for graduates of Faculties of Science, Biochemistry Division, Special Chemistry Division, Biochemistry Division and Nutrition Chemistry Division.

- The student must have obtained a bachelor's degree at least one full year and two years for graduates of the College of Science.

**Article (34): Duration of registration for a master's degree:**

- The registration period for obtaining a master's degree is four semesters, at least two semesters for the introductory study and two semesters for conducting research and preparing the thesis.
- It is not permissible for the student to remain restricted to this degree by more than eight semesters; the college council has the right to extend for other periods not exceeding four semesters, based on the request of the supervisor and the approval of the relevant department council and the college council.

**Article (35) study requirements:**

- The student studies 38 credit hours, 24 of which are credit hours for studying courses in two semesters of 15 weeks each term; 14 credit hours for preparing the thesis, provided that the thesis preparation period is not less than two semesters.
- That the student study nine courses with a number of 24 credit hours over two semesters, including four courses in the first semester: 2 courses in the specialization subject by 3 credit hours in addition to a number of university and college requirements courses, all of which are compulsory and are statistical applications and research ethics and scientific writing and publishing a number of hours Accredited, and bioinformatics is 2 credit hours, while in the second semester the student studies five courses, including 2 courses in the specialization subject in addition to the number of 3 courses outside of the



specialization course, each of them has 3 credit hours in the second semester of them is an elective course (chosen by the student).

- The student successfully performs the written, oral and practical examination in all the courses in which he was registered in addition to the courses in which he previously failed. The student shall not be awarded more than the upper limit of the "D +" grades if he succeeds in courses he previously failed.

**Article (36): Registering for the subject of the research / supervising the thesis:**

- After the student succeeds in the introductory courses with a general grade of at least C, the scientific department designates the supervisory board (so that the number of supervisors is not less than 2 and not more than 3) and determines the research point.
- The student, under the supervision of the Supervisory Board, prepares an integrated research plan that is publicly presented for discussion, and the department's approval of the plan is taken to be within the research plan of the department and the college.
- The Supervisory Board submits the application for registration attached to the research plan, approved by the department's council, and then the approval of the Graduate Studies Committee and the College Council to register the research topic.
- The Supervisory Board shall submit an annual report on the progress of the student in study and research, and submit it to the College's Graduate Studies Department.
- The Master thesis is submitted after at least one year (two semesters) from the date of registration of the research topic. The student submits the results of his



research in a thesis accepted by the Judging Committee after examining it and discussing it publicly, and that it is preceded by publishing it for research extracted from the thesis at least, or that they are accepted for publication in one of the specialized journals or a specialized international scientific conference.

### **Article (37) Supervisory Board:**

- The College council approves the formation of the Supervision Committee for the registered student for the master's degree based on the proposal of the department's council and according to the department's research plan from among the professors or professors from outside the specialization subject. The lecturers may participate in the supervision so that the number of supervisors does not exceed three members.
- In the event that the student conducts the research outside the university, it is permissible, with the approval of the College Board, to participate in the supervision of a specialist who holds a PhD degree from the authority in which the research is conducted provided that the main supervisor is from the university.
- In the event that one of the supervisors travels and it is not yet publicly supervised by the College Council, that he raises his name from the Supervision Committee based on the proposal of the Department Council and recommends that the Board extend acknowledge him in the thesis.
- If the supervisor travels a year after the registration, he is required to submit a report on the progress of the student in the research during the period of supervision of the thesis signed by the other supervisors while preserving his right to publish the results of the thesis, and in the validity report, he will suffice with the report of the supervisor or supervisors inside.



- Supervisors of the thesis submit a periodic report on the progress of the student every six months from the date of registering the research plan, and it is signed by the supervision committee collectively, and in the event of differing opinions of the members of the supervision committee, the department will study the case, and the reports are approved by the department council and the college's higher studies committee. The student is notified of the supervision committee's opinion of his progress in the thesis, continuing to register, warning the student, or canceling the registration of the message.
- Student registration is canceled if two consecutive reports are issued stating that his performance is not satisfactory, after three warnings were issued to him.

#### **Article (38) The judgment and discussion committee:**

- After completing its preparation, the supervision committee shall submit to the relevant department council in preparation for presentation to the college council as follows:
- A report on the validity of the thesis for discussion indicating its scientific and research level and the scientific additions made by the researcher and signed by all supervisors, and the supervision committee submits a proposal to form a judging committee on the thesis.
- On the proposal of the relevant department council, the College Council forms a committee to judge the thesis from three members, one of whom is the supervisor of the thesis and the other two are among the university professors. The president of the committee is the oldest professor and in the case of multiple supervisors, they may participate in the committee provided they have one vote, and The two members, or one of them, may be from the previous professors or who have a scientific level of specialists, provided that at least one of them is from outside the





college and the formation of the judging committee is approved by the Vice president for Graduate Studies and Research.

- The discussion may take place in the presence of a representative of the Supervisory Committee in the event that it is not possible for other supervisors to attend.
- In the event that the period of validity of the formation of the Judging and Discussion Committee expires and the message has not been discussed (three months from the date of the Vice-president's accreditation), the committee will be re-accredited by the same members again and in the event that the committee does not meet, the committee's composition will be changed to another committee.
- The Judging and Discussion Committee has the right to recommend that the thesis be returned to the researcher to complete what it deems necessary to submit a collective report to the relevant department in which it recommends that the student be given a period to complete required changes within six months maximum from discussion date provided that the Judgment Committee or his delegate agree to authorize the thesis.

**Article (39): Judging the thesis and granting the degree:**

- All requirements of the general rules regarding the formation of the Judging and Discussion Committee and the award of degrees are applied.
- The student presents the results of his research in a thesis accepted by the Judging committee after examining and discussing it openly.
- That the certificate show the master's degree in veterinary medical sciences, the subject of specialization and the title of the thesis, and for students who are enrolled according to Article (33) the certificate shows the master's degree, the subject of specialization and the title of the thesis.



- The university grants the master's degree to the student who passes the discussion of his thesis and all degree requirements based on the proposal of the department council and the approval of the college council and without the grade or the cumulative average of degrees in the master's degree.



### **Third: PhD degree in Veterinary Medical Sciences**

#### **Article (40): Registration rules for the degree of Doctor of Philosophy in Veterinary Medical Sciences:**

For a student to be enrolled in a PhD degree in veterinary medical sciences, he must have a master's degree in veterinary medical sciences in the same specialty from an Egyptian university or an equivalent degree from the Supreme Council of Universities.

#### **Article (41): Duration of registration for the degree of Doctor of Philosophy in Veterinary Medical Sciences:**

The registration period for obtaining a PhD degree is six semesters, at least 15 weeks each. Including two semesters for introductory study and four semesters for research and thesis preparation.

The student may not remain enrolled for this degree more than ten semesters. The College Council has the right to extend for periods that do not exceed six other classes, upon the request of the responsible supervisor and the approval of the relevant department council and the college council.

#### **Article (42) study requirements:**

##### **To obtain a PhD degree in Veterinary Medical Sciences:**

- Student should study 50 credit hours, of which 22 credit hours are for preliminary study, 28 credit hours for preparing the thesis. The thesis preparation period is not less than four semesters.
- The student studies 22 credit hours to study the courses in two semesters, including 2 courses in the specialization subject, each of them 3 credit hours, one



of them is an optional course and seminars in the field of specialization by 2 credit hours in each semester, in addition to a number of two courses outside the specialization course, 3 credit hours each in each semester, both of them an elective course in the second semester.

- The student must successfully complete the written, oral and practical exam in all study courses assigned to him, and the exam will be held at the end of each semester in all the courses in which he was registered in addition to those in which he failed. The student shall not be awarded more than the upper limit of the D + grade scores if he succeeds in the courses in which he previously failed.

**Article (43): Registering for the research topic / supervising the thesis:**

- After the student succeeds in the introductory courses with a general grade of at least C, and the scientific department designates the supervisory board (so that the number of supervisors is not less than 2 and not more than 4), you specify the research point. The student presents the research plan in Seminar before submitting the subject of the thesis and submits it to the department council.
- The student, under the supervision of the Supervisory Board, prepares an integrated research plan that is publicly presented for discussion, and the department's approval of the plan is taken to be within the research plan of the department and college.
- The Supervisory Board submits the application for registration attached to the research plan, approved by the department's council, then approval of the Graduate Studies Committee and the College Council to register the research topic.



- The student shall hold a comprehensive exam orally in the field of specialization within a year from the date of registering the subject of the thesis. He is presented with questions.
- The College Council approves the committee for examiners of the comprehensive oral examination of all PhD students in the department based on the proposal of the relevant department council and the approval of the Committee for Graduate Studies and Research. The other according to the nature of the research, (three members from the major and two members from other subjects related to the research).
- The Supervision Committee submits an annual report on the student's progress in study and research, and assesses it to the College's Graduate Studies Department.

The PhD thesis is submitted after at least two years (four semesters) from the date the subject was registered. The student submits the results of his research in a thesis accepted by the Judging Committee after examining it and discussing it publicly and before that is published for at least two research papers extracted from the thesis or that they are accepted for publication in specialized journals provided that one of these papers is published in one of Scopus journals.

#### **Article (44): The Supervisory Board:**

- The College Council decides to form a committee to supervise the registered student for the PhD degree based on the proposal of the department's council and according to the department's research plan from among the professors or professors who are outside the specialization course. Lecturers may participate in supervision so that the number of supervisors does not exceed four members.
- In the event that the student does a research outside the university, it is permissible, with the approval of the College Council, to participate in the



supervision of a specialist who holds a PhD degree or who has experience in the field of specialization from the authority in which the research is conducted. In all cases, the supervision committee does not exceed four members, and the main supervisor is from the university.

- In the event that one of the supervisors travels after one year from registration, the College Council can remove his name from the Supervision Committee based on the proposal of the Department Council and recommends that the Board acknowledge him.
- In the event the supervisor travels a year after the registration of the research point, he submits a scientific report on the progress of the student in the research during the period of supervision of the thesis signed by the other supervisors while preserving his right to publish the results of the thesis, and in the validity report, he suffices with the supervisor or supervisors report inside.
- Supervisors of the thesis issue a periodic report on the progress of the student every six months from the date of registering the research plan, and it is signed by the supervising committee collectively, and in the event of differing opinions, the scientific department studies the case and takes the appropriate decision and reports are approved by the department council and College graduate studies committee. The student is notified by the college's graduate studies department of the supervision committee's opinion of his progress in the thesis, continuing to register, warning the student, or canceling the registration of the thesis.
- The student's registration is canceled if three periodic reports were issued stating that his performance is not satisfactory, after three warnings were issued to him.

**Article (45) The Judgment and Discussion Committee:**



**After completing its preparation, the Thesis Supervision Committee shall submit to the relevant department council in preparation for presentation to the college council as follows:**

- A report on the validity of the thesis for discussion indicating its scientific and research level and the scientific additions made by the researcher and signed by all supervisors, and the supervision committee submits a proposal to form a judging committee on the thesis.
- On the proposal of the relevant department council, the College Council forms a committee to judge the thesis from three members, one of whom is the supervisor of the thesis, and the other two are among the university professors. The president of the committee is the oldest professor. That the two members or one of them are former professors or who have a scientific level of specialists, provided that at least one of them is from outside the university and the formation of the governance committee is approved by the Vice President for Graduate Studies and Research.
- The discussion may take place in the presence of a representative of the Supervisory Committee in the event that it is not possible for other supervisors to attend.
- If the thesis is not discussed within three months from the date of the university's approval to form the judging committee, the committee will be re-accredited by the same members again. In the case of the participation of a foreign examiner, this period may extend to six months.
- The Judging Committee recommends that the thesis be returned to the researcher to complete what it deems necessary, provided that it submit a collective report to the relevant department in which it recommends that the student be given a period to complete its observations within six months at the most from the date of the



discussion, provided that the Judging Committee or his delegate agree to authorize the thesis.

#### **Article (46): Judging the thesis and granting the degree:**

- All requirements of the general rules regarding the formation of a judging and awarding committee are applied.
- The student presents the results of his research in a thesis accepted by the judging committee after examining it and discussing it openly.
- To indicate in the certificate the degree of Doctor of Philosophy in Veterinary Medical Sciences, specialization and title of thesis. For students to whom Article 33 applies, the PhD degree, specialization subject and title of thesis are indicated in the certificate.
- The university grants a PhD degree to the student who passes the discussion of his thesis and all degree requirements based on the proposal of the department council and the approval of the college council and does not monitor the estimate or the cumulative average of degrees in the doctorate.

#### **Article (47) Continuous Learning:**

- Based on the proposal of the councils of the various scientific departments, the college council may approve holding training programs at the level of graduate studies aimed at developing professional skills and developing the scientific level for veterinarians or specialists who have obtained the recognized degrees. Scientific societies may participate in the specialization, concerned bodies, research centers and productive institutions related to specialization in organizing





training programs. Participants in these courses may be granted a certificate stating this without obtaining a degree.

- The student has the right to register in the curricula of graduate studies programs through the continuing education program, after the approval of the department and college councils, and the university is notified of the names of students admitted to the continuing education program until the third week of the start of the study as a maximum. If the student successfully passes the course and its requirements, a statement will be given. The student may also transfer these courses to one of the graduate studies program if he meets the conditions for admission to the program, provided that no more than three years have passed since her studies with regard to diploma and master's programs.

### **Transitional provisions**

**Article (48): This regulation is applied to students who will apply for registration in the college's graduate programs after the issuance of the ministerial decision to adopt these regulations.**

**Article (49): Cases in which no text is mentioned or that arise when applying these regulations, are submitted to the College Council to take the appropriate decision in their regard, and they are presented to the University Council.**



## Chapter 3: Courses of postgraduate programs delivered by scientific departments

### 1- DEPARTMENT OF ANATOMY AND EMBRYOLOGY

<b>Diploma of Applied Anatomy</b> <b>First semester: 15 Credit hours</b>										
Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	Paper exam		
6001	تشريح عام <b>General Anatomy</b>	2	(2)1	3	20	15	15	50	100	2 hours
6002	تشريح الطيور والأسماك <b>Anatomy of poultry and fish</b>	2	(2)1	3	20	15	15	50	100	2 hours
6003	التشريح التطبيقي والسطحي <b>Surface and Applied Anatomy</b>	2	(2)1	3	20	15	15	50	100	2 hours
6137	الأشعة السينية <b>X-ray</b>	2	(2)1	3	20	15	15	50	100	2 hours
6012	أساسيات علم الأنسجة العام <b>Basics of General Histology</b>	2	(2)1	3	20	15	15	50	100	2 hours
<b>Second semester: 15 Credit hours</b>										
6004	أجنة عام <b>General Embryology</b>	2	(2)1	3	20	15	15	50	100	2 hours
6005	التشريح التصويري <b>Radiographic Anatomy</b>	2	(2)1	3	20	15	15	50	100	2 hours
6015	إفسيولوجيا <b>Physiology A</b>	2	(2)1	3	20	15	15	50	100	2 hours
6133	جراحة القوائم <b>Surgery of the limbs, hoof and claw</b>	2	(2)1	3	20	15	15	50	100	2 hours



	مقرر اختياري من خارج مادة التخصص Elective course	2	(2)1	3	20	15	15	50	100	2 hours
<b>Elective courses</b>										
6116	المناظير الطبية وتشخيص الأمراض التناسلية Laparoscopes and diagnosis of reproductive diseases	2	(2)1	3	20	15	15	50	100	2 hours
6068	باطولوجيا الاورام Oncology	2	(2)1	3	20	15	15	50	100	2 hours
<b><u>Master of veterinary medical sciences (Anatomy and Embryology)</u></b>										
<b>First semester: 9 Credit hours</b>										
Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	Year works	Paper exam		
7001	أجنة خاص Special Embryology	2	(2)1	3	20	15	15	50	100	2 hours
7002	تشرح الجهاز الهضمي والبولي التناسلي المقارن Comparative anatomy of digestive and urogenital systems	2	(2)1	3	20	15	15	50	100	2 hours
7000A	المعلوماتية الحيوية Bioinformatics	1	(2)1	2	10	10	5	25	50	2 hours
7000B	التطبيقات الاحصائية وأخلاقيات البحث والكتابة العلمية والنشر Applied statistics and research ethics and scientific writing and publications	1	-	1	-	-	-	50	50	2 hours
<b>Second semester: 15 Credit hours</b>										
7003	تشرح الارانب و حيوانات التجارب Anatomy of rabbits and experimental animals	2	(2)1	3	20	15	15	50	100	2 hours
7004	تشرح الجهاز العصبي والغدد الصماء واعضاء الحس Anatomy of nervous system, endocrine glands and sense organs	2	(2)1	3	20	15	15	50	100	2 hours
7010	هستولوجيا الحيوان الخاص (أ) Special Veterinary Histology (A)	2	(2)1	3	20	15	15	50	100	2 hours
7046	تضاعف المادة الوراثية والتعبير عنها DNA replication & expression	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص Elective courses	2	(2)1	3	20	15	15	50	100	2 hours
<b>Elective courses</b>										



7086	الذكورة والتلقيح الاصطناعي و نقل الاجنة Andrology, Artificial insemination and Embryo transfer	2	(2)1	3	20	15	15	50	100	2 hours
7015	فسيولوجيا الغدد الصماء Physiology of mammalian endocrine glands	2	(2)1	3	20	15	15	50	100	2 hours

### PhD of veterinary medical sciences (Anatomy and Embryology)

#### First semester: 11 Credit hours

Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	Paper exam		
8001	التكوين الطبيعي للاعضاء وعلم التشوهات الخلقية Normal organogenesis and congenital malformations	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من مادة التخصص Elective courses (specialization)	2	(2)1	3	20	15	15	50	100	2 hours
8111	الهندسة الوراثية وتطبيقاته Genetic engineering & its application	2	(2)1	3	20	15	15	50	100	2 hours
8003	سيمنارات في مجال التخصص seminars in the field of specialization	-	-	2	-	-	-	-	50	-

#### Second semester: 11 Credit hours

8002	البيولوجيا الجزيئية والخلايا الجذعية Molecular biology and stem cells	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من مادة التخصص Elective courses (specialization)	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص Elective courses (Others specialization)	2	(2)1	3	20	15	15	50	100	2 hours
8004	سيمنارات في مجال التخصص seminars in the field of specialization	-	-	2	-	-	-	-	50	-

#### Elective Courses ( Specialization)

8005	تشریح الجهاز التنفسي، الدوري، القلب والجهاز الليمفاوي Comparative anatomy of respiratory, cardiovascular and lymphatic systems	2	(2)1	3	20	15	15	50	100	2 hours
8006	تشریح الطيور Avian anatomy	2	(2)1	3	20	15	15	50	100	2 hours
8007	تشریح الجمال	2	(2)1	3	20	15	15	50	100	2 hours



	<b>Anatomy of the Dromedary Camel</b>									
8008	تشريح النعام <b>Anatomy of Ostrich</b>	2	(2)1	3	20	15	15	50	100	2 hours
8009	تشريح القشريات والرخويات <b>Anatomy of crustaceans and molluscus</b>	2	(2)1	3	20	15	15	50	100	2 hours
8010	تشريح الحيوانات البرية <b>Anatomy of wild animals</b>	2	(2)1	3	20	15	15	50	100	2 hours
<b>Elective Courses ( Other Specializations)</b>										
8016	الكيمياء الحيوية للخلايا الجذعية <b>Stem Cells</b>	2	(2)1	3	20	15	15	50	100	2 hours
8116	تنظيم التعبير الجيني <b>Regulation of gene expression</b>	2	(2)1	3	20	15	15	50	100	2 hours



## 2- DEPARTMENT OF BIOCHEMISTRY

<b><u>Diploma of Biochemistry and Clinical Biochemistry</u></b>										
<b>First semester: 15 Credit hours</b>										
Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	Paper exam		
6006	كيمياء حيوية عام (أ) General Biochemistry A	2	(2)1	3	20	15	15	50	100	2 hours
6008	كيمياء حيوية اكلينيكية (أ) Clinical Biochemistry A	2	(2)1	3	20	15	15	50	100	2 hours
6015	فسيولوجيا (أ) Physiology A	2	(2)1	3	20	15	15	50	100	2 hours
6072	باطولوجيا اكلينيكية (أ) Diagnosis of metabolic, electrolytes and minerals disturbances	1	(2)1	2	10	10	5	25	50	2 hours
6011	هستولوجيا (أ) Basics of Cytology and Cytochemistry	1	(2)1	2	10	10	5	25	50	2 hours
<b>Second semester: 15 Credit hours</b>										
6007	كيمياء حيوية عام (ب) General Biochemistry B	2	(2)1	3	20	15	15	50	100	2 hours
6009	كيمياء حيوية اكلينيكية (ب) Clinical Biochemistry B	2	(2)1	3	20	15	15	50	100	2 hours
6018	فسيولوجيا (ب) Physiology B	2	(2)1	3	20	15	15	50	100	2 hours
6074	باطولوجيا كلينيكية (ب) Diagnosis of digestive system diseases	1	(2)1	2	10	10	5	25	50	2 hours
6013	هستولوجيا (ب)	1	(2)1	2	10	10	5	25	50	2 hours



	Veterinary Histology									
<b>Master of veterinary medical sciences (Biochemistry)</b>										
<b>First semester: 9 Credit hours</b>										
Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	Paper exam		
7005	الكيمياء الحيوية عام وكيمياء التغذية الإكلينيكية General biochemistry and nutritional biochemistry	2	(2)1	3	20	15	15	50	100	2 hours
7007	الكيمياء الحيوية للتمثيل الغذائي Metabolism of food stuff	2	(2)1	3	20	15	15	50	100	2 hours
7000A	المعلوماتية الحيوية Bioinformatics	1	(2)1	2	10	10	5	25	50	2 hours
7000B	التطبيقات الاحصائية وأخلاقيات البحث والكتابة العلمية والنشر Applied statistics and research ethics and scientific writing and publications	1	-	1	-	-	-	50	50	2 hours
<b>Second semester: 15 Credit hours</b>										
7006	الكيمياء الحيوية الإكلينيكية Clinical Biochemistry	2	(2)1	3	20	15	15	50	100	2 hours
7008	الكيمياء الحيوية والبيولوجيا الجزيئية Biochemistry and molecular biology	2	(2)1	3	20	15	15	50	100	2 hours
7014	فسيولوجيا النمو والتمثيل الغذائي Metabolism and energy	2	(2)1	3	20	15	15	50	100	2 hours
7024	المناعة Immunity	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص Elective courses	2	(2)1	3	20	15	15	50	100	2 hours
<b>Elective courses</b>										
7020	التسمم الدوائي Drug toxicology	2	(2)1	3	20	15	15	50	100	2 hours
7053	باتولوجيا الجهاز الهضمي والجهاز التنفسي والأمراض المتعلقة بهما Pathology of urinary and reproductive systems and its related diseases	2	(2)1	3	20	15	15	50	100	2 hours
7071	السموم وتأثيرها على أجهزة الجسم Toxins and their effect on body systems	2	(2)1	3	20	15	15	50	100	2 hours



## PhD of veterinary medical sciences (Biochemistry)

### First semester: 11 Credit hours

Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	Year works	Paper exam		
8011	الكيمياء الحيوية (متقدم) Advanced biochemistry	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من مادة التخصص Elective courses (specialization)	2	(2)1	3	20	15	15	50	100	2 hours
8137	باتولوجيا الاورام Pathology of advanced Oncology	2	(2)1	3	20	15	15	50	100	2 hours
8013	سيمنارات في مجال التخصص Seminars in the field of specialization	-	-	2	-	-	-	-	50	-

### Second semester: 11 Credit hours

8012	الكيمياء الحيوية التطبيقية الإكلينيكية (متقدم) Advanced clinical biochemistry	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من مادة التخصص Elective courses (specialization)	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص Elective courses (Other specialization)	2	(2)1	3	20	15	15	50	100	2 hours
8014	سيمنارات في مجال التخصص Seminars in the field of specialization	-	-	2	-	-	-	-	50	-

#### Elective Courses ( Specialization)

8015	الكيمياء الحيوية للبروتينات والمناعة والاشعاعات Protein Chemistry, Immunochemistry and Radiation	2	(2)1	3	20	15	15	50	100	2 hours
8016	الكيمياء الحيوية للخلايا الجذعية Stem Cells	2	(2)1	3	20	15	15	50	100	2 hours
8017	الاشارات الكيميائية الحيوية Cytokines and signals transduction	2	(2)1	3	20	15	15	50	100	2 hours
8018	الكيمياء الحيوية للانزيمات Clinical enzymology and its relation to inflammatory markers	2	(2)1	3	20	15	15	50	100	2 hours
8019	الكيمياء الحيوية لبيولوجيا الاورام Biology of cancers	2	(2)1	3	20	15	15	50	100	2 hours
8020	الكيمياء الحيوية لخلل الغدد الصماء وازالة السموم Metabolic disorders of endocrine glands and	2	(2)1	3	20	15	15	50	100	2 hours





	detoxification of toxins									
<b>Elective Courses ( Other Specializations)</b>										
8037	فسيولوجيا الطاقة و التمثيل الغذائي Physiology of body energy and metabolism	2	(2)1	3	20	15	15	50	100	2 hours
8119	العلاج بالجينات وانتاج الادوية باستخدام الهندسة الوراثية DNA biotechnology & its application	2	(2)1	3	20	15	15	50	100	2 hours

### 3- DEPARTMENT OF HISTOLOGY

<b>Diploma of Histology and histological techniques</b>										
<b>First semester: 15 Credit hours</b>										
Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	Paper exam		
6010	التقنيات الهستولوجية Histological Techniques	2	(2)1	3	20	15	15	50	100	2 hours
6011	اساسيات علم الخلية و كيمياء الخلية (هستولوجيا أ) Basics of Cytology and Cytochemistry	2	(2)1	3	20	15	15	50	100	2 hours
6012	اساسيات علم الانسجة العام Basics of General Histology	2	(2)1	3	20	15	15	50	100	2 hours
6006	كيمياء حيوية عام (أ) General Biochemistry A	2	(2)1	3	20	15	15	50	100	2 hours
6068	باثولوجيا الاورام Oncology	2	(2)1	3	20	15	15	50	100	2 hours
<b>Second semester: 15 Credit hours</b>										
6013	هستولوجيا الحيوان (هستولوجيا ب) Veterinary Histology	2	(2)1	3	20	15	15	50	100	2 hours
6014	هستولوجيا الطيور و الاسماك Histology of Poultry and Fish	2	(2)1	3	20	15	15	50	100	2 hours
6001	تشريح و اجنه (تشريح عام) General Anatomy	2	(2)1	3	20	15	15	50	100	2 hours
6031	فيرلوجي تركيبى و وظيفى structural and functional virology	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
<b>Elective courses</b>										
6071	تشخيص أمراض خلايا الدم Diagnosis of Blood cells diseases	2	(2)1	3	20	15	15	50	100	2 hours
6020	فارماكولوجيا عامة General pharmacology	2	(2)1	3	20	15	15	50	100	2 hours



6123	أمراض سوء التغذية والرعاية في الأرانب Nutritional and bad management diseases of rabbit.	2	(2)1	3	20	15	15	50	100	2 hours
<b>Master of veterinary medical sciences (Histology)</b>										
<b>First semester: 9 Credit hours</b>										
Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	Paper exam		
7009	هستولوجيا عام General Histology	2	(2)1	3	20	15	15	50	100	2 hours
7010	هستولوجيا الحيوان الخاص (أ) Special Veterinary Histology (A)	2	(2)1	3	20	15	15	50	100	2 hours
7000A	المعلوماتية الحيوية Bioinformatics	1	(2)1	2	10	10	5	25	50	2 hours
7000B	التطبيقات الاحصائية وأخلاقيات البحث والكتابة العلمية والنشر Applied statistics and research ethics and scientific writing and publications	1	-	1	-	-	-	50	50	2 hours
<b>Second semester: 15 Credit hours</b>										
7011	هستولوجيا الحيوان الخاص (ب) Special Veterinary Histology (B)	2	(2)1	3	20	15	15	50	100	2 hours
7012	هستولوجيا الطيور البرية والقشريات والرخويات Histology of wild birds crustaceans and molluscs	2	(2)1	3	20	15	15	50	100	2 hours
7001	اجنه خاص Special Embryology	2	(2)1	3	20	15	15	50	100	2 hours
7073	استزراع و رعاية الاسماك والقشريات Management and culture of fish and crustacean	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص Elective Course ( Other Specializations)	2	(2)1	3	20	15	15	50	100	2 hours
<b>Elective courses</b>										
7020	التسمم الدوائي Drug toxicology	2	(2)1	3	20	15	15	50	100	2 hours
7056	باثولوجيا الاورام لاجهزة الجسم المختلفة Oncology in different body systems	2	(2)1	3	20	15	15	50	100	2 hours
7017	فارماكولوجيا الاجهزة Systemic pharmacology	2	(2)1	3	20	15	15	50	100	2 hours
7024	المناعة Immunity	2	(2)1	3	20	15	15	50	100	2 hours
7090	الأمراض المؤثرة في الجهاز المناعي للطيور والأرانب Diseases affecting immune system of avian and rabbit	2	(2)1	3	20	15	15	50	100	2 hours
7025	فيروسولوجي عام general virology	2	(2)1	3	20	15	15	50	100	2 hours
<b>PhD of veterinary medical sciences (Histology)</b>										
<b>First semester: 11 Credit hours</b>										



Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	Paper exam		
8021	هستولوجيا التناسل و الغدد الصماء <b>Histology of Reproduction and Endocrine</b>	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر من التخصص اختياري <b>Elective Course (Specializations)</b>	2	(2)1	3	20	15	15	50	100	2 hours
8209	الخصوبة و التناسل في الحيوان <b>Animal reproduction and fertility</b>	2	(2)1	3	20	15	15	50	100	2 hours
8023	سيمنارات في مجال التخصص <b>Seminars in the field of specialization</b>	-	-	2	-	-	-	-	50	-
<b>Second semester: 11 Credit hours</b>										
8022	هستولوجيا الهضم والتنفس والإخراج <b>Histology of Digestion, Respiration and Excretion</b>	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من مادة التخصص <b>Elective Course (Specializations)</b>	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص <b>Elective Course (Other Specializations)</b>	2	(2)1	3	20	15	15	50	100	2 hours
8024	سيمنارات في مجال التخصص <b>Seminars in the field of specialization</b>	-	-	2	-	-	-	-	50	-
<b>Elective Courses ( Specialization)</b>										
8025	علم الخلايا الجذعية و زراعة الأنسجة <b>Stem cells and Tissue Culture</b>	2	(2)1	3	20	15	15	50	100	2 hours
8026	هستولوجيا الأعصاب والحواس <b>Histology of nervous system and sense organs</b>	2	(2)1	3	20	15	15	50	100	2 hours
8027	هستولوجيا القلب و الدم والجهاز الدوري <b>Histology of Cardiovascular system and Blood</b>	2	(2)1	3	20	15	15	50	100	2 hours
8028	هستولوجيا المناعة <b>Histology of Immune system</b>	2	(2)1	3	20	15	15	50	100	2 hours
8029	هستولوجيا الدواجن <b>Avian Histology</b>	2	(2)1	3	20	15	15	50	100	2 hours
8030	هستولوجيا الاحياء المائية <b>Aquatic Histology</b>	2	(2)1	3	20	15	15	50	100	2 hours
<b>Elective Courses ( Other Specializations)</b>										
8062	اللقاحات و المناعة الفيروسية <b>Viral immunity and vaccines</b>	2	(2)1	3	20	15	15	50	100	2 hours
8016	الكيمياء الحيوية للخلايا الجذعية <b>Stem Cells</b>	2	(2)1	3	20	15	15	50	100	2 hours



#### 4- DEPARTMENT OF PHYSIOLOGY

<b>Diploma of general physiology</b>										
<b>First semester: 15 Credit hours</b>										
Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	Paper exam		
6015	فسيولوجيا (أ) Physiology A	2	(2)1	3	20	15	15	50	100	2 hours
6016	فسيولوجيا المناعة Physiology of immunity	2	(2)1	3	20	15	15	50	100	2 hours
6017	فسيولوجيا الطاقة والتمثيل الغذائي Physiology of metabolism and energy	2	(2)1	3	20	15	15	50	100	2 hours
6024	فارماكولوجيا اكلينيكية Clinical pharmacology	2	(2)1	3	20	15	15	50	100	2 hours
6013	هستولوجيا الحيوان Veterinary histology	2	(2)1	3	20	15	15	50	100	2 hours
<b>Second semester: 15 Credit hours</b>										
6018	فسيولوجيا (ب) Physiology B	2	(2)1	3	20	15	15	50	100	2 hours
6019	فسيولوجيا التناسل Physiology of reproduction and lactation	2	(2)1	3	20	15	15	50	100	2 hours
6025	بكتريا (1) Bacteriology (1)	2	(2)1	3	20	15	15	50	100	2 hours
6008	كيمياء حيوية اكلينيكية (أ) Clinical Biochemistry A	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص Elective Course ( Other Specialization)	2	(2)1	3	20	15	15	50	100	2 hours
<b>Elective courses</b>										
6003	تشريح تطبيقي وسطحى	2	(2)1	3	20	15	15	50	100	2 hours



Surface and Applied Anatomy										
6080	رعاية حيوانات التجارب Management of laboratory animals	2	(2)1	3	20	15	15	50	100	2 hours
6110	التقنيات الحديثة أنواعها واستخداماتها فى التناسل Advanced Reproductive Techniques	2	(2)1	3	20	15	15	50	100	2 hours
Master of veterinary medical sciences (Physiology)										
First semester: 9 Credit hours										
Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	Paper exam		
7013	فسيولوجيا العضلات والاعصاب والحواس Physiology of muscles, nerves and senses	2	(2)1	3	20	15	15	50	100	2 hours
7014	فسيولوجيا النمو والتمثيل الغذائى Metabolism and energy	2	(2)1	3	20	15	15	50	100	2 hours
7000A	المعلوماتية الحيوية Bioinformatics	1	(2)1	2	10	10	5	25	50	2 hours
7000B	التطبيقات الاحصائية وأخلاقيات البحث والكتابة العلمية والنشر Applied statistics and research ethics and scientific writing and publications	1	-	1	-	-	-	50	50	2 hours
Second semester: 15 Credit hours										
7015	فسيولوجيا الغدد الصماء Physiology of mammalian endocrine glands	2	(2)1	3	20	15	15	50	100	2 hours
7016	فسيولوجيا الجهاز الدورى و التنفسى و البولى Physiology of cardiovascular &respiratory &urinary system	2	(2)1	3	20	15	15	50	100	2 hours
7008	الكيمياء الحيوية والبيولوجيا الجزيئية Biochemistry and molecular biology	2	(2)1	3	20	15	15	50	100	2 hours
7004	تشریح الجهاز العصبى و الغدد الصماء و أعضاء الحس Anatomy of nervous system, endocrine glands and sense organs	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص Elective Course ( Other Specialization)	2	(2)1	3	20	15	15	50	100	2 hours
Elective courses										
7073	استزراع ورعاية الاسماك والقشريات Management and culture of fish and crustacean	2	(2)1	3	20	15	15	50	100	2 hours
7036	تغذية حيوانات التجارب والحيوانات الاليفة Laboratory and pet Animal Nutrition	2	(2)1	3	20	15	15	50	100	2 hours



7064	سلوكيات ورعاية حيوانات التجارب Behavior and Management of Laboratory Animals	2	(2)1	3	20	15	15	50	100	2 hours
<b>PhD of veterinary medical sciences (Physiology)</b>										
<b>First semester: 11 Credit hours</b>										
Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	Paper exam		
8031	فسيولوجيا الجهاز الدورى Physiology of cardio-vascular system	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر من مادة التخصص اختياري Elective Course (Specialization)	2	(2)1	3	20	15	15	50	100	2 hours
8081	الاحتياجات الغذائية للدواجن والارانب Nutrient requirements for poultry and rabbits	2	(2)1	3	20	15	15	50	100	2 hours
8033	سيمنارات فى مجال التخصص Seminars in the field of specialization	-	-	2	-	-	-	-	50	-
<b>Second semester: 11 Credit hours</b>										
8032	فسيولوجيا التناسل Physiology of reproduction	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر ختباري من مادة التخصص Elective Course (Specialization)	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص Elective Course (Other Specialization )	2	(2)1	3	20	15	15	50	100	2 hours
8034	سيمنارات فى مجال التخصص Seminars in the field of specialization	-	-	2	-	-	-	-	50	-
<b>Elective Courses ( Specialization)</b>										
8035	فسيولوجيا الجهاز التنفسي والبولى Physiology of the respiratory and urinary systems	2	(2)1	3	20	15	15	50	100	2 hours
8036	فسيولوجيا الجهاز الهضمى Physiology of the digestive system	2	(2)1	3	20	15	15	50	100	2 hours
8037	فسيولوجيا الطاقة و التمثيل الغذائى Physiology of energy and metabolism	2	(2)1	3	20	15	15	50	100	2 hours
8038	فسيولوجيا الدواجن Poultry physiolog	2	(2)1	3	20	15	15	50	100	2 hours
8039	فسيولوجيا الاسماك Fish physiology	2	(2)1	3	20	15	15	50	100	2 hours
8040	فسيولوجيا انتاج اللبن Physiology of milk production	2	(2)1	3	20	15	15	50	100	2 hours



Elective Courses ( Other Specializations)										
8015	الكيمياء الحيوية للبروتينات والمناعة و الإشعاعات Protein Chemistry, Immunochemistry and Radiation	2	(2)1	3	20	15	15	50	100	2 hours
8210	التناسل والمناعة Reproductive immunology	2	(2)1	3	20	15	15	50	100	2 hours

## 5- DEPARTMENT OF PHARMACOLOGY

Diploma of Veterinary Pharmacology										
First semester: 15 Credit hours										
Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	Paper exam		
6020	فارماكولوجيا عام General pharmacology	2	(2)1	3	20	15	15	50	100	2 hours
6021	صيدلانيات Pharmaceutics	2	(2)1	3	20	15	15	50	100	2 hours
6022	النباتات الطبية Medicinal plants	2	(2)1	3	20	15	15	50	100	2 hours
6006	الكيمياء الحيوية عام (أ) General Biochemistry A	2	(2)1	3	20	15	15	50	100	2 hours
6015	فسيولوجيا (أ) Physiology A	2	(2)1	3	20	15	15	50	100	2 hours
Second semester: 15 Credit hours										
6023	فارماكولوجيا مضادات البكتيريا والفيروسات والطفيليات Pharmacology of anti-bacterial, anti-viral and anti-protozoal	2	(2)1	3	20	15	15	50	100	2 hours
6024	فارماكولوجيا اكلينيكيه Clinical pharmacology	2	(2)1	3	20	15	15	50	100	2 hours
6025	بكتريولوجي (1) Bacteriology (1)	2	(2)1	3	20	15	15	50	100	2 hours
6075	تشخيص أمراض المناعة وسرطانات الدم ودلالات السرطان Diagnosis of immunologic diseases and blood tumors	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص Elective Course ( Other Specialization )	2	(2)1	3	20	15	15	50	100	2 hours
Elective courses										
6086	السموم العامه General Toxicology	2	(2)1	3	20	15	15	50	100	2 hours
6120	العلاج طرق و البيض الأمهات قطعان ومشاكل أمراض الوقاية. Diseases of breeders and layers flocks and their prevention and control.	2	(2)1	3	20	15	15	50	100	2 hours
6146	الأمراض المعدية البكتيرية والفطرية للمجترات والخيول Infectious Bacterial and mycotic diseases of Ruminants and Equines	2	(2)1	3	20	15	15	50	100	2 hours



6096	أمراض الأسماك Fish diseases	2	(2)1	3	20	15	15	50	100	2 hours
6013	هستولوجيا الحيوان (هستولوجيا ب) Veterinary Histology	2	(2)1	3	20	15	15	50	100	2 hours
6034	فيروسولوجي تطبيقي (فيروسولوجي ب) applied virology	2	(2)1	3	20	15	15	50	100	2 hours

### Master of veterinary medical sciences (Pharmacology)

#### First semester: 9 Credit hours

Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	Paper exam		
7017	فارماكولوجيا الأجهزة Systemic pharmacology	2	(2)1	3	20	15	15	50	100	2 hours
7018	فارماكولوجيا التداخلات الدوائية Drug interactions	2	(2)1	3	20	15	15	50	100	2 hours
7000A	المعلوماتية الحيوية Bioinformatics	1	(2)1	2	10	10	5	25	50	2 hours
7000B	التطبيقات الاحصائية وأخلاقيات البحث والكتابة العلمية والنشر Applied statistics and research ethics and scientific writing and publications	1	-	1	-	-	-	50	50	2 hours

#### Second semester: 15 Credit hours

7019	المضادات الحيوية Antibiotics	2	(2)1	3	20	15	15	50	100	2 hours
7020	التسمم الدوائي Drug toxicology	2	(2)1	3	20	15	15	50	100	2 hours
7057	تشخيص اضطرابات سوائل الجسم Diagnosis of body fluids disturbances	2	(2)1	3	20	15	15	50	100	2 hours
7023	بكتريا Gram negative Gram negative bacteria	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص Elective Course ( Other Specialization )	2	(2)1	3	20	15	15	50	100	2 hours

#### Elective courses

7075	الأمراض البكتيرية والفطرية في أسماك المياه العذبة bacterial and mycotic diseases of freshwater fishes	2	(2)1	3	20	15	15	50	100	2 hours
7003	تشريح الأرانب وحيوانات التجارب Anatomy of rabbits and experimental animals	2	(2)1	3	20	15	15	50	100	2 hours
7012	هستولوجيا الطيور البرية والقشريات والرخويات Histology of wild birds crustaceaens and molluscs	2	(2)1	3	20	15	15	50	100	2 hours
7036	الأيض والحيوانات التجارب حيوانات تغذية Laboratory and pet Animal Nutrition	2	(2)1	3	20	15	15	50	100	2 hours
7056	باثولوجيا الأورام لأجهزة الجسم المختلفة Oncology in different body systems	2	(2)1	3	20	15	15	50	100	2 hours
7083	الميكروبات وعلاقتها باللبان ومنتجاته Microorganisms and their relationship with milk and its products	2	(2)1	3	20	15	15	50	100	2 hours





## PhD of veterinary medical sciences (Pharmacology)

### First semester: 11 Credit hours

Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	Year works	Paper exam		
8041	العلاجات الدوائية لحيوانات المزرعه والحيوانات الأليفة والأسماك Drug therapy for farm animals, pets and fish	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من مادة التخصص Elective Course ( Specialization )	2	(2)1	3	20	15	15	50	100	2 hours
8020	الكيمياء الحيويه لخلل الغدد الصماء وإزالة السموم Metabolic disorders of endocrine glands and detoxification of toxins	2	(2)1	3	20	15	15	50	100	2 hours
8043	سيمنارات متخصصة Seminars in the field of specialization	-	-	2	-	-	-	-	50	-

### Second semester: 11 Credit hours

8042	الإتجاهات الحديثه للعلاج بالأدويه Recent trends in drug therapy	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من مادة التخصص Elective Course ( Specialization )	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص Elective Course ( Other Specialization )	2	(2)1	3	20	15	15	50	100	2 hours
8044	سيمنارات متخصصة Seminars in the field of specialization	-	-	2	-	-	-	-	50	-

#### Elective Courses ( Specialization )

8045	الفارماكولوجيا الجزيئية Molecular Pharmacology	2	(2)1	3	20	15	15	50	100	2 hours
8046	الفارماكولوجيا المناعية Immuno-pharmacology	2	(2)1	3	20	15	15	50	100	2 hours
8047	والهرمونات فارماكولوجيا التمثيل الغذائي Pharmacology of metabolism and hormones	2	(2)1	3	20	15	15	50	100	2 hours
8048	تقييم الأدوية في حيوانات التجارب Drugs assessment in experimental animals	2	(2)1	3	20	15	15	50	100	2 hours
8049	عقاقير و اعشاب Pharmacognosy	2	(2)1	3	20	15	15	50	100	2 hours
8050	العلاجات الحديثه للتسمم الدوائي Modern treatments for drug poisoning	2	(2)1	3	20	15	15	50	100	2 hours

#### Elective Courses ( Other Specializations )

8175	السموم الطبيعيه والسموم الهوائية والغازية Natural, aerobic and volatile poisons	2	(2)1	3	20	15	15	50	100	2 hours
8249	تقنيات حديثه لعلاج امراض المجترات Advanced methods in treatment of ruminant diseases	2	(2)1	3	20	15	15	50	100	2 hours
8264	برامج التحصين والعلاجات البيطرية Vaccine programs and Veterinary drugs	2	(2)1	3	20	15	15	50	100	2 hours
8225	التشخيص المعملية المتقدم لأمراض الدواجن والارانب البكتيرية والفطرية Advanced lab. diagnosis bacterial and mycotic diseases affecting avian and rabbits.	2	(2)1	3	20	15	15	50	100	2 hours
8062	المقاحات والمناعة الفيروسيه Viral immunity and vaccines	2	(2)1	3	20	15	15	50	100	2 hours



8190	التحليل الكيميائي والميكروبيولوجي للأغذية Chemical and Microbiological Analysis of Foods	2	(2)1	3	20	15	15	50	100	2 hours
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## **6- DEPARTMENT OF BACTERIOLOGY, IMMUNOLOGY AND MYCOLOGY**

<b><u>Diploma of Animal microbiology</u></b>										
<b>First semester: 15 Credit hours</b>										
Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	Paper exam		
6025	بكتيريا (1) Bacteriology (1)	2	(2)1	3	20	15	15	50	100	2 hours
6026	مناعة (1) Immunology (1)	2	(2)1	3	20	15	15	50	100	2 hours
6027	فطريات (1) Mycology (1)	2	(2)1	3	20	15	15	50	100	2 hours
6031	فيروولوجي (1) فيروولوجي تركيبى ووظيفى structural and functional virology	2	(2)1	3	20	15	15	50	100	2 hours
<b>Second semester: 15 Credit hours</b>										
6028	بكتيريا (2) Bacteriology (2)	2	(2)1	3	20	15	15	50	100	2 hours
6029	مناعة (2) Immunology (2)	2	(2)1	3	20	15	15	50	100	2 hours
6030	فطريات (2) Mycology (2)	2	(2)1	3	20	15	15	50	100	2 hours
6034	فيروولوجى تطبيقى (فيروولوجى 2) applied virology	2	(2)1	3	20	15	15	50	100	2 hours
<b><u>Master of veterinary medical sciences (Bacteriology, immunology and mycology)</u></b>										
<b>First semester: 9 Credit hours</b>										
Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	Paper exam		
7021	بكتيريا تصنيفيه Gram positive Gram positive bacteria	2	(2)1	3	20	15	15	50	100	2 hours
7022	فطريات Fungi	2	(2)1	3	20	15	15	50	100	2 hours



7000A	المعلوماتية الحيوية <b>Bioinformatics</b>	1	(2)1	2	10	10	5	25	50	2 hours
7000B	التطبيقات الاحصائية وأخلاقيات البحث والكتابة العلمية والنشر <b>Applied statistics and research ethics and scientific writing and publications</b>	1	-	1	-	-	-	50	50	2 hours
<b>Second semester: 15 Credit hours</b>										
7023	بكتيريا تصنيفية Gram negative <b>Gram negative bacteria</b>	2	(2)1	3	20	15	15	50	100	2 hours
7024	مناعة <b>Immunity</b>	2	(2)1	3	20	15	15	50	100	2 hours
7008	الكيمياء الحيوية والبيولوجيا الجزيئية <b>Biochemistry and molecular biology</b>	2	(2)1	3	20	15	15	50	100	2 hours
7053	باتولوجيا الجهاز الهضمي والجهاز التنفسي والأمراض المتعلقة بهما <b>Pathology of digestive and respiratory systems and its related diseases</b>	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص <b>Elective Course ( Other Specialization)</b>	2	(2)1	3	20	15	15	50	100	2 hours
<b>Elective courses</b>										
7079	ميكروبيولوجيا الأغذية والتسمم الغذائي <b>Food microbiology and food poisoning</b>	2	(2)1	3	20	15	15	50	100	2 hours
7058	إختبارات وظائف الأعضاء <b>Organs functions tests</b>	2	(2)1	3	20	15	15	50	100	2 hours
7019	المضادات الحيوية <b>Antibiotics</b>	2	(2)1	3	20	15	15	50	100	2 hours
7083	الميكروبات وعلاقتها بالألبان ومنتجاته <b>Microorganisms and their relationship with milk and its products</b>	2	(2)1	3	20	15	15	50	100	2 hours
7091	أمراض الدواجن و الأرانب البكتيرية و الفطرية <b>Bacterial and mycotic diseases affecting avian and rabbits</b>	2	(2)1	3	20	15	15	50	100	2 hours
<b>PhD of veterinary medical sciences (Bacteriology, immunology and mycology)</b>										
<b>First semester: 11 Credit hours</b>										
Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	Paper exam		
8051	الوراثة البكتيرية <b>Bacterial genetics</b>	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر من مادة التخصص اختياري <b>Elective Course ( Specialization)</b>	2	(2)1	3	20	15	15	50	100	2 hours
8142	التقنيات البيولوجية الجزيئية والفلوسيتوميترى <b>Molecular biology and flowcytometry</b>	2	(2)1	3	20	15	15	50	100	2 hours
8053	سيمنارات فى مجال التخصص <b>Seminars in the field of specialization</b>	-	-	2	-	-	-	-	50	-



Second semester: 11 Credit hours										
8052	مناعة جزيئية وتشخيصية Molecular and Diagnostic immunology	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من مادة التخصص Elective Course ( Specialization )	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص Elective Course ( Other Specialization)	2	(2)1	3	20	15	15	50	100	2 hours
8054	سيمنارات في مجال التخصص Seminars in the field of specialization	-	-	2	-	-	-	-	50	-
Elective Courses ( Specialization)										
8055	بكتريولوجيا و فطريات التي تصيب حيوانات المزرعة Bacteria and fungi infect domestic animals	2	(2)1	3	20	15	15	50	100	2 hours
8056	البكتريا والفطريات التي تصيب الاسماك Bacteria and fungi infect Fish	2	(2)1	3	20	15	15	50	100	2 hours
8057	البكتيريا المسببة للتسمم الغذائي Bacteria causes food poisoning	2	(2)1	3	20	15	15	50	100	2 hours
8058	بكتريولوجيا و فطريات التي تصيب الطيور والارانب Bacteria and fungi infect rabbit and poultry	2	(2)1	3	20	15	15	50	100	2 hours
8059	بكتريولوجيا و فطريات التي تصيب الحيوانات والطيور البرية Bacteria and fungi infect wild animal and birds	2	(2)1	3	20	15	15	50	100	2 hours
8060	بكتريولوجيا و فطريات التي تصيب الحيوانات الأليفة Bacteria and fungi infect pet animals	2	(2)1	3	20	15	15	50	100	2 hours
Elective Courses ( Other Specializations)										
8248	تقنيات حديثة لتشخيص امراض المجترات Advanced methods in diagnosis of ruminant diseases	2	(2)1	3	20	15	15	50	100	2 hours
8184	الامراض البكتيرية و الفطرية في اسماك المياه الشروب والمالحة Bacterial and mycotic diseases of brackish and marine fishes	2	(2)1	3	20	15	15	50	100	2 hours
8228	وبانيات الامراض المشتركة Epidemiology of zoonotic diseases	2	(2)1	3	20	15	15	50	100	2 hours
8030	هستولوجيا الاحياء المائية Aquatic Histology	2	(2)1	3	20	15	15	50	100	2 hours



## 7- DEPARTMENT OF VIROLOGY

<b>Diploma of Virology</b>										
<b>First semester: 15 Credit hours</b>										
Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	Paper exam		
6031	فيروسات الطيور والارانب والاسماك structural and functional virology	2	(2)1	3	20	15	15	50	100	2 hours
6032	فيروسات الطيور والارانب والاسماك viruses of poultry rabbits and fish	2	(2)1	3	20	15	15	50	100	2 hours
6033	اساسيات تصنيف الفيروسات basics of viruses' taxonomy	2	(2)1	3	20	15	15	50	100	2 hours
6028	بكتريولوجي (2) Bacteriology (2)	2	(2)1	3	20	15	15	50	100	2 hours
6011	اساسيات علم و كيمياء الخلية (هستولوجيا 1) Basics of Cytology and Cytochemistry	2	(2)1	3	20	15	15	50	100	2 hours
<b>Second semester: 15 Credit hours</b>										
6034	فيروسات تطبيقي (2) applied virology	2	(2)1	3	20	15	15	50	100	2 hours
6035	فيروسات حيوانات المزرعة viruses of farm animals	2	(2)1	3	20	15	15	50	100	2 hours
6121	أمراض الاربانب الفيروسية Viral diseases of rabbits	2	(2)1	3	20	15	15	50	100	2 hours
6147	الامراض المعدية الفيروسية والطفيلية للمجترات Infectious viral and Parasitic diseases of Ruminants	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص Elective Course ( Other Specialization)	2	(2)1	3	20	15	15	50	100	2 hours
<b>Elective courses</b>										
6126	الامراض المشتركة والارشاد البيطري Zoonotic diseases and veterinary guidance	2	(2)1	3	20	15	15	50	100	2 hours
6073	الامان الحيوى و الاجهزة المعملية Laboratory biosecurity and apparatuses	2	(2)1	3	20	15	15	50	100	2 hours
6095	بيولوجيا الاحياء المائية aquatic animals' biology									
6023	فارماكولوجيا مضادات البكتريا و الفيروسات و الطفيليات Pharmacology of anti-bacterial, anti-viral and anti-protozoal									



6083	مطهرات ومبيدات حشرية Disinfectants, Rodent control, control of disease vectors and insecticides									
6008	الكيمياء الحيوية الكلينية (أ) Clinical Biochemistry A									

### Master of veterinary medical sciences (Virology)

#### First semester: 9 Credit hours

Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	Paper exam		
7025	فيروسات عام general virology	2	(2)1	3	20	15	15	50	100	2 hours
7026	تشخيصات معملية فيروسية laboratory diagnosis of viruses	2	(2)1	3	20	15	15	50	100	2 hours
7000A	المعلوماتية الحيوية Bioinformatics	1	(2)1	2	10	10	5	25	50	2 hours
7000B	التطبيقات الاحصائية وأخلاقيات البحث والكتابة العلمية والنشر Applied statistics and research ethics and scientific writing and publications	1	-	1	-	-	-	50	50	2 hours

#### Second semester: 15 Credit hours

7027	فيروسات خاص special virology	2	(2)1	3	20	15	15	50	100	2 hours
7028	فيروسات السرطانات viral oncology	2	(2)1	3	20	15	15	50	100	2 hours
7024	المناعة Immunity	2	(2)1	3	20	15	15	50	100	2 hours
7060	دلالات السرطان Tumor markers	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص Elective Course ( Other Specialization)	2	(2)1	3	20	15	15	50	100	2 hours

#### Elective courses

7105	الأمراض المعدية الفيروسية Infectious viral Diseases	2	(2)1	3	20	15	15	50	100	2 hours
7089	أمراض الدواجن والأرانب الفيروسية والطفيلية Viral and parasitic diseases affecting avian and rabbits	2	(2)1	3	20	15	15	50	100	2 hours
7076	الأمراض الطفيلية والفيروسية في أسماك المياه العذبة Parasitic and viral diseases of freshwater fishes	2	(2)1	3	20	15	15	50	100	2 hours
7087	نقص الخصوبة ومسببات الإجهاض Infertility and diseases causing abortion	2	(2)1	3	20	15	15	50	100	2 hours
7066	وبائيات بيطرية Veterinary epidemiology	2	(2)1	3	20	15	15	50	100	2 hours
7009	هستولوجي عام General Histology	2	(2)1	3	20	15	15	50	100	2 hours

### PhD of veterinary medical sciences (Virology)

#### First semester: 11 Credit hours



Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	Paper exam		
8061	البيولوجيا الجزيئية للفيروسات Molecular virology	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من مادة التخصص Elective Course ( Specialization)	2	(2)1	3	20	15	15	50	100	2 hours
8139	باتولوجيا الامراض الفيروسية للطيور والاسماك Pathology of viral diseases in poultry and fish	2	(2)1	3	20	15	15	50	100	2 hours
8063	سيمنارات في مجال التخصص Seminars in the field of specialization	-	-	2	-	-	-	-	50	-
<b>Second semester: 11 Credit hours</b>										
8062	اللقاحات و المناعة الفيروسية Viral immunity and vaccines	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من مادة التخصص Elective Course ( Specialization )	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص Elective Course ( Other Specialization)	2	(2)1	3	20	15	15	50	100	2 hours
8064	سيمنارات في مجال التخصص Seminars in the field of specialization	-	-	2	-	-	-	-	50	-
<b>Elective Courses ( Specialization)</b>										
8065	فيروسات الطيور والارانب Viruses of poultry and rabbits	2	(2)1	3	20	15	15	50	100	2 hours
8066	فيروسات المجترات والجمال Viruses of ruminants and camels	2	(2)1	3	20	15	15	50	100	2 hours
8067	فيروسات الاحياء المائية Viruses of aquarium	2	(2)1	3	20	15	15	50	100	2 hours
8068	فيروسات الفصليية الخيلية viruses of Solipeds	2	(2)1	3	20	15	15	50	100	2 hours
8069	فيروسات الحيوانات المنزلية الاليفة viruses of pet animals	2	(2)1	3	20	15	15	50	100	2 hours
8070	فيروسات الاغذية ومنتجاتها والمخلفات الحيوانية Viruses of food products and animal wastes	2	(2)1	3	20	15	15	50	100	2 hours
<b>Elective Courses ( Other Specializations)</b>										
8263	التقنيات الحديثة لتشخيص الامراض المعدية Advanced Techniques for diagnosis of infectious diseases	2	(2)1	3	20	15	15	50	100	2 hours
8227	طرق الوقاية من امراض الدواجن والارانب الوبائية Preventive methods for epidemic diseases affecting avian and rabbits	2	(2)1	3	20	15	15	50	100	2 hours
8052	مناعة جزيئية وتشخيصية Molecular and Diagnostic immunology	2	(2)1	3	20	15	15	50	100	2 hours
8111	الهندسة الوراثية وتطبيقاتها Genetic engineering & its application	2	(2)1	3	20	15	15	50	100	2 hours
8028	هستولوجيا المناعة Histology of Immune system	2	(2)1	3	20	15	15	50	100	2 hours
8145	تشخيص الاضطرابات المناعية والالتهاب وموت الخلايا المبرمج واصلاح الانسجة Diagnosis of immunologic disturbances, inflammation, apoptosis and tissue regeneration	2	(2)1	3	20	15	15	50	100	2 hours



## 8- DEPARTMENT OF PARASITOLOGY

<b>Diploma of Applied Parasitology</b>										
<b>First semester: 15 Credit hours</b>										
Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	Paper exam		
6036	(1)الطفيليات المعملية Clinical parasitology (1)	2	(2)1	3	20	15	15	50	100	2 hours
6037	(1)الديدان الطفيلية Parasitic helminthes (1)	2	(2)1	3	20	15	15	50	100	2 hours
6038	(1)الأوليات المتطفلة Parasitic protozoa (1)	2	(2)1	3	20	15	15	50	100	2 hours
6070	باتولوجيا الامراض المختلفة ظاهريا بعد الوفاة Post-mortem changes in different disease	2	(2)1	3	20	15	15	50	100	2 hours
6008	الكيمياء الحيوية الكلينيكية (أ) Clinical Biochemistry A	2	(2)1	3	20	15	15	50	100	2 hours
<b>Second semester: 15 Credit hours</b>										
6039	(1)الحشرات الطبية البيطرية Medical and veterinary insects (1)	2	(2)1	3	20	15	15	50	100	2 hours
6040	(2)المناعة الطفيلية Parasitic immunity (2)	2	(2)1	3	20	15	15	50	100	2 hours
6072	باتولوجيا أكلينيكية (2) Clinical Patholgy (2)	2	(2)1	3	20	15	15	50	100	2 hours
6024	فارماكولوجيا اكلينيكية Clinical pharmacology	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص Elective Course ( Other Specialization)	2	(2)1	3	20	15	15	50	100	2 hours
<b>Elective courses</b>										
6124	الامراض المشتركة عام General zoonoses	2	(2)1	3	20	15	15	50	100	2 hours





6080	رعاية حيوانات التجارب Management of laboratory animals	2	(2)1	3	20	15	15	50	100	2 hours
6144	الأمراض المعدية البكتيرية والفطرية للحيوانات الأليفة Infectious Bacterial and Mycotic Diseases of pet animals	2	(2)1	3	20	15	15	50	100	2 hours

### Master of veterinary medical sciences (Parasitology)

#### First semester: 9 Credit hours

Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	Paper exam		
7029	(2) الديدان الطفيلية Parasitic helminthes (2)	2	(2)1	3	20	15	15	50	100	2 hours
7030	(2) الاوليات المتطفلة Parasitic protozoa (2)	2	(2)1	3	20	15	15	50	100	2 hours
7000A	المعلوماتية الحيوية Bioinformatics	1	(2)1	2	10	10	5	25	50	2 hours
7000B	التطبيقات الاحصائية وأخلاقيات البحث والكتابة العلمية والنشر Applied statistics and research ethics and scientific writing and publications	1	-	1	-	-	-	50	50	2 hours

#### Second semester: 15 Credit hours

7031	(2) المتطفلة الحشرات الطبية والبيطرية Medical and veterinary parasitic insects (2)	2	(2)1	3	20	15	15	50	100	2 hours
7032	(2) الطفيليات المعملية Clinical parasitology(2)	2	(2)1	3	20	15	15	50	100	2 hours
7056	باثولوجيا الأورام وأجهزة الجسم المختلفة Oncology in different body systems	2	(2)1	3	20	15	15	50	100	2 hours
7057	تشخيص اضطرابات سوائل الجسم Diagnosis of body fluids disturbances	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص Elective Course ( Other Specialization)	2	(2)1	3	20	15	15	50	100	2 hours

#### Elective courses

7089	أمراض الدواجن والأرانب الفيروسية والطفيلية Viral and parasitic diseases affecting avian and rabbits	2	(2)1	3	20	15	15	50	100	2 hours
7103	أمراض الباطنة للحيوانات المنزلية pet animal medicine	2	(2)1	3	20	15	15	50	100	2 hours



7076	الامراض الطفيلية والفيروسية في اسماك المياه العذبة Parasitic and viral diseases of freshwater fishes	2	(2)1	3	20	15	15	50	100	2 hours
<b>PhD of veterinary medical sciences (Parasitology)</b>										
<b>First semester: 11 Credit hours</b>										
Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	Paper exam		
8071	(1) طفيليات خاص Special parasitology 1(	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري مادة التخصص Elective Course ( Specialization)	2	(2)1	3	20	15	15	50	100	2 hours
8041	العلاجات الدوائية لحيوانات المزرعة والحيوانات الأليفة والاسماك Drug therapy for farm animals, pets and fish	2	(2)1	3	20	15	15	50	100	2 hours
8073	سيمنارات في مجال التخصص Seminars in the field of specialization	-	-	2	-	-	-	-	50	-
<b>Second semester: 11 Credit hours</b>										
8072	(2) طفيليات خاص Special parasitology 2	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من مادة التخصص Elective Course ( Specialization )	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص Elective Course ( Other Specialization)	2	(2)1	3	20	15	15	50	100	2 hours
8074	سيمنارات في مجال التخصص Seminars in the field of specialization	-	-	2	-	-	-	-	50	-
<b>Elective Courses ( Specialization)</b>										
8075	طفيليات الخيول Equine parasites	2	(2)1	3	20	15	15	50	100	2 hours
8076	طفيليات الأسماك Fish parasites	2	(2)1	3	20	15	15	50	100	2 hours
8077	طفيليات الطيور Poultry parasites	2	(2)1	3	20	15	15	50	100	2 hours
8078	مناعة طفيلية Parasitic immunity	2	(2)1	3	20	15	15	50	100	2 hours
8079	طفيليات الحيوانات الأليفة Pet animals parasites	2	(2)1	3	20	15	15	50	100	2 hours



8080	طفيليات المجترات <b>Ruminant parasites</b>	2	(2)1	3	20	15	15	50	100	2 hours
<b>Elective Courses ( Other Specializations)</b>										
8210	التناسل والمناعة <b>Reproductive immunology</b>	2	(2)1	3	20	15	15	50	100	2 hours
8145	تشخيص الاضطرابات المناعية والالتهاب وموت الخلايا المبرمج وإصلاح الأنسجة <b>Diagnosis of immunologic disturbances, inflammation, apoptosis and tissue regeneration</b>	2	(2)1	3	20	15	15	50	100	2 hours
8162	المبيدات و المطهرات البيطرية <b>Insecticides and Disinfectants</b>	2	(2)1	3	20	15	15	50	100	2 hours
8116	تنظيم التعبير الجيني <b>Regulation of gene expression</b>	2	(2)1	3	20	15	15	50	100	2 hours



## 9- DEPARTMENT OF NUTRITION AND CLINICAL NUTRITION

<b>Diploma of Animal, poultry and fish nutrition; and malnutrition diseases</b>										
<b>First semester: 15 Credit hours</b>										
Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	Paper exam		
6041	مقررات غذائية (اساسيات تغذية الحيوان) Basic Animal Nutrition	2	(2)1	3	20	15	15	50	100	2 hours
6042	مواد علف وتحليلها Feedstuffs Analysis	2	(2)1	3	20	15	15	50	100	2 hours
6043	علائق غير تقليديه وتركيب اعلاف Ration formulation and Non-conventional feeds	2	(2)1	3	20	15	15	50	100	2 hours
6081	صحة وتسكين حيوانات المزرعة Hygienic principles of livestock housing	2	(2)1	3	20	15	15	50	100	2 hours
6048	نظم انتاج ماشية اللحم Beef cattle production system	2	(2)1	3	20	15	15	50	100	2 hours
<b>Second semester: 15 Credit hours</b>										
6044	صحة واضافات اعلاف ومصانع علف Feed Additives and Feed Technology	2	(2)1	3	20	15	15	50	100	2 hours
6045	امراض التمثيل الغذائي Metabolic Diseases	2	(2)1	3	20	15	15	50	100	2 hours
6076	سلوكيات ورعاية المجترات Behavior of ruminants	2	(2)1	3	20	15	15	50	100	2 hours
6055	المشاكل والأمراض الاقتصادية التي تواجه المربي وكيفية التغلب عليها Economic problems and diseases that face the producer and how to avoid them	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص Elective Course ( Other Specialization)	2	(2)1	3	20	15	15	50	100	2 hours
<b>Elective courses</b>										



6098	التفتيش الصحى على اللحوم ومنتجاتها Sanitary inspection of meat and its product	2	(2)1	3	20	15	15	50	100	2 hours
6045	أمراض التمثيل الغذائى Metabolic Diseases	2	(2)1	3	20	15	15	50	100	2 hours
6025	بكتريا (1) Bacteriology (1)	2	(2)1	3	20	15	15	50	100	2 hours
6093	اساسيات تربية ورعاية الاحياء المائية Principals of rearing and management of aquatic animals	2	(2)1	3	20	15	15	50	100	2 hours

**Master of veterinary medical sciences (Animal, poultry and fish nutrition; and malnutrition diseases)**

**First semester: 9 Credit hours**

Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	Paper exam		
7033	تغذية الدواجن والارانب Poultry and Rabbits Nutrition	2	(2)1	3	20	15	15	50	100	2 hours
7034	تغذية الاسماك و الاحياء المائية Fish Nutrition	2	(2)1	3	20	15	15	50	100	2 hours
7000A	المعلوماتية الحيوية Bioinformatics	1	(2)1	2	10	10	5	25	50	2 hours
7000B	التطبيقات الاحصائية وأخلاقيات البحث والكتابة العلمية والنشر Applied statistics and research ethics and scientific writing and publications	1	-	1	-	-	-	50	50	2 hours

**Second semester: 15 Credit hours**

7035	تغذية المجترات Ruminants Nutrition	2	(2)1	3	20	15	15	50	100	2 hours
7036	تغذية حيوانات التجارب والحيوانات الاليفة Laboratory and pet Animal Nutrition	2	(2)1	3	20	15	15	50	100	2 hours
7015	فسيولوجيا الغدد الصماء Physiology of mammalian endocrine glands	2	(2)1	3	20	15	15	50	100	2 hours
7037	تقييم وانتخاب ماشية إنتاج اللبن Judging and selection of dairy cattle	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص Elective Course ( Other Specialization)	2	(2)1	3	20	15	15	50	100	2 hours

**Elective courses**

7092	التشخيص المعملى لأمراض الدواجن والارانب	2	(2)1	3	20	15	15	50	100	2 hours
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	Advanced lab. diagnosis bacterial and mycotic diseases affecting avian and rabbits.									
7077	المجازر والاحكام المتعلقة بالأمراض المختلفة Abattoirs and Judgment of different diseases	2	(2)1	3	20	15	15	50	100	2 hours
7019	المضادات الحيوية Antibiotics	2	(2)1	3	20	15	15	50	100	2 hours

**PhD of veterinary medical sciences (Animal, poultry and fish nutrition; and malnutrition diseases)**

**First semester: 11 Credit hours**

Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	Paper exam		
8081	الاحتياجات الغذائية للدواجن والارانب Nutrient requirements for poultry and rabbits	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من مادة التخصص Elective Course ( Specialization)	2	(2)1	3	20	15	15	50	100	2 hours
8119	وانتاج الادويه باستخدام الهندسه الوراثيه العلاج بالجينات DNA biotechnology & its application	2	(2)1	3	20	15	15	50	100	2 hours
8083	سيمنارات فى مجال التخصص Seminars in the field of specialization	-	-	2	-	-	-	-	50	-

**Second semester: 11 Credit hours**

8082	تغذية اكلينيكية Clinical Nutrition	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من مادة التخصص Elective Course ( Specialization )	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص Elective Course ( Other Specialization)	2	(2)1	3	20	15	15	50	100	2 hours
8084	سيمنارات فى مجال التخصص Seminars in the field of specialization	-	-	2	-	-	-	-	50	-

**Elective Courses ( Specialization)**

8085	الاحتياجات الغذائية للأسماك والحيوانات المائية Nutrient requirements for Fish and Aquatic Animals	2	(2)1	3	20	15	15	50	100	2 hours
8086	تغذية الحيوانات والطيور البريه Wild Animal Nutrition	2	(2)1	3	20	15	15	50	100	2 hours
8087	تغذية الدواجن والأرانب Poultry and rabbit nutrition	2	(2)1	3	20	15	15	50	100	2 hours



8088	امراض سوء التغذية <b>Malnutrition diseases</b>	2	(2)1	3	20	15	15	50	100	2 hours
8089	تغذية الخيول <b>Horse nutrition</b>	2	(2)1	3	20	15	15	50	100	2 hours
8090	تغذية المجترات <b>Ruminant nutrition</b>	2	(2)1	3	20	15	15	50	100	2 hours
<b>Elective Courses ( Other Specializations)</b>										
8188	أمراض النقص الغذائي والأمراض البيئية في الأسماك <b>Nutritional deficiency and enviromental diseases of fish</b>	2	(2)1	3	20	15	15	50	100	2 hours
8135	باثولوجيا الأمراض المختلفة للحيوانات الأليفة <b>pathology of different diseases in pet animals</b>	2	(2)1	3	20	15	15	50	100	2 hours



## 10- DEPARTMENT OF ANIMAL WEALTH DEVELOPMENT

### A-Breeding and Production of animal and poultry

<b>Diploma of Breeding and Production of animal and poultry</b>										
<b>First semester: 15 Credit hours</b>										
Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	Paper exam		
6046	تأسيس قطعان ماشية وإنتاج اللبن Establishment of dairy cattle farms	2	(2)1	3	20	15	15	50	100	2 hours
6047	تربية وإنتاج السمان Breeding and Production of quails	2	(2)1	3	20	15	15	50	100	2 hours
6048	نظم إنتاج ماشية اللحم Beef cattle production system	2	(2)1	3	20	15	15	50	100	2 hours
6041	أساسيات تغذية الحيوان Basic Animal Nutrition	2	(2)1	3	20	15	15	50	100	2 hours
6093	أساسيات تربية ورعاية الأحياء المائية Principals of rearing and management of aquatic animals	2	(2)1	3	20	15	15	50	100	2 hours
<b>Second semester: 15 Credit hours</b>										
6049	تربية وإنتاج قطعان دجاج التسمين Breeding and production of broiler	2	(2)1	3	20	15	15	50	100	2 hours
6050	إنتاج الصوف والموهير Wool and mohair production	2	(2)1	3	20	15	15	50	100	2 hours
6019	فسيولوجيا والتناسل Physiology of reproduction and lactation	2	(2)1	3	20	15	15	50	100	2 hours
6062	تصميم التجارب Experimental Design	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص Elective Course ( Other Specialization)	2	(2)1	3	20	15	15	50	100	2 hours
<b>Elective courses</b>										
6121	أمراض الأرناب الفيروسية Viral diseases of rabbits	2	(2)1	3	20	15	15	50	100	2 hours
6043	علائق غير تقليدية وتركيب اعلاف	2	(2)1	3	20	15	15	50	100	2 hours





	<b>Ration formulation and Non-conventional feeds</b>									
6016	فسيولوجيا المناعة Physiology of immunity	2	(2)1	3	20	15	15	50	100	2 hours

**Master of veterinary medical sciences (Breeding and Production of animal and poultry)**

**First semester: 9 Credit hours**

Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	Paper exam		
7037	تقييم وإنتخاب ماشية إنتاج اللبن Judging and selection of dairy cattle	2	(2)1	3	20	15	15	50	100	2 hours
7038	تربية وإنتاج الدجاج البيض Breeding and production of layers and breeders	2	(2)1	3	20	15	15	50	100	2 hours
7000A	المعلوماتية الحيوية Bioinformatics	1	(2)1	2	10	10	5	25	50	2 hours
7000B	التطبيقات الاحصائية وأخلاقيات البحث والكتابة العلمية والنشر Applied statistics and research ethics and scientific writing and publications	1	-	1	-	-	-	50	50	2 hours

**Second semester: 15 Credit hours**

7039	نظم التزاوج والإنتخاب لماشية إنتاج اللحم System of mating and selection of beef cattle	2	(2)1	3	20	15	15	50	100	2 hours
7040	وراثة عشائر الأغنام والماعز Population genetics of sheep and goats	2	(2)1	3	20	15	15	50	100	2 hours
7043	الكفاءة الانتاجية والاقتصادية ومعايير قياسها Economic and Productive efficiency and its measures	2	(2)1	3	20	15	15	50	100	2 hours
7063	سلوكيات ورعاية الدواجن Behavior and Management of Poultry	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر إختياري من خارج مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours

**Elective courses**

7047	تنظيم التعبير الجيني والبروتين الناتج عنها Regulation of gene expression & protein	2	(2)1	3	20	15	15	50	100	2 hours
7008	الكيمياء الحيوية والبيولوجيا الجزيئية Biochemistry and molecular biology	2	(2)1	3	20	15	15	50	100	2 hours
7077	المجازر و الاحكام المتعلقة بالامراض المختلفة	2	(2)1	3	20	15	15	50	100	2 hours



Abattoirs and Judgment of different diseases										
<b>PhD of veterinary medical sciences (Breeding and Production of animal and poultry)</b>										
<b>First semester: 11 Credit hours</b>										
Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	Paper exam		
8091	الإنتخاب باستخدام الواسمات الجزيئية لتحسين خصوبة ماشية إنتاج اللبن Marker assisted selection for improvement of dairy cattle fertility	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من مادة التخصص Elective Course ( Specialization )	2	(2)1	3	20	15	15	50	100	2 hours
8209	الخصوبة والتناسل في الحيوان Animal reproduction and fertility	2	(2)1	3	20	15	15	50	100	2 hours
8093	سيمنارات في مجال التخصص Seminars in the field of specialization	-	-	2	-	-	-	-	50	-
<b>Second semester: 11 Credit hours</b>										
8092	تحسين صفات الذبيحة لماشية إنتاج اللحم Improvement of carcass quality for beef cattle	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من مادة التخصص Elective Course ( Specialization )	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص Elective Course ( Other Specialization)	2	(2)1	3	20	15	15	50	100	2 hours
8094	سيمنارات في مجال التخصص Seminars in the field of specialization	-	-	2	-	-	-	-	50	-
<b>Elective Courses ( Specialization)</b>										
8095	التقنيات البيولوجية الحديثة واستخداماتها في إنتاج الدواجن Advanced molecular biology techniques and their applications in poultry production	2	(2)1	3	20	15	15	50	100	2 hours
8096	تربية وإنتاج الأرانب Breeding and production of rabbits	2	(2)1	3	20	15	15	50	100	2 hours
8097	نظم التزاوج و الإنتخاب في ماشية إنتاج اللبن System of mating and selection of dairy cattle	2	(2)1	3	20	15	15	50	100	2 hours
8098	الواسمات الجزيئية لتحسين إنتاج الاغنام والماعز Molecular markers for improvement of sheep and goat production	2	(2)1	3	20	15	15	50	100	2 hours



8099	الصفات الكمية لحيوانات المزرعة <b>Quantitative traits of livestock</b>	2	(2)1	3	20	15	15	50	100	2 hours
8100	تربية وإنتاج قطعان الطيور المائية <b>Breeding and production of water fowl</b>	2	(2)1	3	20	15	15	50	100	2 hours
<b>Elective Courses ( Other Specializations)</b>										
8161	صحة الحيوان والدواجن <b>Animal and poultry hygiene</b>	2	(2)1	3	20	15	15	50	100	2 hours
8199	الحفظ الحيوي للالبان ومنتجاتها <b>Bio-preservation of milk and dairy products</b>	2	(2)1	3	20	15	15	50	100	2 hours
8248	تقنيات حديثة لتشخيص امراض المجترات <b>Advanced methods in diagnosis of ruminant diseases</b>	2	(2)1	3	20	15	15	50	100	2 hours



## B- Economics and veterinary projects management

<b>Diploma of Economics and veterinary projects management</b>										
<b>First semester: 15 Credit hours</b>										
Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	Paper exam		
6051	الطلب والعرض ونظرية سلوك المستهلك Demand and Supply and consumer behavior theory	2	(2)1	3	20	15	15	50	100	2 hours
6052	النظرية الإنتاجية (قانون تناقص المنفعة والمراحل الانتاجيه وشروط توازن الفرد المنتج) Production function theory (Law of diminishing return, Stages of production and Producer equilibrium.)	2	(2)1	3	20	15	15	50	100	2 hours
6053	دوال الإنتاج والتكاليف Production and cost function	2	(2)1	3	20	15	15	50	100	2 hours
6080	رعاية حيوانات التجارب Management of laboratory animals	2	(2)1	3	20	15	15	50	100	2 hours
6039	الحشرات الطبية والبيطرية Medical and veterinary parasitic insects (2)	2	(2)1	3	20	15	15	50	100	2 hours
<b>Second semester: 15 Credit hours</b>										
6054	الكفاءة الاقتصادية والإنتاجية لمزارع الإنتاج الحيواني Economic and Productive efficiency and its measures	2	(2)1	3	20	15	15	50	100	2 hours
6055	المشاكل والأمراض الاقتصادية التي تواجه المربي وكيفية التغلب عليها Economic problems and diseases that face the producer and how to avoid them	2	(2)1	3	20	15	15	50	100	2 hours
6047	تربية و انتاج السمان Breeding and Production of quails	2	(2)1	3	20	15	15	50	100	2 hours
6061	اساسيات الأحصاء الحيوى The Basic of Biostatistics	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours



Elective Course ( Other Specialization)										
Elective courses										
6016	فسيولوجيا المناعة Physiology of immunity	2	(2)1	3	20	15	15	50	100	2 hours
6120	امراض و مشاكل قطعان الامهات و البيض و طرق العلاج و الوقاية Diseases of breeders and layers flocks and their prevention and control.	2	(2)1	3	20	15	15	50	100	2 hours
6041	اساسيات تغذية الحيوان (مقررات غذائية) Basic Animal Nutrition	2	(2)1	3	20	15	15	50	100	2 hours
<b>Master of veterinary medical sciences (Economics and veterinary projects management)</b>										
<b>First semester: 9 Credit hours</b>										
Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	Paper exam		
7041	الموارد الاقتصادية واهميتها في الطب البيطري ، ونظرية سلوك المستهلك Economic resources and its importance in veterinary medicine and consumer behavior theory	2	(2)1	3	20	15	15	50	100	2 hours
7042	النظرية الانتاجية ودوال الانتاج والتكاليف Production function theory and costs	2	(2)1	3	20	15	15	50	100	2 hours
7000A	المعلوماتية الحيوية Bioinformatics	1	(2)1	2	10	10	5	25	50	2 hours
7000B	التطبيقات الاحصائية وأخلاقيات البحث والكتابة العلمية والنشر Applied statistics and research ethics and scientific writing and publications	1	-	1	-	-	-	50	50	2 hours
<b>Second semester: 15 Credit hours</b>										
7043	الكفاءة الانتاجية والاقتصادية ومعايير قياسها Economic and Productive efficiency and its measures	2	(2)1	3	20	15	15	50	100	2 hours
7044	القيمة الاهلاكية والسجلات وادارة الجودة في الطب البيطري Depreciation & Records and Quality management in veterinary medicine	2	(2)1	3	20	15	15	50	100	2 hours
7065	تصميم مزارع الأبقار والجاموس	2	(2)1	3	20	15	15	50	100	2 hours



Housing of cows and buffalo farms										
7073	استزراع ورعاية الأسماك والقشريات Management and culture of fish and crustacean	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص Elective Course ( Other Specialization)	2	(2)1	3	20	15	15	50	100	2 hours
Elective courses										
7088	التناسل والبرامج الحقلية لتحسين وإدارة الحالة التناسلية في مزارع الألبان Filed programs for improvement and management of the reproductive status in dairy farms	2	(2)1	3	20	15	15	50	100	2 hours
7037	تقييم و انتخاب ماشية إنتاج اللبن Judging and selection of dairy cattle	2	(2)1	3	20	15	15	50	100	2 hours
7077	المجازر والأحكام المتعلقة بالأمراض المختلفة Abattoirs and Judgment of different diseases	2	(2)1	3	20	15	15	50	100	2 hours
PhD of veterinary medical sciences (Economics and veterinary projects management)										
First semester: 11 Credit hours										
Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	Paper exam		
8101	دراسات الجدوى لمشاريع الإنتاج الحيوانى Feasibility studies for animal production projects	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من مادة التخصص Elective Course ( Specialization )	2	(2)1	3	20	15	15	50	100	2 hours
8142	تقنيات البيولوجيا الجزيئية والفلوسيتوميترى Molecular biology and flowcytometry	2	(2)1	3	20	15	15	50	100	2 hours
8103	سيمنارات فى مجال التخصص Seminars in the field of specialization	-	-	2	-	-	-	-	50	-
Second semester: 11 Credit hours										
8102	التسويق وإدارة المشروعات البيطرية Marketing and management of veterinary projects	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من مادة التخصص Elective Course ( Specialization )	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص Elective Course ( Other Specialization)	2	(2)1	3	20	15	15	50	100	2 hours



8104	سيمنارات فى مجال التخصص Seminars in the field of specialization	-	-	2	-	-	-	-	50	-
<b>Elective Courses ( Specialization)</b>										
8105	التقييم الاقتصادى لمزارع انتاج الدواجن Economic assessment of poultry production farms	2	(2)1	3	20	15	15	50	100	2 hours
8106	تأثير العوامل الوراثية والانتاجية المختلفة على الكفاءة الاقتصادية والانتاجية لمزارع الأغنام والماعز Effect of various genetic and productive factors on the economic and productivity efficiency of sheep and goat farms	2	(2)1	3	20	15	15	50	100	2 hours
8107	استخدام التقنيات الإنتاجية الحديثة لتحسين صفات جودة و كمية اللحوم وعلاقتها بالأرباحية فى ماشية انتاج اللحم The use of modern production techniques to improve the quality and quantity of meat and its relation to profitability in cattle meat production	2	(2)1	3	20	15	15	50	100	2 hours
8108	تأثير بعض إضافات الأعلاف والمكملات الغذائية على الكفاءة الاقتصادية والانتاجية لحيوانات المزرعة Effect of some feed additives and dietary supplements on the economic efficiency and productivity of farm animals	2	(2)1	3	20	15	15	50	100	2 hours
8109	معايير الكفاءة الإنتاجية والاقتصادية فى الأستزراع السمكى Economic and productive efficiency measures of aqua culture	2	(2)1	3	20	15	15	50	100	2 hours
8110	تقييم الأداء الإنتاجى والتناسلى لماشية انتاج اللبن Evaluation of productive and reproductive performance of dairy cattle	2	(2)1	3	20	15	15	50	100	2 hours
<b>Elective Courses ( Other Specializations)</b>										
8228	وبائيات الأمراض المشتركة Epidemiology of zoonotic diseases	2	(2)1	3	20	15	15	50	100	2 hours
8257	الامراض المتوطنة للمجترات الصغيرة Endemic Diseases of small Ruminants	2	(2)1	3	20	15	15	50	100	2 hours



## C- GENETICS AND GENETIC ENGINEERING

### (ج) الوراثة والهندسة الوراثية

<b>Diploma of Genetic and genetic engineering</b>										
<b>First semester: 15 Credit hours</b>										
Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	Paper exam		
6056	الوراثة السيتولوجية ومنشأ الكروموسوم الانقسامى Cytogenetic & Cytological origin chromosome	2	(2)1	3	20	15	15	50	100	2 hours
6057	الاختلافات الكروموسومية وتحديد الجنس Chromosome variation & sex determination	2	(2)1	3	20	15	15	50	100	2 hours
6058	التغييرات التى تحدث فى النسب المندلية Modification of mendelian ratios.	2	(2)1	3	20	15	15	50	100	2 hours
6080	رعاية حيوانات التجارب Management of laboratory animals	2	(2)1	3	20	15	15	50	100	2 hours
6013	هستولوجيا الحيوان (هستولوجيا ب) Veterinary Histology B	2	(2)1	3	20	15	15	50	100	2 hours
<b>Second semester: 15 Credit hours</b>										
6059	تركيب الحمض النووى الديوكسى الريبوزى Importance of DNA replication & synthesis	2	(2)1	3	20	15	15	50	100	2 hours
6060	تشكيل الحمض النووى على الكروموسوم Organization of DNA in chromosomes & gene	2	(2)1	3	20	15	15	50	100	2 hours
6026	مناعة (1) Immunology (1)	2	(2)1	3	20	15	15	50	100	2 hours
6061	اساسيات الاحصاء الحيوى The Basic of Biostatistics	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
<b>Elective courses</b>										
6086	السموم العامة General Toxicology	2	(2)1	3	20	15	15	50	100	2 hours
6068	باثولوجيا الاورام	2	(2)1	3	20	15	15	50	100	2 hours





		Oncology								
6023	فارماكولوجيا مضادات البكتيريا والفيروسات والطفيليات Pharmacology of anti-bacterial, anti-viral and anti-protozoal	2	(2)1	3	20	15	15	50	100	2 hours

**Master of veterinary medical sciences (Genetic and genetic engineering)**

**First semester: 9 Credit hours**

Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	Paper exam		
7045	تركيب الكروماتين والكروموسوم Chromatin & chromosome structure	2	(2)1	3	20	15	15	50	100	2 hours
7046	تضاعف المادة الوراثية والتعبير عنها DNA replication & expression	2	(2)1	3	20	15	15	50	100	2 hours
7000A	المعلوماتية الحيوية Bioinformatics	1	(2)1	2	10	10	5	25	50	2 hours
7000B	التطبيقات الاحصائية واخلاقيات البحث والكتابة العلمية والتشر Applied statistics and research ethics and scientific writing and publications	1	-	1	-	-	-	50	50	2 hours

**Second semester: 15 Credit hours**

7047	تنظيم التعبير الجيني والبروتين الناتج عنها Regulation of gene expression & protein	2	(2)1	3	20	15	15	50	100	2 hours
7048	الطفرة ووراثه السرطان DNA mutation & cancer	2	(2)1	3	20	15	15	50	100	2 hours
7036	تغذية حيوانات التجارب والحيوانات الاليفة Laboratory and pet Animal Nutrition	2	(2)1	3	20	15	15	50	100	2 hours
7037	تقييم وانتخاب ماشية إنتاج اللبن Judging and selection of dairy cattle	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours

**Elective courses**

7074	تفريخ الاسماك والقشريات Fish and crustacean reproduction	2	(2)1	3	20	15	15	50	100	2 hours
7015	فسيولوجيا الغدد الصماء Physiology of mammalian endocrine glands	2	(2)1	3	20	15	15	50	100	2 hours
7090	الامراض المؤثرة في الجهاز المناعي للطيور والارانب Diseases affecting immune system of avian and rabbit	2	(2)1	3	20	15	15	50	100	2 hours

**PhD of veterinary medical sciences (Genetic and genetic engineering)**

**First semester: 11 Credit hours**



Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	Paper exam		
8111	الهندسة الوراثية وتطبيقاتها Genetic engineering & its application	2	(2)1	3	20	15	15	50	100	2 hours
	من مادة التخصص مقرر اختياري	2	(2)1	3	20	15	15	50	100	2 hours
8061	البيولوجيا الجزيئية للفيروسات Molecular virology	2	(2)1	3	20	15	15	50	100	2 hours
8113	سيمنارات في مجال التخصص Specialized seminars in the field of specialization	-	-	2	-	-	-	-	50	-
<b>Second semester: 11 Credit hours</b>										
8112	وراثه الكائنات الدقيقة (بكتريا وفيروس) Genetic of bacteria & virus	2	(2)1	3	20	15	15	50	100	2 hours
	من مادة التخصص مقرر اختياري	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
8114	سيمنارات في مجال التخصص Specialized seminars in the field of specialization	-	-	2	-	-	-	-	50	-
<b>Elective Courses ( Specialization)</b>										
8115	الشفرة الوراثية والتعبير عنها Genetic code & its expression	2	(2)1	3	20	15	15	50	100	2 hours
8116	تنظيم التعبير الجيني. Regulation of gene expression	2	(2)1	3	20	15	15	50	100	2 hours
8117	التحكم في الامراض الوراثية ذات التغير البيوكيميائي Control of Inherited diseases of biochemical origin	2	(2)1	3	20	15	15	50	100	2 hours
8118	وراثة المناعة وتخليق الاجسام المضادة Genetic of immunology	2	(2)1	3	20	15	15	50	100	2 hours
8119	وانتاج الادويه باستخدام الهندسه الوراثيه العلاج بالجينات DNA biotechnology & its application	2	(2)1	3	20	15	15	50	100	2 hours
8120	أنواع المسرطنات واصلاح الحمض النووي Type of mutagen & it repair	2	(2)1	3	20	15	15	50	100	2 hours
<b>Elective Courses ( Other Specializations)</b>										
8016	الكيمياء الحيوية للاورام Biology of cancers	2	(2)1	3	20	15	15	50	100	2 hours
8145	تشخيص الاضطرابات المناعية والالتهاب وموت الخلايا المبرمج وإصلاح الأنسجة	2	(2)1	3	20	15	15	50	100	2 hours



	<b>Diagnosis of immunologic disturbances, inflammation, apoptosis and tissue regeneration</b>									
8016	الكيمياء الحيوية للأورام <b>Biology of cancers</b>	2	(2)1	3	20	15	15	50	100	2 hours



## (D) Biostatistics

### (د) الإحصاء الحيوى

<b>Diploma of Biostatistics First semester: 15 Credit hours</b>										
Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	Paper exam		
6061	أساسيات الإحصاء الحيوى <b>The Basic of Biostatistics</b>	2	(2)1	3	20	15	15	50	100	2 hours
6062	تصميم التجارب <b>Experimental Design</b>	2	(2)1	3	20	15	15	50	100	2 hours
6063	الإحصاء الوصفى والاستدلالي <b>Descriptive and Inferential Statistics</b>	2	(2)1	3	20	15	15	50	100	2 hours
6076	سلوكيات المجترات <b>Behavior of ruminants</b>	2	(2)1	3	20	15	15	50	100	2 hours
6054	الكفاءة الاقتصادية والانتاجية لمزارع الانتاج الحيواني <b>Economic and Productive efficiency of animal production farms</b>	2	(2)1	3	20	15	15	50	100	2 hours
<b>Second semester: 15 Credit hours</b>										
6064	اساسيات التوزيعات الاحتمالية <b>Principles of Probability Distribution</b>	2	(2)1	3	20	15	15	50	100	2 hours
6065	اساسيات التحليل الاحصائي <b>Bases of Statistical Analysis</b>	2	(2)1	3	20	15	15	50	100	2 hours
6120	امراض ومشاكل قطعان الامهات والبيض وطرق العلاج والوقاية <b>Diseases of breeders and layers flocks and their prevention and control.</b>	2	(2)1	3	20	15	15	50	100	2 hours
6127	امراض مشتركة فيروسية <b>Viral zoonotic diseases</b>	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
<b>Elective courses</b>										
6113	مشاكل نقص الخصوبة فى الإناث <b>Female infertility</b>	2	(2)1	3	20	15	15	50	100	2 hours
6142	امراض باطنية خاص مجترات <b>Special animal medicine</b>	2	(2)1	3	20	15	15	50	100	2 hours
6094	اسس تصميم المزارع السمكية	2	(2)1	3	20	15	15	50	100	2 hours



Principals of designing fish rearing facilities										
<b>Master of veterinary medical sciences (Biostatistics)</b>										
<b>First semester: 9 Credit hours</b>										
Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	Paper exam		
7049	طرق التحليل الاحصائي Methods of Statistical Analysis	2	(2)1	3	20	15	15	50	100	2 hours
7050	الاحتمالات والتوزيعات الاحتمالية Probability and Probability Distribution	2	(2)1	3	20	15	15	50	100	2 hours
7000A	المعلوماتية الحيوية Bioinformatics	1	(2)1	2	10	10	5	25	50	2 hours
7000B	التطبيقات الاحصائية واخلاقيات البحث والكتابة العلمية والنشر Applied statistics and research ethics and scientific writing and publications	1	-	1	-	-	-	50	50	2 hours
<b>Second semester: 15 Credit hours</b>										
7051	تحليل الانحدار والارتباط الخطى Linear correlation and regression	2	(2)1	3	20	15	15	50	100	2 hours
7052	احتمالات واستدلال احصائي Probability and Statistical Inference	2	(2)1	3	20	15	15	50	100	2 hours
7039	نظم تزاوج والانتخاب لطوقه ماشية انتاج اللحم System of mating and selection of beef cattle	2	(2)1	3	20	15	15	50	100	2 hours
7014	فسيولوجيا النمو والتمثيل الغذائي Metabolism and energy	2	(2)1	3	20	15	15	50	100	2 hours
7052	احتمالات واستدلال احصائي Probability and Statistical Inference	2	(2)1	3	20	15	15	50	100	2 hours
<b>Elective courses</b>										
7089	أمراض الدواجن الفيروسية والطفيلية Viral and parasitic diseases affecting avian and rabbits	2	(2)1	3	20	15	15	50	100	2 hours
7066	وبائيات بيطرية Veterinary epidemiology	2	(2)1	3	20	15	15	50	100	2 hours
7026	تشخيصات معملية فيروسية laboratory diagnosis of viruses	2	(2)1	3	20	15	15	50	100	2 hours
<b>PhD of veterinary medical sciences (Biostatistics)</b>										
<b>First semester: 11 Credit hours</b>										



Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	Paper exam		
8121	التحليل التطبيقي للمتغيرات المتعدده Applied analysis of multiple variables	2	(2)1	3	20	15	15	50	100	2 hours
	من مادة التخصص مقرر اختياري	2	(2)1	3	20	15	15	50	100	2 hours
8142	تقنيات البيولوجيا الجزيئية والفلوسيتوميترى Molecular biology and flowcytometry	2	(2)1	3	20	15	15	50	100	2 hours
8123	سيمنارات فى مجال التخصص Specialized seminars in the field of specialization	-	-	2	-	-	-	-	50	-
<b>Second semester: 11 Credit hours</b>										
8122	نماذج خطية وتحليل الانحدار Linear models and regression analysis	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
8124	سيمنارات فى مجال التخصص Specialized seminars in the field of specialization	-	-	2	-	-	-	-	50	-
<b>Elective Courses ( Specialization)</b>										
8125	تصميم وتحليل التجارب Design and Analysis of Experiments	2	(2)1	3	20	15	15	50	100	2 hours
8126	التحليل الاحصائى للوبائيات Statistical Analysis of Epidemiology	2	(2)1	3	20	15	15	50	100	2 hours
8127	كمبيوتر ومعالجة المعلومات Computer and Word Processing	2	(2)1	3	20	15	15	50	100	2 hours
8128	نماذج التنبؤ وتحليل الانحدار Models of Prediction and Regression Analysis	2	(2)1	3	20	15	15	50	100	2 hours
8129	طرق التحليل الاحصائى للبيانات Methods of Statistical Analysis	2	(2)1	3	20	15	15	50	100	2 hours
8130	الاحتمالات والتوزيعات الاحتمالية ( متقدم) Probability and Probability Distribution (advanced)	2	(2)1	3	20	15	15	50	100	2 hours
<b>Elective Courses ( Other Specializations)</b>										
8248	تقنيات حديثة لتشخيص امراض المجترات Advanced methods in diagnosis of ruminant diseases	2	(2)1	3	20	15	15	50	100	2 hours



8115	الشفرة الوراثية والتعبير عنها <b>Genetic code &amp; its expression</b>	2	(2)1	3	20	15	15	50	100	2 hours
8248	تقنيات حديثة لتشخيص امراض المجترات <b>Advanced methods in diagnosis of ruminant diseases</b>	2	(2)1	3	20	15	15	50	100	2 hours



## 11- Department of Pathology

### 11- قسم الباثولوجيا

<b>Diploma of Pathology First semester: 15 Credit hours</b>										
Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	Paper exam		
6066	باتولوجيا الالتهابات والاضطرابات في الدورة الدموية Pathology of inflammation and disturbances in blood circulation	2	(2)1	3	20	15	15	50	100	2 hours
6067	باتولوجيا الايض والتكزز Pathology of disturbances in cell metabolism and necrosis	2	(2)1	3	20	15	15	50	100	2 hours
6068	باتولوجيا الاورام Pathology of disturbances in cell metabolism and necrosis	2	(2)1	3	20	15	15	50	100	2 hours
6013	هستولوجيا الحيوان (ب) Veterinary Histology (B)	2	(2)1	3	20	15	15	50	100	2 hours
6031	فيروسولوجيا تركيبية ووظيفية (فيروسولوجي 1) structural and functional virology (A)	2	(2)1	3	20	15	15	50	100	2 hours
<b>Second semester: 15 Credit hours</b>										
6069	باتولوجيا المناعة pathology of immunology	2	(2)1	3	20	15	15	50	100	2 hours
6070	تشخيص الامراض المختلفة ظاهريا بعد الوفاة Post-mortem changes in different disease	2	(2)1	3	20	15	15	50	100	2 hours
6072	تشخيص اضطرابات التمثيل الغذائي والشوارد والاملاح Diagnosis of metabolic, electrolytes and minerals disturbances	2	(2)1	3	20	15	15	50	100	2 hours
6036	(1) الطفيليات المعملية Clinical parasitology (1)	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
<b>Elective courses</b>										
6146	الامراض المعدية البكتيرية والفطرية للمجترات والخيول Infectious Bacterial and mycotic diseases of Ruminants and Equines	2	(2)1	3	20	15	15	50	100	2 hours





6096	امراض الاسماك Fish diseases	2	(2)1	3	20	15	15	50	100	2 hours
6113	مشاكل نقص الخصوبة فى الاثاث Female infertility	2	(2)1	3	20	15	15	50	100	2 hours

### Master of veterinary medical sciences (Pathology)

#### First semester: 9 Credit hours

Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	Paper exam		
7053	باطولوجيا الجهاز الهضمي والتنفسي والامراض المتعلقة بهما Pathology of digestive and respiratory systems and its related diseases	2	(2)1	3	20	15	15	50	100	2 hours
7054	باطولوجيا الجهاز البولي والتناسلي والامراض المتعلقة بهما Pathology of urinary and reproductive systems and its related diseases	2	(2)1	3	20	15	15	50	100	2 hours
7000A	المعلوماتية الحيوية Bioinformatics	1	(2)1	2	10	10	5	25	50	2 hours
7000B	التطبيقات الاحصائية واخلاقيات البحث والكتابة العلمية والنشر Applied statistics and research ethics and scientific writing and publications	1	-	1	-	-	-	50	50	2 hours

#### Second semester: 15 Credit hours

7055	باطولوجيا الجهاز الدوري والعصبي والامراض المتعلقة بهما Pathology of cardiovascular and nervous systems and its related diseases	2	(2)1	3	20	15	15	50	100	2 hours
7056	باطولوجيا الاورام لاجهزة الجسم المختلفة Pathology of cardiovascular and nervous systems and its related diseases	2	(2)1	3	20	15	15	50	100	2 hours
7022	فطريات Fungi	2	(2)1	3	20	15	15	50	100	2 hours
7007	الكيمياء الحيوية للتمثيل الغذائى Metabolism of food stuff	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours

#### Elective courses

7075	الامراض البكتيرية والفطرية لاسماك المياه العذبة bacterial and mycotic diseases of freshwater fishes	2	(2)1	3	20	15	15	50	100	2 hours
7092	التشخيص المعملى لامراض الدواجن و الارانب Laboratory diagnosis of avian and rabbits	2	(2)1	3	20	15	15	50	100	2 hours



	diseases									
7097	جراحة الانسجة الرخوة Soft tissue surgery	2	(2)1	3	20	15	15	50	100	2 hours

### **PhD of veterinary medical sciences (Pathology)**

#### **First semester: 11 Credit hours**

Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	paper exam		
8131	باثولوجيا الامراض المختلفة لحيوانات المزرعة pathology of infectious diseases in farm animals	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
8196	مخلفات الذبائح الحيوانية Animal By-products	2	(2)1	3	20	15	15	50	100	2 hours
8133	سيمنارات في مجال التخصص Specialized seminars in the field of specialization	-	-	2	-	-	-	-	50	-

#### **Second semester: 11 Credit hours**

8132	باثولوجيا الامراض الطفيلية للطيور و الاسماك pathology of parasitic diseases in poultry and fish	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
8134	سيمنارات في مجال التخصص Specialized seminars in the field of specialization	-	-	2	-	-	-	-	50	-

#### **Elective Courses ( Specialization)**

8135	باثولوجيا الامراض المختلفة للحيوانات الاليفة pathology of different diseases in pet animals	2	(2)1	3	20	15	15	50	100	2 hours
8136	باثولوجيا السموم Pathology of toxins	2	(2)1	3	20	15	15	50	100	2 hours
8137	باثولوجيا الاورام متقدم Pathology of advanced Oncology	2	(2)1	3	20	15	15	50	100	2 hours
8138	باثولوجيا الامراض البكتيرية والفطرية للطيور والاسماك pathology of Bacterial and mycotic diseases in fish	2	(2)1	3	20	15	15	50	100	2 hours
8139	باثولوجيا الامراض الفيروسية للطيور والاسماك	2	(2)1	3	20	15	15	50	100	2 hours



	Pathology of viral diseases in poultry and fish									
8140	الباثولوجيا التجريبية الجراحية Experimental surgical pathology	2	(2)1	3	20	15	15	50	100	2 hours
<b>Elective Courses ( Other Specializations)</b>										
8052	مناعة جزيئية وتشخيصية Molecular and Diagnostic immunology	2	(2)1	3	20	15	15	50	100	2 hours
8195	التسمم الغذائى والسّموم البحرية Food Poisoning and Marine toxins	2	(2)1	3	20	15	15	50	100	2 hours



## 12- Department of Clinical Pathology

### 12- قسم الباثولوجيا الاكلينيكية

<b>Diploma of Clinical Pathology First semester: 15 Credit hours</b>										
Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	Paper exam		
6071	تشخيص أمراض خلايا الدم <b>Diagnosis of Blood cells diseases</b>	2	(2)1	3	20	15	15	50	100	2 hours
6072	تشخيص اضطرابات التمثيل الغذائي والشوارد والأملاح ) باثولوجيا الاكلينيكية (أ) <b>Diagnosis of metabolic, electrolytes and minerals disturbances (A)</b>	2	(2)1	3	20	15	15	50	100	2 hours
6073	الامان الحيوي والأجهزة المعملية <b>Laboratory biosecurity and apparatuses</b>	2	(2)1	3	20	15	15	50	100	2 hours
6006	كيمياء حيوي عام (أ) <b>General Biochemistry (A)</b>	2	(2)1	3	20	15	15	50	100	2 hours
6025	بكتريولوجي 1 <b>Bacteriology (1)</b>	2	(2)1	3	20	15	15	50	100	2 hours
<b>Second semester: 15 Credit hours</b>										
6074	تشخيص أمراض الجهاز الهضمي ( باثولوجيا اكلينيكية ب) <b>Diagnosis of digestive system diseases</b>	2	(2)1	3	20	15	15	50	100	2 hours
6075	تشخيص امراض المناعة وسرطانات الدم <b>Diagnosis of immunologic diseases and blood tumors</b>	2	(2)1	3	20	15	15	50	100	2 hours
6139	امراض نقص المناعة والوقاية من الامراض الباطنة والمعدية <b>Immunity diseases and prevention of infectious and non- infectious diseases</b>	2	(2)1	3	20	15	15	50	100	2 hours
6024	فارماكولوجيا اكلينيكية <b>Clinical pharmacology</b>	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
<b>Elective courses</b>										
6035	فيروسات حيوانات المزرعة) <b>viruses of farm animals</b>	2	(2)1	3	20	15	15	50	100	2 hours
6069	باثولوجيا المناعة <b>pathology of immunology</b>	2	(2)1	3	20	15	15	50	100	2 hours
6011	أساسيات علم الخلية وكيمياء الخلية (هستولوجيا أ) <b>Basics of Cytology and Cytochemistry</b>	2	(2)1	3	20	15	15	50	100	2 hours
6146	الامراض المعدية البكتيرية والفطرية للمجترات والخيول <b>Infectious Bacterial and mycotic diseases of</b>	2	(2)1	3	20	15	15	50	100	2 hours



Ruminants and Equines										
<b>Master of veterinary medical sciences (Clinical Pathology)</b>										
<b>First semester: 9 Credit hours</b>										
Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	Year works	Paper exam		
7057	تشخيص اضطرابات سوائل الجسم Diagnosis of body fluids disturbances	2	(2)1	3	20	15	15	50	100	2 hours
7058	اختبارات وظائف الأعضاء Organs functions tests	2	(2)1	3	20	15	15	50	100	2 hours
7000A	المعلوماتية الحيوية Bioinformatics	1	(2)1	2	10	10	5	25	50	2 hours
7000B	التطبيقات الاحصائية واخلاقيات البحث والكتابة العلمية والنشر Applied statistics and research ethics and scientific writing and publications	1	-	1	-	-	-	50	50	2 hours
<b>Second semester: 15 Credit hours</b>										
7059	الهormونات التشخيصية Diagnostic hormones	2	(2)1	3	20	15	15	50	100	2 hours
7060	دلالات السرطان Tumor markers	2	(2)1	3	20	15	15	50	100	2 hours
7026	تشخيصات معملية فيروسية laboratory diagnosis of viruses	2	(2)1	3	20	15	15	50	100	2 hours
7017	فارماكولوجيا الأجهزة Systemic pharmacology	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
<b>Elective courses</b>										
7071	السموم وتأثيرها على أجهزة الجسم Toxins and their effect on body systems	2	(2)1	3	20	15	15	50	100	2 hours
7100	التشخيص بالتصوير Diagnostic imaging	2	(2)1	3	20	15	15	50	100	2 hours
7075	الامراض البكتيرية والفطرية في اسماك المياه العذبة bacterial and mycotic diseases of freshwater fishes	2	(2)1	3	20	15	15	50	100	2 hours
7104	الامراض الباطنة للخيل Equine medicine	2	(2)1	3	20	15	15	50	100	2 hours
7087	نقص الخصوبة ومسببات الاجهاض Infertility and diseases causing abortion	2	(2)1	3	20	15	15	50	100	2 hours
<b>PhD of veterinary medical sciences (Clinical Pathology)</b>										
<b>First semester: 11 Credit hours</b>										



Code	Courses				Practical exam	Oral exam	year works	Paper exam		
8141	دلالات الاجهاد واستجابة الجسم Stress markers and body response	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
8052	مناعة جزيئية وتشخيصية Molecular and Diagnostic immunology	2	(2)1	3	20	15	15	50	100	2 hours
8143	سيمنارات في مجال التخصص Specialized seminars in the field of specialization	-	-	2	-	-	-	-	50	-
<b>Second semester: 11 Credit hours</b>										
8142	تقنيات البيولوجيا الجزيئية والفلوسيتومتري Molecular biology and flowcytometry	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
8144	سيمنارات في مجال التخصص Specialized seminars in the field of specialization	-	-	2	-	-	-	-	50	-
<b>Elective Courses ( Specialization)</b>										
8145	تشخيص الاضطرابات المناعية والالتهاب وموت الخلايا المبرمج واصلاح الانسجة Diagnosis of immunologic disturbances, inflammation, apoptosis and tissue regeneration	2	(2)1	3	20	15	15	50	100	2 hours
8146	التشخيص باستخدام علامات سطح الخلية - النخاع العظمي والخلايا الجذعية Diagnosis by cell surface markers- bone marrow and stem cells	2	(2)1	3	20	15	15	50	100	2 hours
8147	علم الخلايا التشخيصي Diagnostic cytology	2	(2)1	3	20	15	15	50	100	2 hours
8148	باطولوجيا اكلينيكية الاسماك Fish clinical pathology	2	(2)1	3	20	15	15	50	100	2 hours
8149	باطولوجيا اكلينيكية الطيور Poultry clinical pathology	2	(2)1	3	20	15	15	50	100	2 hours
8150	إختبارات الكروت التشخيصية Diagnostic SNAP Assays	2	(2)1	3	20	15	15	50	100	2 hours
<b>Elective Courses ( Other Specializations)</b>										
8263	التقنيات الحديثة لتشخيص الامراض المعدية	2	(2)1	3	20	15	15	50	100	2 hours



	<b>Advanced Techniques for diagnosis of infectious diseases</b>									
8017	الإشارات الكيميائية الحيوية <b>Cytokines and signals transduction</b>	2	(2)1	3	20	15	15	50	100	2 hours
8210	التناسل والمناعة <b>Reproductive immunology</b>	2	(2)1	3	20	15	15	50	100	2 hours



## **13- Department of VETERINARY HYGIENE AND MANAGEMENT**

### **13- قسم الصحة والرعاية البيطرية**

#### **A) Animal and Poultry Behavior**

#### **(أ) مادة السلوكيات و رعاية الحيوان و الدواجن**

<b><u>Diploma of Animal and Poultry Behavior</u>First semester: 15 Credit hours</b>										
Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	Paper exam		
6076	سلوكيات المجترات Behavior of ruminants	2	(2)1	3	20	15	15	50	100	2 hours
6077	مبادئ الرفق بالحيوان Animal welfare	2	(2)1	3	20	15	15	50	100	2 hours
6078	سلوكيات و رعاية الجمال Behavior and management of camel	2	(2)1	3	20	15	15	50	100	2 hours
6045	امراض التمثيل الغذائي Metabolic Diseases	2	(2)1	3	20	15	15	50	100	2 hours
6081	صحة و تسكين حيوانات المزرعة Hygienic principles of livestock housing	2	(2)1	3	20	15	15	50	100	2 hours
<b>Second semester: 15 Credit hours</b>										
6079	رعاية المجترات Management of ruminants	2	(2)1	3	20	15	15	50	100	2 hours
6080	رعاية حيوانات التجارب Management of laboratory animals	2	(2)1	3	20	15	15	50	100	2 hours
6084	صحة و تسكين الدواجن Housing of Poultry	2	(2)1	3	20	15	15	50	100	2 hours
6049	تربية و انتاج قطعان دجاج التسمين Breeding and production of broiler	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
<b>Elective courses</b>										
6042	مواد علف و تحليلها	2	(2)1	3	20	15	15	50	100	2 hours





Feedstuffs Analysis										
6017	فسبيولوجيا الطاقة والتمثيل الغذائي Physiology of metabolism and energy	2	(2)1	3	20	15	15	50	100	2 hours
<b>Master of veterinary medical sciences (Animal and Poultry Behavior)</b>										
<b>First semester: 9 Credit hours</b>										
Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	Paper exam		
7061	سلوكيات ورعاية الخيول Behavior and management of Equines	2	(2)1	3	20	15	15	50	100	2 hours
7062	سلوكيات و رعاية الحيوانات المنزلية الأليفة Behavior and management of pet animals	2	(2)1	3	20	15	15	50	100	2 hours
7000A	المعلوماتية الحيوية Bioinformatics	1	(2)1	2	10	10	5	25	50	2 hours
7000B	التطبيقات الاحصائية واخلاقيات البحث والكتابة العلمية والنشر Applied statistics and research ethics and scientific writing and publications	1	-	1	-	-	-	50	50	2 hours
<b>Second semester: 15 Credit hours</b>										
7063	سلوكيات ورعاية الدواجن Behavior and Management of Poultry	2	(2)1	3	20	15	15	50	100	2 hours
7064	سلوكيات ورعاية حيوانات التجارب Behavior and Management of Laboratory Animals	2	(2)1	3	20	15	15	50	100	2 hours
7038	تربية و انتاج الدجاج البيض Breeding and production of layers and breeders	2	(2)1	3	20	15	15	50	100	2 hours
7065	تصميم مزارع الأبقار والجاموس Housing of cows and buffalo farms	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
<b>Elective courses</b>										
7091	امراض الدواجن والارانب البكتيرية والفطرية Bacterial and mycotic diseases affecting avian and rabbits	2	(2)1	3	20	15	15	50	100	2 hours
7096	دور الطيور والأسماك والحيوانات المنزلية في نقل الأمراض المشتركة Role of domestic birds, fish and household animals in the transmission of zoonotic	2	(2)1	3	20	15	15	50	100	2 hours



		diseases								
7031	الحشرات الطبية البيطرية المتطفلة Medical and veterinary insects (1)	2	(2)1	3	20	15	15	50	100	2 hours
<b>PhD of veterinary medical sciences (Animal and Poultry Behavior)</b>										
<b>First semester: 11 Credit hours</b>										
Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	paper exam		
8151	الرفق بالحيوان Animal welfare	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
8087	تغذية الدواجن و الارانب Poultry and rabbit nutrition	2	(2)1	3	20	15	15	50	100	2 hours
8153	سيمنارات في مجال التخصص Specialized seminars in the field of specialization	-	-	2	-	-	-	-	50	-
<b>Second semester: 11 Credit hours</b>										
8152	التطبيقات الحديثة في قياس السلوكيات Recent applications in measuring Behavior	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
8154	سيمنارات في مجال التخصص Specialized seminars in the field of specialization	-	-	2	-	-	-	-	50	-
<b>Elective Courses ( Specialization)</b>										
8155	سلوكيات و رعاية الارانب Rabbit behavior and management	2	(2)1	3	20	15	15	50	100	2 hours
8156	سلوكيات و رعاية الكلاب والقطط Behavior and management of dogs and cats	2	(2)1	3	20	15	15	50	100	2 hours
8157	سلوكيات و رعاية الحيوانات منزلية Behavior and management Pet Animals	2	(2)1	3	20	15	15	50	100	2 hours
8158	سلوكيات و رعاية الابقار والجاموس والجمال Behavior and management of cows, Buffaloes and camels	2	(2)1	3	20	15	15	50	100	2 hours
8159	سلوكيات و رعاية الخيول Behavior and management of Equines	2	(2)1	3	20	15	15	50	100	2 hours
8160	سلوكيات و رعاية حيوانات التجارب	2	(2)1	3	20	15	15	50	100	2 hours



	<b>Behavior and management of Laboratory animals</b>									
<b>Elective Courses ( Other Specializations)</b>										
8096	تربية و انتاج الأرانب <b>Breeding and production of rabbits</b>	2	(2)1	3	20	15	15	50	100	2 hours
8229	دور حيوانات المزرعة في نقل الامراض المشتركة <b>Role of farm animals in zoonotic diseases transmission</b>	2	(2)1	3	20	15	15	50	100	2 hours



## **B) Animal Health, Poultry and Environment**

### **(ب) مادة صحة الحيوان والدواجن والبيئة**

<b>Diploma of Animal Health, Poultry and Environment First semester: 15 Credit hours</b>										
Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	Paper exam		
6081	صحة وتسكين حيوانات المزرعة Hygienic principles of livestock housing	2	(2)1	3	20	15	15	50	100	2 hours
6082	صحة بيئية Environmental hygiene	2	(2)1	3	20	15	15	50	100	2 hours
6083	مطهرات ومبيدات حشرية Disinfectants, Rodent control, control of disease vectors and insecticides	2	(2)1	3	20	15	15	50	100	2 hours
6025	بكتريا (1) Bacteriology (1)	2	(2)1	3	20	15	15	50	100	2 hours
6076	سلوكيات المجترات Behavior of ruminants	2	(2)1	3	20	15	15	50	100	2 hours
<b>Second semester: 15 Credit hours</b>										
6084	صحة وتسكين الدواجن Housing of Poultry	2	(2)1	3	20	15	15	50	100	2 hours
6085	الامان الحيوي Biosecurity	2	(2)1	3	20	15	15	50	100	2 hours
6099	ميكروبيولوجيا الاغذية Food Microbiology	2	(2)1	3	20	15	15	50	100	2 hours
6037	الديدان الطفيلية (1) Parasitic helminthes (1)	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
<b>Elective courses</b>										
6117	امراض و مشاكل قطعان دجاج التسمين و طرق العلاج والوقاية Diseases of broiler chicken flocks and their prevention and control	2	(2)1	3	20	15	15	50	100	2 hours
6124	الامراض المشتركة العامة General zoonoses	2	(2)1	3	20	15	15	50	100	2 hours



6086	السموم العامة General Toxicology	2	(2)1	3	20	15	15	50	100	2 hours
6035	فيروسات حيوانات المزرعة viruses of farm animals	2	(2)1	3	20	15	15	50	100	2 hours
6046	تأسيس قطعان ماشية إنتاج اللبن Establishment of dairy cattle farms	2	(2)1	3	20	15	15	50	100	2 hours

### Master of veterinary medical sciences (Animal Health, Poultry and Environment)

#### First semester: 9 Credit hours

Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	Paper exam		
7065	تصميم مزارع الابقار والجاموس Housing of cows and buffalo farms	2	(2)1	3	20	15	15	50	100	2 hours
7066	وبانيات بيطرية Veterinary epidemiology	2	(2)1	3	20	15	15	50	100	2 hours
7000A	المعلوماتية الحيوية Bioinformatics	1	(2)1	2	10	10	5	25	50	2 hours
7000B	التطبيقات الاحصائية واخلاقيات البحث والكتابة العلمية والنشر Applied statistics and research ethics and scientific writing and publications	1	-	1	-	-	-	50	50	2 hours

#### Second semester: 15 Credit hours

7067	تصميم مزارع الدواجن ومعامل التفريخ Housing of Poultry and hatcheries	2	(2)1	3	20	15	15	50	100	2 hours
7068	مقاومة القوارض Rodent control and control of disease vectors	2	(2)1	3	20	15	15	50	100	2 hours
7025	فيروسات عام general virology	2	(2)1	3	20	15	15	50	100	2 hours
7024	المناعة Immunity	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours

#### Elective courses

7070	السموم البيئية Environmental Toxicology	2	(2)1	3	20	15	15	50	100	2 hours
7077	المجازر و الاحكام المتعلقة بالامراض المختلفة Abattoirs and Judgment of different diseases	2	(2)1	3	20	15	15	50	100	2 hours



7090	الأمراض المؤثرة في الجهاز المناعي للطيور والأرانب Diseases affecting immune system of avian and rabbit	2	(2)1	3	20	15	15	50	100	2 hours
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**PhD of veterinary medical sciences (Animal Health, Poultry and Environment)**

**First semester: 11 Credit hours**

Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	Paper exam		
8161	صحة الحيوان والدواجن Animal and poultry hygiene	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
8228	وبائيات الأمراض المشتركة Epidemiology of zoonotic diseases	2	(2)1	3	20	15	15	50	100	2 hours
8163	سيمنارات في مجال التخصص Specialized seminars in the field of specialization	-	-	2	-	-	-	-	50	-

**Second semester: 11 Credit hours**

8162	المبيدات و المطهرات Insecticides and Disinfectants	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
8164	سيمنارات في مجال التخصص Specialized seminars in the field of specialization	-	-	2	-	-	-	-	50	-

**Elective Courses ( Specialization)**

8165	صحة المياه Water Hygiene	2	(2)1	3	20	15	15	50	100	2 hours
8166	صحة الهواء Air hygiene	2	(2)1	3	20	15	15	50	100	2 hours
8167	صحة و تسكين مزارع الدواجن Hygiene and Housing of Poultry	2	(2)1	3	20	15	15	50	100	2 hours
8168	صحة و تسكين حيوانات المزرعة Hygienic principles of livestock housing	2	(2)1	3	20	15	15	50	100	2 hours

**Elective Courses ( Other Specializations)**

8158	سلوكيات ورعاية الإبل والجاموس والجمال Behavior and management of cows, Buffaloes and camels	2	(2)1	3	20	15	15	50	100	2 hours
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8198	المتبقيات الضارة فى الاغذية Harmful residues in Foods	2	(2)1	3	20	15	15	50	100	2 hours
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## 14- Department of Forensic Medicine and Toxicology

### 14- قسم الطب الشرعى و السموم

#### Diploma of Forensic Medicine and Toxicology First semester: 15 Credit hours

Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	Paper exam		
6086	السموم العامة General Toxicology	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
6072	تشخيص اضطرابات التمثيل الغذائى والشوارد والأملاح (باثولوجيا اكلينيكية أ)	2	(2)1	3	20	15	15	50	100	2 hours
6099	ميكروبيولوجيا الأغذية	2	(2)1	3	20	15	15	50	100	2 hours

#### Second semester: 15 Credit hours

6087	الاثار الجرائمية من الوجة الطبية الشرعية Criminal evidence from Medico-legal point of view	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
6057	الاختلافات الكروموسومية وتحديد الجنس Chromosome variation & sex determination	2	(2)1	3	20	15	15	50	100	2 hours
6039	الحشرات الطبية والبيطرية Medical and veterinary insects (1(	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours

#### Elective courses (Specializations)

6088	الوجهه الطبية الشرعية للوفاة Death from Medico-legal point of view	2	(2)1	3	20	15	15	50	100	2 hours
6089	التزييف والتزوير والغش التجاري Counter feinting and Commercial fraud	2	(2)1	3	20	15	15	50	100	2 hours
6090	الخريطة الوراثية من الوجة الطبية الشرعية Genetic map from Medico-legal point of view	2	(2)1	3	20	15	15	50	100	2 hours
6091	الاختبارات المعملية للسموم Laboratory test for toxins	2	(2)1	3	20	15	15	50	100	2 hours



Elective Courses ( Other Specializations)										
6008	كيمياء حيوية اكلينيكية (أ) Clinical Biochemistry A	2	(2)1	3	20	15	15	50	100	2 hours
6025	بكتريولوجيا (أ) Bacteriology (1(	2	(2)1	3	20	15	15	50	100	2 hours
6022	نباتات طبية Medicinal plants	2	(2)1	3	20	15	15	50	100	2 hours

Diploma in Forensic Medicine and Toxicology, Forensic Medicine stream (the student studies the course on the forensic medical aspect of death, the course on forgery, counterfeiting and commercial fraud, and the genetic mapping course from the forensic medical perspective). Diploma in Forensic Medicine and Toxicology, Toxicology stream (the student studies the course on laboratory tests for toxins, the course on biotransformation of toxins, and the genetic mapping course from the forensic medical perspective).

### Master of veterinary medical sciences (Forensic Medicine and Toxicology)

#### First semester: 9 Credit hours

Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	Paper exam		
7069	الاجراءات والقوانين والتقارير البيطرية Procedures, Laws and veterinary reports	2	(2)1	3	20	15	15	50	100	2 hours
7070	السموم البيئية Environmental Toxicology	2	(2)1	3	20	15	15	50	100	2 hours
7000A	المعلوماتية الحيوية Bioinformatics	1	(2)1	2	10	10	5	25	50	2 hours
7000B	التطبيقات الاحصائية واخلاقيات البحث والكتابة العلمية والنشر Applied statistics and research ethics and scientific writing and publications	1	-	1	-	-	-	50	50	2 hours

#### Second semester: 15 Credit hours

7071	السموم وتأثيرها على اجهزة الجسم Toxins and their effect on body systems	2	(2)1	3	20	15	15	50	100	2 hours
7072	اسباب الوفاة من الوجهة الطبية الشرعية Causes of death from Medico-legal point of view	2	(2)1	3	20	15	15	50	100	2 hours
7020	التسمم الدوائى Drug toxicology	2	(2)1	3	20	15	15	50	100	2 hours
7077	المجازر و الاحكام المتعلقة بالامراض المختلفة Abattoirs and Judgment of different	2	(2)1	3	20	15	15	50	100	2 hours





		diseases									
		مقرر اختياري من خارج مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
<b>Elective courses</b>											
7058	اختبارات وظائف الاعضاء Organs functions tests		2	(2)1	3	20	15	15	50	100	2 hours
7056	باثولوجيا الاورام لاجهزة الجسم المختلفة Pathology of cardiovascular and nervous systems and its related diseases		2	(2)1	3	20	15	15	50	100	2 hours
<b>PhD of veterinary medical sciences (Forensic Medicine and Toxicology)</b>											
<b>First semester: 11 Credit hours</b>											
Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours	
					Practical exam	Oral exam	Year works	Paper exam			
8169	السموم الوراثية Genetic toxins	2	(2)1	3	20	15	15	50	100	2 hours	
	مقرر من مادة التخصص اختياري	2	(2)1	3	20	15	15	50	100	2 hours	
8142	تقنيات البيولوجيا الجزيئية والفلوسيتوميترى Molecular biology and flowcytometry	2	(2)1	3	20	15	15	50	100	2 hours	
8171	سيمنارات في مجال التخصص Specialized seminars in the field of specialization	-	-	2	-	-	-	-	50	-	
<b>Second semester: 11 Credit hours</b>											
8170	السموم من الوجة الطبية الشرعية Toxins from Medico-legal aspect	2	(2)1	3	20	15	15	50	100	2 hours	
	مقرر اختياري من مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours	
	مقرر اختياري من خارج مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours	
8172	سيمنارات في مجال التخصص Specialized seminars in the field of specialization	-	-	2	-	-	-	-	50	-	
<b>Elective Courses ( Specialization)</b>											
8173	الكيمياء الطبية الشرعية Forensic chemistry	2	(2)1	3	20	15	15	50	100	2 hours	
8174	التسمم الناشيء عن الاعلاف والاعذية Poisoning caused by feeding and food	2	(2)1	3	20	15	15	50	100	2 hours	
8175	السموم الطبيعية والسموم الهوائية والغازية Natural, aerobic and volatile poisons	2	(2)1	3	20	15	15	50	100	2 hours	
8176	السموم الحيوانية والفطرية	2	(2)1	3	20	15	15	50	100	2 hours	



Animal and Mycotoxin poisons										
8177	تحديد وقت و نوع التغيرات الرممية Specify the time and type of post mortem changes									
8178	الكشف عن طرق غش الاغذية Detection of food adulteration									
Elective Courses ( Other Specializations)										
8198	المنتجات الضارة فى الاغذية Harmful residues in Foods	2	(2)1	3	20	15	15	50	100	2 hours
8165	صحة المياه Water Hygiene	2	(2)1	3	20	15	15	50	100	2 hours



## 15- Department of AQUATIC ANIMALS DISEASES AND MANAGEMENT

### 15- قسم أمراض ورعاية الاحياء المائية

<b>Diploma of Aquatic Diseases and Management First semester: 15 Credit hours</b>										
Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	Paper exam		
6093	اساسيات تربية ورعاية الاحياء المائية Principals of rearing and management of aquatic animals	2	(2)1	3	20	15	15	50	100	2 hours
6094	اسس تصميم المزارع السمكية Principals of designing fish rearing facilities	2	(2)1	3	20	15	15	50	100	2 hours
6095	بيولوجيا الاحياء المائية aquatic animals' biology	2	(2)1	3	20	15	15	50	100	2 hours
6041	اساسيات تغذية الحيوان Basic Animal Nutrition	2	(2)1	3	20	15	15	50	100	2 hours
6016	فسيولوجيا المناعة Physiology of immunity	2	(2)1	3	20	15	15	50	100	2 hours
<b>Second semester: 15 Credit hours</b>										
6096	امراض الاسماك Fish diseases	2	(2)1	3	20	15	15	50	100	2 hours
6097	امراض القشريات والمحاريات Crustacean and bivalve diseases	2	(2)1	3	20	15	15	50	100	2 hours
6070	باثولوجيا الامراض المختلفة ظاهريا بعد الوفاة Post-mortem changes in different disease	2	(2)1	3	20	15	15	50	100	2 hours
6036	طفيليات معمل (1) Clinical parasitology (1)	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
<b>Elective courses</b>										
6028	بكتريولوجيا (2) (Bacteriology (2	2	(2)1	3	20	15	15	50	100	2 hours
6010	التقنيات الهستولوجية Histological Techniques	2	(2)1	3	20	15	15	50	100	2 hours
6002	تشریح الطيور والأسماك	2	(2)1	3	20	15	15	50	100	2 hours



	Anatomy of poultry and fish										
<b>Master of veterinary medical sciences (Aquatic Diseases and Management)</b>											
<b>First semester: 9 Credit hours</b>											
Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours	
					Practical exam	Oral exam	year works	Paper exam			
7073	استزراع ورعاية الاسماك والقشريات Management and culture of fish and crustacean	2	(2)1	3	20	15	15	50	100	2 hours	
7074	تفريخ الاسماك والقشريات Fish and crustacean reproduction	2	(2)1	3	20	15	15	50	100	2 hours	
7000A	المعلوماتية الحيوية Bioinformatics	1	(2)1	2	10	10	5	25	50	2 hours	
7000B	التطبيقات الاحصائية واخلاقيات البحث والكتابة العلمية والنشر Applied statistics and research ethics and scientific writing and publications	1	-	1	-	-	-	50	50	2 hours	
<b>Second semester: 15 Credit hours</b>											
7075	الامراض البكتيرية والفطرية في اسماك المياه العذبة bacterial and mycotic diseases of freshwater fishes	2	(2)1	3	20	15	15	50	100	2 hours	
7076	الامراض الطفيلية والفيروسية في اسماك المياه العذبة Parasitic and viral diseases of freshwater fishes	2	(2)1	3	20	15	15	50	100	2 hours	
7079	ميكروبيولوجيا الاغذية والتسمم الغذائي Food microbiology and food poisoning	2	(2)1	3	20	15	15	50	100	2 hours	
7012	هستولوجيا الطيور البرية والقشريات والرخويات Histology of wild birds crustaceans and molluscs	2	(2)1	3	20	15	15	50	100	2 hours	
	مقرر اختياري من خارج مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours	
<b>Elective courses</b>											
7032	الطفيليات المعملية (2) Clinical parasitology(2)	2	(2)1	3	20	15	15	50	100	2 hours	
7015	فسيولوجيا الغدد الصماء Physiology of mammalian endocrine glands	2	(2)1	3	20	15	15	50	100	2 hours	
7058	اختبارات وظائف الاعضاء Organs functions tests	2	(2)1	3	20	15	15	50	100	2 hours	



<b>PhD of veterinary medical sciences (Aquatic Diseases and Management)</b>										
<b>First semester: 11 Credit hours</b>										
Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	Paper exam		
8179	استخدام التكنولوجيا الحديثة في الاستزراع السمكي the use biotechnology in aquaculture	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
8111	الهندسة الوراثية وتطبيقاتها Genetic engineering & its application	2	(2)1	3	20	15	15	50	100	2 hours
8181	سيمنارات في مجال التخصص Specialized seminars in the field of specialization	-	-	2	-	-	-	-	50	-
<b>Second semester: 11 Credit hours</b>										
8180	الوقاية والتحكم في أمراض الاسماك والقشريات prevention and control of fish and crustacean diseases	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
8182	سيمنارات في مجال التخصص Specialized seminars in the field of specialization	-	-	2	-	-	-	-	50	-
<b>Elective Courses ( Specialization)</b>										
8183	امراض اسماك الزينة Aquarium fish diseases	2	(2)1	3	20	15	15	50	100	2 hours
8184	الامراض البكتيرية والفطرية في اسماك المياه العذبة والشروب والمالحة Bacterial and mycotic diseases of brackish and marine fishes	2	(2)1	3	20	15	15	50	100	2 hours
8185	الامراض الفيروسية في اسماك المياه العذبة والشروب والمالحة Parasitic and viral diseases of brackish and marine water fishes	2	(2)1	3	20	15	15	50	100	2 hours
8186	تفريخ اسماك المياه العذبة Reproduction of marine water fishes	2	(2)1	3	20	15	15	50	100	2 hours
8187	الامراض الوافدة للاحياء المائية و الامان الحيوى	2	(2)1	3	20	15	15	50	100	2 hours



	<b>Biosecurity and exotic diseases of aquatic animals</b>									
8188	أمراض النقص الغذائي والأمراض البيئية في الأسماك <b>Nutritional deficiency and environmental diseases of fish</b>	2	(2)1	3	20	15	15	50	100	2 hours
<b>Elective Courses ( Other Specializations)</b>										
8138	باثولوجيا الأمراض البكتيرية والفطرية للطيور والأسماك <b>pathology of Bacterial and mycotic diseases in fish</b>	2	(2)1	3	20	15	15	50	100	2 hours
8062	اللقاحات والمناعة الفيروسيّة <b>Viral immunity and vaccines</b>	2	(2)1	3	20	15	15	50	100	2 hours
8109	معايير الكفاءة الانتاجية والاقتصادية في الاستزراع السمكي <b>Economic and productive efficiency measures of aqua culture</b>	2	(2)1	3	20	15	15	50	100	2 hours
8009	تشريح القشريات والرخويات <b>Anatomy of crustaceans and molluscus</b>	2	(2)1	3	20	15	15	50	100	2 hours



## 16- Department of Food Hygiene and Control

### 16- قسم الرقابة الصحية على الاغذية

#### A) Meat Hygiene Control

#### (أ) الرقابة الصحية على اللحوم

<b>Diploma of Meat Health and Technology First semester: 15 Credit hours</b>										
Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	Paper exam		
6098	التفتيش الصحي علي اللحوم ومنتجاتها Sanitary inspection of meat and its product	2	(2)1	3	20	15	15	50	100	2 hours
6099	ميكروبيولوجيا الاغذية Food Microbiology	2	(2)1	3	20	15	15	50	100	2 hours
6100	صحة لحوم الدواجن Poultry Meat Hygiene	2	(2)1	3	20	15	15	50	100	2 hours
6086	السموم العامة General Toxicology	2	(2)1	3	20	15	15	50	100	2 hours
6025	بكتريا (أ) Bacteriology (A)	2	(2)1	3	20	15	15	50	100	2 hours
<b>Second semester: 15 Credit hours</b>										
6101	تكنولوجيا الاغذية Food Technology	2	(2)1	3	20	15	15	50	100	2 hours
6102	كيمياء الاغذية Food Chemistry	2	(2)1	3	20	15	15	50	100	2 hours
6082	صحة بيئية Environmental hygiene	2	(2)1	3	20	15	15	50	100	2 hours
6124	الامراض المشتركة العامة General zoonoses	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
<b>Elective courses</b>										
6023	فارماكولوجيا مضادات البكتريا والفيروسات والطفيليات Pharmacology of anti-bacterial, anti-viral and anti-protozoal	2	(2)1	3	20	15	15	50	100	2 hours
6011	اساسيات علم الخلية وكيمياء الخلية (هستولوجيا أ)	2	(2)1	3	20	15	15	50	100	2 hours



Basics of Cytology and Cytochemistry										
<b>Master of veterinary medical sciences (Hygiene control of meat, poultry, fish and their products and animal slaughter wastes)</b>										
<b>First semester: 9 Credit hours</b>										
Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	Paper exam		
7077	المجازر والاحكام المتعلقة بالامراض المختلفة Abattoirs and Judgment of different diseases	2	(2)1	3	20	15	15	50	100	2 hours
7078	حفظ وتكنولوجيا اللحوم والدواجن والاسماك Food Technology and Preservation	2	(2)1	3	20	15	15	50	100	2 hours
7000A	المعلوماتية الحيوية Bioinformatics	1	(2)1	2	10	10	5	25	50	2 hours
7000B	التطبيقات الاحصائية واخلاقيات البحث والكتابة العلمية والنشر Applied statistics and research ethics and scientific writing and publications	1	-	1	-	-	-	50	50	2 hours
<b>Second semester: 15 Credit hours</b>										
7079	ميكروبيولوجيا الاغذية والتسمم الغذائي Food microbiology and food poisoning	2	(2)1	3	20	15	15	50	100	2 hours
7080	التحليل الكيميائي للحوم والدواجن والاسماك Chemical analysis of meat, poultry and fish	2	(2)1	3	20	15	15	50	100	2 hours
7084	صحة وجودة الزيوت والدهون المقدمة للإستهلاك الأدمى Sanitary and quality of edible oils and fats suitable for human consumption	2	(2)1	3	20	15	15	50	100	2 hours
7075	الأمراض البكتيرية والفطرية فى أسماك المياه العذبة bacterial and mycotic diseases of freshwater fishes	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
<b>Elective courses</b>										
7096	دور الطيور الاسماك والحيوانات المنزلية فى نقل الامراض المشتركة Role of domestic birds, fish and household animals in the transmission of zoonotic diseases	2	(2)1	3	20	15	15	50	100	2 hours
7070	السموم البيئية Environmental Toxicology	2	(2)1	3	20	15	15	50	100	2 hours





7066	وبانيات بيطرية Veterinary epidemiology	2	(2)1	3	20	15	15	50	100	2 hours
7091	امراض الدواجن والارانب البكتيرية والفطرية Bacterial and mycotic diseases affecting avian and rabbits	2	(2)1	3	20	15	15	50	100	2 hours

**PhD of veterinary medical sciences (Hygeine control of meat, poultry, fish and their products and animal slaughter wastes)**

**First semester: 11 Credit hours**

Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	Paper exam		
8189	مضافات الأغذية والمواد الحافظة الكيميائية Food Additives and Chemical Preservatives	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
8178	الكشف عن طرق غش الاغذية Detection of food adulteration	2	(2)1	3	20	15	15	50	100	2 hours
8191	سيمنارات في مجال التخصص Specialized seminars in the field of specialization	-	-	2	-	-	-	-	50	-

**Second semester: 11 Credit hours**

8190	التحليل الكيميائي والميكروبيولوجي للأغذية Chemical and Microbiological Analysis of Foods	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
8192	سيمنارات في مجال التخصص Specialized seminars in the field of specialization	-	-	2	-	-	-	-	50	-

**Elective Courses ( Specialization)**

8193	نظام الهاسبب في منشآت الغذائية HACCP system in Food Serving establishments	2	(2)1	3	20	15	15	50	100	2 hours
8194	شئون صحية في اماكن تناول الغذاء Sanitation of Food Establishments	2	(2)1	3	20	15	15	50	100	2 hours
8195	التسمم الغذائي والسوموم البحرية Food Poisoning and Marine toxins	2	(2)1	3	20	15	15	50	100	2 hours
8196	مخلفات الذبائح الحيوانية Animal By-products	2	(2)1	3	20	15	15	50	100	2 hours



8197	نظم الجودة الشاملة <b>Total Quality Management Systems</b>	2	(2)1	3	20	15	15	50	100	2 hours
8198	المتبقيات الضارة في الاغذية <b>Harmful residues in Foods</b>	2	(2)1	3	20	15	15	50	100	2 hours
<b>Elective Courses ( Other Specializations)</b>										
8165	صحة المياه <b>Water Hygiene</b>	2	(2)1	3	20	15	15	50	100	2 hours
8142	تقنيات البيولوجيا الجزيئية والفلوسيتوميترى <b>Molecular biology and flowcytometry</b>	2	(2)1	3	20	15	15	50	100	2 hours
8015	الكيمياء الحيوية للبروتينات والمناعة والاشعاعات <b>Protein Chemistry, Immunochemistry and Radiation</b>	2	(2)1	3	20	15	15	50	100	2 hours
8050	العلاجات الحديثة للتسمم الدوائى <b>Modern treatments for drug poisoning</b>	2	(2)1	3	20	15	15	50	100	2 hours
8088	امراض سوء التغذية <b>Malnutrition diseases</b>	2	(2)1	3	20	15	15	50	100	2 hours



## B) Milk hygiene & control

### (ب) الرقابة الصحية على الالبان

<b>Diploma of Quality control in dairy, oil and egg factories First semester: 15 Credit hours</b>										
Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	Paper exam		
6103	برامج نظم مراقبة جودة الاغذية Food quality control systems program	2	(2)1	3	20	15	15	50	100	2 hours
6104	حفظ و تكنولوجيا الالبان والزيوت والدهون Preservation and technology milk, oils& fats	2	(2)1	3	20	15	15	50	100	2 hours
6105	ميكروبيولوجيا الالبان ومنتجاتها Microbiology of milk and its products	2	(2)1	3	20	15	15	50	100	2 hours
6101	تكنولوجيا الاغذية Food Technology	2	(2)1	3	20	15	15	50	100	2 hours
6025	بكتريا (أ) Bacteriology (1)	2	(2)1	3	20	15	15	50	100	2 hours
<b>Second semester: 15 Credit hours</b>										
6106	تطبيقات لنظم مراقبة الجودة Applications for quality control systems	2	(2)1	3	20	15	15	50	100	2 hours
6107	حفظ و تكنولوجيا البيض Preservation and technology of eggs	2	(2)1	3	20	15	15	50	100	2 hours
6006	كيمياء حيوى عام (أ) General Biochemistry A	2	(2)1	3	20	15	15	50	100	2 hours
6124	الامراض المشتركة عام General zoonoses	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
<b>Elective courses</b>										
6046	تأسيس قطعان ماشية إنتاج اللبن Establishment of dairy cattle farms	2	(2)1	3	20	15	15	50	100	2 hours
6083	مطهرات و مبيدات حشرية Disinfectants, Rodent control, control of disease vectors and insecticides	2	(2)1	3	20	15	15	50	100	2 hours
6054	الكفاءة الاقتصادية والانتاجية لمزارع الانتاج الحيوانى Economic and Productive efficiency of	2	(2)1	3	20	15	15	50	100	2 hours



animal production farms										
<b>Master of veterinary medical sciences (Animal Health, Poultry and Environment)</b>										
<b>First semester: 9 Credit hours</b>										
Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	Paper exam		
7081	الرقابة الصحية على الالبان و متبقياتا Milk hygiene & control and its residues	2	(2)1	3	20	15	15	50	100	2 hours
7082	صحة البيض و منتجاته Sanitary egg and its products	2	(2)1	3	20	15	15	50	100	2 hours
7000A	المعلوماتية الحيوية Bioinformatics	1	(2)1	2	10	10	5	25	50	2 hours
7000B	التطبيقات الاحصائية واخلاقيات البحث والكتابة العلمية والنشر Applied statistics and research ethics and scientific writing and publications	1	-	1	-	-	-	50	50	2 hours
<b>Second semester: 15 Credit hours</b>										
7083	الميكروبات و علاقتها بالالبان و منتجاته Microorganisms and their relationship with milk and its products	2	(2)1	3	20	15	15	50	100	2 hours
7084	صحة و جودة الزيوت والدهون المقدمة للاستهلاك الادمي Sanitary and quality of edible oils and fats suitable for human consumption	2	(2)1	3	20	15	15	50	100	2 hours
7078	حفظ وتكنولوجيا الأغذية Food Technology and Preservation	2	(2)1	3	20	15	15	50	100	2 hours
7037	تقييم وانتخاب ماشية إنتاج اللبن Judging and selection of dairy cattle	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
<b>Elective courses</b>										
7007	الكيمياء الحيوية للتمثيل الغذائي Metabolism of food stuff	2	(2)1	3	20	15	15	50	100	2 hours
7065	تصميم مزارع الابقار والجاموس Housing of cows and buffalo farms	2	(2)1	3	20	15	15	50	100	2 hours
7021	بكتريا تصنيفية Gram positive Gram positive bacteria	2	(2)1	3	20	15	15	50	100	2 hours



## PhD of veterinary medical sciences (Quality control in dairy, oil and egg factories)

### First semester: 11 Credit hours

Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	Year works	Paper exam		
8199	الحفظ الحيوى للالبان ومنتجاتها Bio-preservation of milk and dairy products	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
8265	امراض الضرع و حديثى الولادة Infectious diseases of udder and newborn calves	2	(2)1	3	20	15	15	50	100	2 hours
8201	سيمنارات فى مجال التخصص Specialized seminars in the field of specialization	-	-	2	-	-	-	-	50	-

### Second semester: 11 Credit hours

8200	منتجات الالبان الوظيفية Functional dairy products	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
8202	سيمنارات فى مجال التخصص Specialized seminars in the field of specialization	-	-	2	-	-	-	-	50	-

### Elective Courses ( Specialization)

8203	الاستخدامات الوظيفية والعلاجية للبيض Functional and therapeutic uses of eggs	2	(2)1	3	20	15	15	50	100	2 hours
8204	شئون صحية لمزارع ومصانع الالبان Health affairs for dairy farms and dairy plants	2	(2)1	3	20	15	15	50	100	2 hours
8205	المخاطر الصحية للاستخدام المتكرر لزيت القلى Health risks of repeated use of frying oil	2	(2)1	3	20	15	15	50	100	2 hours
8206	المواصفات القياسية للالبان ومنتجاتها Standards specifications for milk and its products	2	(2)1	3	20	15	15	50	100	2 hours
8207	مصادر تلوث الالبان ومنتجاتها Sources of contamination of milk and its products	2	(2)1	3	20	15	15	50	100	2 hours
8208	انتاج اللبن النظيف	2	(2)1	3	20	15	15	50	100	2 hours



Production of clean milk										
Elective Courses ( Other Specializations)										
8055	بكتريا و فطريات تصيب حيوانات المزرعة Bacteria and fungi infect domestic animals	2	(2)1	3	20	15	15	50	100	2 hours
8229	دور حيوانات المزرعة في نقل الامراض المشتركة Role of farm animals in zoonotic diseases transmission	2	(2)1	3	20	15	15	50	100	2 hours



## 17- Department of THERIOGENOLOGY

### 17- قسم التوليد و التناسل و التلقيح الاصطناعي

<b>Diploma of Obstetrics, Reproduction and Artificial Insemination First semester: 15 Credit hours</b>										
Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	Paper exam		
6108	التوليد و التناسل <b>Gynaecology and Obstetrics</b>	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
6003	التشريح التطبيقي و السطحي <b>Surface and Applied Anatomy</b>	2	(2)1	3	20	15	15	50	100	2 hours
6019	فسيولوجيا التناسل <b>Physiology of Reproduction</b>	2	(2)1	3	20	15	15	50	100	2 hours
<b>Second semester: 15 Credit hours</b>										
6109	الذكورة و مشاكل نقص الخصويه <b>Andrology and infertility</b>	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
6129	جراحة عامة <b>General Surgery</b>	2	(2)1	3	20	15	15	50	100	2 hours
6142	امراض باطنة خاص المجترات <b>Special animal medicine</b>	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
<b>Elective courses (Specializations)</b>										
6110	التقنيات الحديثة أنواعها و استخداماتها في التناسل <b>Advanced Reproductive Techniques</b>	2	(2)1	3	20	15	15	50	100	2 hours
6111	التلقيح الاصطناعي في الحيوان و الطيور و الاسماك <b>Artificial Insemination in animal, birds and Fish</b>	2	(2)1	3	20	15	15	50	100	2 hours
6110	التقنيات الحديثة أنواعها و استخداماتها في التناسل <b>Advanced Reproductive Techniques</b>	2	(2)1	3	20	15	15	50	100	2 hours
6111	التلقيح الاصطناعي في الحيوان و الطيور و الاسماك <b>Artificial Insemination in animal, birds and Fish</b>	2	(2)1	3	20	15	15	50	100	2 hours
6110	التقنيات الحديثة أنواعها و استخداماتها في التناسل <b>Advanced Reproductive Techniques</b>	2	(2)1	3	20	15	15	50	100	2 hours
6111	التلقيح الاصطناعي في الحيوان و الطيور و الاسماك <b>Artificial Insemination in animal, birds and Fish</b>	2	(2)1	3	20	15	15	50	100	2 hours
6110	التقنيات الحديثة أنواعها و استخداماتها في التناسل <b>Advanced Reproductive Techniques</b>	2	(2)1	3	20	15	15	50	100	2 hours
<b>Elective Courses ( Other Specializations)</b>										
6069	باطولوجيا المناعة <b>pathology of immunology</b>	2	(2)1	3	20	15	15	50	100	2 hours
6072	تشخيص اضطرابات التمثيل الغذائي و الشوارد و الأملاح (باطولوجيا اكلينيكية أ)	2	(2)1	3	20	15	15	50	100	2 hours



	<b>Diagnosis of metabolic, electrolytes and minerals disturbances</b>									
6054	الكفاءة الاقتصادية والانتاجية لمزارع الانتاج الحيواني <b>Economic and Productive efficiency of animal production farms</b>	2	(2)1	3	20	15	15	50	100	2 hours

Diploma in Obstetrics, Reproduction and Artificial Insemination, directed towards modern techniques of reproduction and artificial insemination (the student studies the course on modern techniques, their types and uses in reproduction, the course on artificial insemination in animals, birds and fish, and the course on field programs for reproductive health in dairy farms). Diploma in Obstetrics, Reproduction and Artificial Insemination, directed towards reproductive care (the student studies the course on modern techniques, their types and uses in reproduction, the course on problems of infertility in females, and the course on environmental pollution and reproduction). Diploma in Obstetrics, Reproduction and Artificial Insemination, directed towards ultrasound and endoscopy (the student studies the course on modern techniques, their types and uses in reproduction, the course on ultrasound and diagnosis of the reproductive condition of animals, and the course on medical endoscopy and diagnosis of reproductive diseases).

### Master of veterinary medical sciences (Obstetrics, Reproduction and Artificial Insemination)

#### First semester: 9 Credit hours

Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	Paper exam		
7085	التناسل في الإناث <b>Female reproduction</b>	2	(2)1	3	20	15	15	50	100	2 hours
7086	الذكورة والتلقيح الاصطناعي ونقل الأجنة <b>Andrology, Artificial insemination and Embryo transfer</b>	2	(2)1	3	20	15	15	50	100	2 hours
7000A	المعلوماتية الحيوية <b>Bioinformatics</b>	1	(2)1	2	10	10	5	25	50	2 hours
7000B	التطبيقات الاحصائية واخلاقيات البحث والكتابة العلمية والنشر <b>Applied statistics and research ethics and scientific writing and publications</b>	1	-	1	-	-	-	50	50	2 hours

#### Second semester: 15 Credit hours

7087	نقص الخصويه ومسببات الاجهاض <b>Infertility and diseases causing abortion</b>	2	(2)1	3	20	15	15	50	100	2 hours
7088	التناسل والبرامج الحقلية لتحسين وإدارة الحالة التناسلية في مزارع الألبان <b>Filed programs for improvement and management of the reproductive status in dairy farms</b>	2	(2)1	3	20	15	15	50	100	2 hours
7039	نظم التزاوج والانتخاب لماشية إنتاج اللحم <b>System of mating and selection of beef cattle</b>	2	(2)1	3	20	15	15	50	100	2 hours





7059	الهرمونات التشخيصية Diagnostic hormones	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
<b>Elective courses</b>										
7108	الأمراض المعدية البكتيرية Infectious Bacterial Diseases	2	(2)1	3	20	15	15	50	100	2 hours
7002	تشريح الجهاز الهضمي والبولي التناسلي المقارن Comparative anatomy of digestive and urogenital systems	2	(2)1	3	20	15	15	50	100	2 hours
7032	طفيليات معمل (2) Clinical parasitology(2)	2	(2)1	3	20	15	15	50	100	2 hours
<b>PhD of veterinary medical sciences (Obstetrics, Reproduction and Artificial Insemination)</b>										
<b>First semester: 11 Credit hours</b>										
Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	Paper exam		
8209	الخصوبة والتناسل في الحيوان Animal reproduction and fertility	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
8021	هستولوجيا التناسل والغدد الصماء Histology of Reproduction and Endocrine	2	(2)1	3	20	15	15	50	100	2 hours
8211	سيمينارات في مجال التخصص Specialized seminars in the field of specialization	-	-	2	-	-	-	-	50	-
<b>Second semester: 11 Credit hours</b>										
8210	التناسل والمناعة Reproductive immunology	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
	تقنيات البيولوجيا الجزيئية	2	(2)1	3	20	15	15	50	100	2 hours
8212	سيمينارات في مجال التخصص Specialized seminars in the field of specialization	-	-	2	-	-	-	-	50	-
<b>Elective Courses ( Specialization)</b>										
8213	التناسل والتوليد والتلقيح الاصطناعي في الماشية Gynaecology, Obstetrics and Artificial	2	(2)1	3	20	15	15	50	100	2 hours



	<b>Insemination in cattle</b>									
8214	التناسل والتوليد والتلقيح الاصطناعي فى الجمال <b>Gynaecology, Obstetrics and Artificial Insemination in Camel</b>	2	(2)1	3	20	15	15	50	100	2 hours
8215	التناسل والتوليد والتلقيح الاصطناعي فى الخيول <b>Gynaecology, Obstetrics and Artificial Insemination in equine</b>	2	(2)1	3	20	15	15	50	100	2 hours
8216	التناسل والتوليد والتلقيح الاصطناعي فى الأغنام <b>Gynaecology, Obstetrics and Artificial Insemination in sheep</b>	2	(2)1	3	20	15	15	50	100	2 hours
8217	التناسل والتوليد والتلقيح الاصطناعي فى الحيوانات المنزلية <b>Gynaecology, Obstetrics and Artificial Insemination in pet animals</b>	2	(2)1	3	20	15	15	50	100	2 hours
8218	التناسل والتوليد والتلقيح الاصطناعي فى الماعز <b>Gynaecology, Obstetrics and Artificial Insemination in cattle</b>	2	(2)1	3	20	15	15	50	100	2 hours
<b>Elective Courses ( Other Specializations)</b>										
8142	تقنيات البيولوجيا الجزيئية والفلوسيتوميترى <b>Molecular Biology and Flucytometry Techniques</b>	2	(2)1	3	20	15	15	50	100	2 hours
8263	التقنيات الحديثة لتشخيص الامراض المعدية <b>Advanced Techniques for diagnosis of infectious diseases</b>	2	(2)1	3	20	15	15	50	100	2 hours
8246	بروتوكولات التخدير فى الحيوانات المختلفة <b>Anesthetic protocol of different animals</b>	2	(2)1	3	20	15	15	50	100	2 hours
8254	التشخيص الجزيئى للامراض الباطنه <b>Molecular diagnosis of veterinary internal diseases</b>	2	(2)1	3	20	15	15	50	100	2 hours



## 18- Department of POULTRY AND RABBIT DISEASES

### 18- قسم أمراض الطيور والأرانب

<b>Diploma of Poultry and Rabbit Diseases First semester: 15 Credit hours</b>										
Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	Paper exam		
6117	أمراض ومشاكل قطعان دجاج التسمين وطرق العلاج والوقاية <b>Diseases of broiler chicken flocks and their prevention and control</b>	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
6032	فيروسات الطيور والأرانب والأسماك <b>viruses of poultry rabbits and fish</b>	2	(2)1	3	20	15	15	50	100	2 hours
6023	فارماكولوجيا مضادات البكتيريا والفيروسات والطفيليات <b>Pharmacology of anti-bacterial, anti-viral and anti-protozoal</b>	2	(2)1	3	20	15	15	50	100	2 hours
<b>Second semester: 15 Credit hours</b>										
6118	أمراض الأرانب البكتيرية <b>Bacterial diseases of rabbits.</b>	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
6043	علائق غير تقليدية وتركيب أعلاف. <b>Ration formulation and Non-conventional feeds</b>	2	(2)1	3	20	15	15	50	100	2 hours
6049	تربية و انتاج قطعان دجاج التسمين <b>Breeding and production of broiler</b>	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
<b>Elective courses (Specializations)</b>										
6119	أمراض الطيور المائية والبرية والمهاجرة <b>Diseases of aquatic, wild and migratory birds.</b>	2	(2)1	3	20	15	15	50	100	2 hours
6120	أمراض ومشاكل قطعان الأمهات والبيض وطرق العلاج والوقاية <b>Diseases of breeders and layers flocks and their prevention and control.</b>	2	(2)1	3	20	15	15	50	100	2 hours
6121	أمراض الأرانب الفيروسية <b>Viral diseases of rabbits</b>	2	(2)1	3	20	15	15	50	100	2 hours
6122	أمراض الأرانب الطفيلية والفطرية <b>Parasitic and mycotic diseases of rabbit.</b>	2	(2)1	3	20	15	15	50	100	2 hours
6123	أمراض سوء التغذية والرعاية في الطيور والأرانب <b>Nutritional and bad management diseases of rabbit.</b>	2	(2)1	3	20	15	15	50	100	2 hours
<b>Elective Courses ( Other Specializations)</b>										



6085	الامان الحيوى Laboratory biosecurity and apparatuses	2	(2)1	3	20	15	15	50	100	2 hours
6036	طفيليات معمل Clinical parasitology (1)	2	(2)1	3	20	15	15	50	100	2 hours

Diploma in Bird and Rabbit Diseases, Bird Diseases Direction (The student studies the course of malnutrition diseases and care in birds and rabbits, the course of diseases of aquatic, wild and migratory birds, the course of diseases and problems of parent and layer flocks and methods of treatment and prevention). Diploma in Bird and Rabbit Diseases, Rabbit Diseases Direction (The student studies the courses of malnutrition diseases and care in birds and rabbits, the course of viral rabbit diseases, and the course of parasitic and fungal rabbit diseases).

### Master of veterinary medical sciences (Poultry and Rabbit Diseases and Rabbit Diseases)

#### First semester: 9 Credit hours

Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	Paper exam		
7089	أمراض الدواجن و الأرانب الفيروسية و الطفيلية. Viral and parasitic diseases affecting avian and rabbits	2	(2)1	3	20	15	15	50	100	2 hours
7090	الأمراض المؤثرة فى الجهاز المناعى للطيور و الأرانب. Diseases affecting immune system of avian and rabbit	2	(2)1	3	20	15	15	50	100	2 hours
7000A	المعلوماتية الحيوية Bioinformatics	1	(2)1	2	10	10	5	25	50	2 hours
7000B	التطبيقات الاحصائية و اخلاقيات البحث و الكتابة العلمية و النشر Applied statistics and research ethics and scientific writing and publications	1	-	1	-	-	-	50	50	2 hours

#### Second semester: 15 Credit hours

7091	أمراض الدواجن و الأرانب البكتيرية و الفطرية. Bacterial and mycotic diseases affecting avian and rabbits	2	(2)1	3	20	15	15	50	100	2 hours
7092	التشخيص المعملى لأمراض الدواجن و الأرانب. Laboratory diagnosis of avian and rabbits diseases	2	(2)1	3	20	15	15	50	100	2 hours
7023	بكتريا تصنيفية سالبة الجرام Gram negative bacteria	2	(2)1	3	20	15	15	50	100	2 hours
7026	تشخيصات معملية فيروسية laboratory diagnosis of viruses	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours

#### Elective courses

7033	تغذية الدواجن و الارانب Poultry and Rabbits Nutrition	2	(2)1	3	20	15	15	50	100	2 hours
7067	تصميم مزارع الدواجن و معامل التفريخ Housing of Poultry and hatcheries	2	(2)1	3	20	15	15	50	100	2 hours
7012	هستولوجيا الطيور البرية و القشريات و الرخويات و المحار Histology of wild birds crustaceans and molluscs	2	(2)1	3	20	15	15	50	100	2 hours

### PhD of veterinary medical sciences (Poultry and Rabbit Diseases and Rabbit Diseases)

#### First semester: 11 Credit hours



Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	Paper exam		
8219	امراض الدواجن والأرانب الفيروسية (متقدم) Viral diseases affecting avian and rabbits (advanced.)	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر إختياري مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
8062	اللقاحات و المناعة الفيروسية Viral immunity and vaccines	2	(2)1	3	20	15	15	50	100	2 hours
8221	سيمنارات في مجال التخصص Specialized seminars in the field of specialization	-	-	2	-	-	-	-	50	-
<b>Second semester: 11 Credit hours</b>										
8220	امراض الدواجن والأرانب البكتيرية (متقدم) Bacterial diseases affecting avian and rabbits (advanced.)	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
8222	سيمنارات في مجال التخصص Specialized seminars in the field of specialization	-	-	2	-	-	-	-	50	-
<b>Elective Courses ( Specialization)</b>										
8223	أمراض الدواجن و الأرانب الطفيلية و الفطرية (متقدم) Parasitic and mycotic diseases affecting avian and rabbits (advanced.)	2	(2)1	3	20	15	15	50	100	2 hours
8224	التشخيص المعمل المتقدم لامراض الدواجن و الارانب الفيروسية و الطفيلية Advanced lab. diagnosis of viral and parasitic diseases affecting avian and rabbits.	2	(2)1	3	20	15	15	50	100	2 hours
8225	التشخيص المعمل المتقدم لامراض الدواجن و الارانب البكتيرية و الفطرية Advanced lab. diagnosis bacterial and mycotic diseases affecting avian and rabbits.	2	(2)1	3	20	15	15	50	100	2 hours
8226	أمراض الدواجن الغيروبانية وطرق العلاج و الوقاية. Non-epidemic diseases affecting poultry and their prevention and control methods.	2	(2)1	3	20	15	15	50	100	2 hours
8227	طرق الوقاية من امراض الدواجن و الارانب الوبانية Preventive methods for epidemic diseases affecting avian and rabbits	2	(2)1	3	20	15	15	50	100	2 hours
<b>Elective Courses ( Other Specializations)</b>										
8138	باثولوجيا الامراض البكتيرية و الفطرية للطيور و الاسماك pathology of parasitic diseases in poultry and fish	2	(2)1	3	20	15	15	50	100	2 hours
8042	الاتجاهات الحديثة للعلاج بالادوية Recent trends in drug therapy	2	(2)1	3	20	15	15	50	100	2 hours



## 19- Department of zoonoses

### 19- قسم الأمراض المشتركة

<b>Diploma of zoonotic diseases First semester: 15 Credit hours</b>										
Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	Paper exam		
6124	الامراض المشتركة عام <b>General zoonoses</b>	2	(2)1	3	20	15	15	50	100	2 hours
6125	الامراض المشتركة الريكتسية والكلاميدية <b>Zoonotic rickettsia and chlamydial diseases</b>	2	(2)1	3	20	15	15	50	100	2 hours
6126	الامراض المشتركة والارشاد البيطري <b>Zoonotic diseases and veterinary guidance</b>	2	(2)1	3	20	15	15	50	100	2 hours
6028	بكتيريا (2) <b>Bacteriology (2)</b>	2	(2)1	3	20	15	15	50	100	2 hours
6144	الأمراض المعدية البكتيرية والفطرية للحيوانات الأليفة <b>Infectious Bacterial and Mycotic Diseases of pet animals</b>	2	(2)1	3	20	15	15	50	100	2 hours
<b>Second semester: 15 Credit hours</b>										
6127	الامراض المشتركة الفيروسية <b>Viral zoonotic diseases</b>	2	(2)1	3	20	15	15	50	100	2 hours
6128	دور القوارض وحيوانات التجارب في نقل الامراض المشتركة <b>Role of rodents and laboratory animals in zoonotic diseases</b>	2	(2)1	3	20	15	15	50	100	2 hours
6035	فيروسات حيوانات المزرعة <b>viruses of farm animals</b>	2	(2)1	3	20	15	15	50	100	2 hours
6039	الحشرات الطبية والبيطرية (1) <b>Medical and veterinary insects (1)</b>	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
<b>Elective courses</b>										
6099	ميكروبيولوجيا الاغذية <b>Food Microbiology</b>	2	(2)1	3	20	15	15	50	100	2 hours
6096	امراض الاسماك <b>Fish diseases</b>	2	(2)1	3	20	15	15	50	100	2 hours



6080	رعاية حيوانات التجارب Management of laboratory animals	2	(2)1	3	20	15	15	50	100	2 hours
<b>Master of veterinary medical sciences (zoonotic diseases)</b>										
<b>First semester: 9 Credit hours</b>										
Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	Paper exam		
7093	الامراض المشتركة البكتيرية والفطرية zoonotic bacterial and mycotic diseases	2	(2)1	3	20	15	15	50	100	2 hours
7094	الامراض المشتركة والتسمم الغذائى Zoonotic diseases and food poisoning	2	(2)1	3	20	15	15	50	100	2 hours
7000A	المعلوماتية الحيوية Bioinformatics	1	(2)1	2	10	10	5	25	50	2 hours
7000B	التطبيقات الاحصائية واخلاقيات البحث والكتابة العلمية والنشر Applied statistics and research ethics and scientific writing and publications	1	-	1	-	-	-	50	50	2 hours
<b>Second semester: 15 Credit hours</b>										
7095	الامراض المشتركة الطفيلية Parasitic zoonotic diseases	2	(2)1	3	20	15	15	50	100	2 hours
7096	دور الطيور والاسماك والحيوانات المنزلية في نقل الامراض المشتركة Role of domestic birds, fish and household animals in the transmission of zoonotic diseases	2	(2)1	3	20	15	15	50	100	2 hours
7023	بكتريا تصنيفية سالبة الجرام Gram negative bacteria	2	(2)1	3	20	15	15	50	100	2 hours
7079	ميكروبيولوجى الاغذية والتسمم الغذائى Food microbiology and food poisoning	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
<b>Elective courses</b>										
7076	الامراض الطفيلية والفيروسية فى الاسماك Parasitic and viral diseases in fish	2	(2)1	3	20	15	15	50	100	2 hours
7091	امراض الدواجن والارانب البكتيرية والفطرية Bacterial and fungal diseases of poultry and rabbits	2	(2)1	3	20	15	15	50	100	2 hours
7083	الميكروبات وعلاقتها بالالبان ومنتجاتها Microbes and their relationship with dairy products	2	(2)1	3	20	15	15	50	100	2 hours



<b>PhD of veterinary medical sciences (zoonotic diseases)</b>										
<b>First semester: 11 Credit hours</b>										
Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	Paper exam		
8228	وبانيات الامراض المشتركة <b>Epidemiology of zoonotic diseases</b>	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
8055	بكتريا و فطريات تصيب حيوانات المزرعة	2	(2)1	3	20	15	15	50	100	2 hours
8230	سيمنارات في مجال التخصص <b>Specialized seminars in the field of specialization</b>	-	-	2	-	-	-	-	50	-
<b>Second semester: 11 Credit hours</b>										
8229	دور حيوانات المزرعة في نقل الامراض المشتركة <b>Role of farm animals in zoonotic diseases transmission</b>	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
8231	سيمنارات في مجال التخصص <b>Specialized seminars in the field of specialization</b>	-	-	2	-	-	-	-	50	-
<b>Elective Courses ( Specialization)</b>										
8232	امراض المهنة المشتركة <b>Occupational zoonotic diseases</b>	2	(2)1	3	20	15	15	50	100	2 hours
8233	امراض المجترات المشتركة <b>zoonotic diseases in ruminants</b>	2	(2)1	3	20	15	15	50	100	2 hours
8234	الحشرات المسببة للامراض المشتركة <b>zoonotic diseases by insects</b>	2	(2)1	3	20	15	15	50	100	2 hours
8235	امراض القطط والكلاب المشتركة <b>zoonotic diseases in Dogs and cats</b>	2	(2)1	3	20	15	15	50	100	2 hours
8236	امراض الطيور والواجن المشتركة <b>Zoonotic diseases in Birds and poultry</b>	2	(2)1	3	20	15	15	50	100	2 hours
8237	دور التربة في نقل الامراض المشتركة <b>Role of soil in transmission of zoonotic diseases</b>	2	(2)1	3	20	15	15	50	100	2 hours
<b>Elective Courses ( Other Specializations)</b>										





8157	سلوكيات ورعاية الحيوانات المنزلية <b>Pet Behavior and Management</b>	2	(2)1	3	20	15	15	50	100	2 hours
8195	التسمم الغذائي والسوموم البحرية <b>Food Poisoning and Marine toxins</b>	2	(2)1	3	20	15	15	50	100	2 hours



## 20- Department of SURGERY, ANATHESIOLOGY AND RADIOLOGY

### قسم الجراحة و التخدير و الأشعة-20

<b>Diploma of Surgery, Anesthesia and Radiology First semester: 15 Credit hours</b>										
Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	Paper exam		
6129	جراحة عامة <b>General Surgery</b>	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
6142	امراض باطنة خاص مجترات <b>Special animal medicine</b>	2	(2)1	3	20	15	15	50	100	2 hours
6110	التقنيات الحديثة أنواعها واستخداماتها في التناسل <b>Advanced Reproductive Techniques</b>	2	(2)1	3	20	15	15	50	100	2 hours
<b>Second semester: 15 Credit hours</b>										
6130	جراحة خاصة <b>Special surgery</b>	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
6074	تشخيص امراض الجهاز الهضمي (باثولوجيا الكلينيكية ب) <b>Diagnosis of digestive system diseases</b>	2	(2)1	3	20	15	15	50	100	2 hours
6020	فارماكولوجيا عام <b>General pharmacology</b>	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
<b>Elective courses (Specializations)</b>										
6131	تخدير <b>Anesthesia</b>	2	(2)1	3	20	15	15	50	100	2 hours
6132	جراحة التجويف البطنى <b>Surgery of the abdominal cavity</b>	2	(2)1	3	20	15	15	50	100	2 hours
6133	جراحة القوائم <b>Surgery of the limbs, hoof and claw</b>	2	(2)1	3	20	15	15	50	100	2 hours
6134	الجراحة التجريبية <b>Experimental Surgery</b>	2	(2)1	3	20	15	15	50	100	2 hours
6135	جراحة العظام <b>Orthopedic Surgery</b>	2	(2)1	3	20	15	15	50	100	2 hours
6136	الموجات فوق صوتية <b>Ultrasonography</b>	2	(2)1	3	20	15	15	50	100	2 hours
6137	اشعة سينية <b>X-ray</b>	2	(2)1	3	20	15	15	50	100	2 hours
<b>Elective Courses ( Other Specializations)</b>										
6068	باثولوجيا الاورام <b>Oncology</b>									
6003	التشريح التطبيقي والسطحي <b>Surface and Applied Anatomy</b>									



6031	فيروسى تركيبى ووظيفى (1) structural and functional virology									
Diploma in Surgery, Anesthesia and Radiology, directed towards Equine Surgery (the student studies an anesthesia course, a course in equine abdominal surgery, and a course in equine leg surgery). Diploma in Surgery, Anesthesia and Radiology, directed towards Small Animal Surgery (the student studies an anesthesia course, a course in experimental surgery, and a course in small animal orthopedic surgery). Diploma in Surgery, Anesthesia and Radiology, directed towards Veterinary Surgery and Diagnostic Radiology (the student studies an anesthesia course, an ultrasound course, and an X-ray course).										
<b>Master of veterinary medical sciences (Surgery, Anesthesia and Radiology)</b>										
<b>First semester: 9 Credit hours</b>										
Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	Year works	Paper exam		
7097	جراحة الانسجة الرخوة Soft tissue surgery	2	(2)1	3	20	15	15	50	100	2 hours
7098	جراحة الانسجة الصلبة Hard tissue surgery	2	(2)1	3	20	15	15	50	100	2 hours
7000A	المعلوماتية الحيوية Bioinformatics	1	(2)1	2	10	10	5	25	50	2 hours
7000B	التطبيقات الاحصائية واخلاقيات البحث والكتابة العلمية والنشر Applied statistics and research ethics and scientific writing and publications	1	-	1	-	-	-	50	50	2 hours
<b>Second semester: 15 Credit hours</b>										
7099	تخدير الحيوانات الكبيرة والصغيرة Small and large animal anesthesia	2	(2)1	3	20	15	15	50	100	2 hours
7100	التشخيص بالتصوير Diagnostic imaging	2	(2)1	3	20	15	15	50	100	2 hours
7103	الأمراض الباطنة للحيوانات المنزلية pet animal medicine	2	(2)1	3	20	15	15	50	100	2 hours
7087	نقص الخصوبة ومسببات الاجهاض Infertility and diseases causing abortion	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
<b>Elective courses</b>										
7108	الأمراض المعدية البكتيرية Infectious Bacterial Diseases	2	(2)1	3	20	15	15	50	100	2 hours
7006	الكيمياء الحيوية الإكلينيكية Clinical Biochemistry	2	(2)1	3	20	15	15	50	100	2 hours
7055	باتولوجيا الجهاز الدورى والجهاز العصبى والأمراض	2	(2)1	3	20	15	15	50	100	2 hours



	المتعلقة بهما Pathology of cardiovascular and nervous systems and its related diseases									
<b>PhD of veterinary medical sciences (Surgery, Anesthesia and Radiology)</b>										
<b>First semester: 11 Credit hours</b>										
Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	Paper exam		
8238	جراحة الأعضاء التناسلية Surgery of vital organs	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
8242	الأشعة بالصبغات Contrast radiography	2	(2)1	3	20	15	15	50	100	2 hours
8240	سيمنارات في مجال التخصص Specialized seminars in the field of specialization	-	-	2	-	-	-	-	50	-
<b>Second semester: 11 Credit hours</b>										
8239	جراحة الاعضاء الحسية Surgery of sensory organ	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
8241	سيمنارات في مجال التخصص Specialized seminars in the field of specialization	-	-	2	-	-	-	-	50	-
<b>Elective Courses ( Specialization)</b>										
8242	الاشعة بالصبغات Contrast radiography	2	(2)1	3	20	15	15	50	100	2 hours
8243	جراحة الجهاز الهيكلي Surgery of musculoskeletal system	2	(2)1	3	20	15	15	50	100	2 hours
8244	جراحة الجهاز التنفسي Surgery of respiratory system	2	(2)1	3	20	15	15	50	100	2 hours
8245	جراحة الاوتار والمفاصل Surgery of joint and tendon	2	(2)1	3	20	15	15	50	100	2 hours
8246	بروتوكولات التخدير في الحيوانات المختلفة Anesthetic protocol of different animals	2	(2)1	3	20	15	15	50	100	2 hours
8247	جراحة تجويف الفم Surgery of the oral cavity	2	(2)1	3	20	15	15	50	100	2 hours



Elective Courses ( Other Specializations)										
8015	الكيمياء الحيوية للخلايا الجزعية Stem Cells	2	(2)1	3	20	15	15	50	100	2 hours
8159	سلوكيات و رعاية الخيول Behavior and management of Equines	2	(2)1	3	20	15	15	50	100	2 hours
8006	تشریح القوائم Anatomy of Limbs	2	(2)1	3	20	15	15	50	100	2 hours



## 21- Department of Animal Medicine

### 21- قسم طب الحيوان

#### A) Internal Medicine

##### (أ) الامراض الباطنة

<b>Diploma of Pet medicine First semester: 15 Credit hours</b>										
Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	Paper exam		
6138	امراض باطنة عام للحيوانات الاليفة General pet animal medicine	2	(2)1	3	20	15	15	50	100	2 hours
6144	الامراض المعدية البكتيرية والفطرية للحيوانات الاليفة Infectious Bacterial and Mycotic Diseases of pet animals	2	(2)1	3	20	15	15	50	100	2 hours
6139	امراض نقص المناعة والوقاية من الامراض الباطنة والمعدية Immunity diseases and prevention of infectious and non- infectious diseases	2	(2)1	3	20	15	15	50	100	2 hours
6131	تخدير Anesthesia	2	(2)1	3	20	15	15	50	100	2 hours
6066	باتولوجيا الالتهابات والاضطرابات فى الدورة الدموية Pathology of inflammation and disturbances in blood circulation	2	(2)1	3	20	15	15	50	100	2 hours
<b>Second semester: 15 Credit hours</b>										
6140	امراض باطنة خاص (جهازى) الحيوانات الاليفة Special pet animal medicine	2	(2)1	3	20	15	15	50	100	2 hours
6145	الامراض المعدية الفيروسية والطفيلية للحيوانات الاليفة Infectious viral and parasitic diseases of pet animals	2	(2)1	3	20	15	15	50	100	2 hours
6110	التقنيات الحديثة انواعها واستخداماتها فى التناسل Advanced Reproductive Techniques	2	(2)1	3	20	15	15	50	100	2 hours
6020	فارماكولوجيا عام General pharmacology	2	(2)1	3	20	15	15	50	100	2 hours



	مقرر اختياري من خارج مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
<b>Elective courses</b>										
6083	مطهرات ومبيدات حشرية Disinfectants, Rodent control, control of disease vectors and insecticides	2	(2)1	3	20	15	15	50	100	2 hours
6008	كيمياء حيوية اكلينيكية (أ) Clinical Biochemistry A	2	(2)1	3	20	15	15	50	100	2 hours
6075	تشخيص امراض مناعة وسرطانات الدم Diagnosis of immunologic diseases and blood tumors	2	(2)1	3	20	15	15	50	100	2 hours
6124	الأمراض المشتركة عام General zoonoses	2	(2)1	3	20	15	15	50	100	2 hours
<b>Master of veterinary medical sciences (Internal Medicine)</b>										
<b>First semester: 9 Credit hours</b>										
Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	Paper exam		
7101	الامراض الباطنه للمجترات الكبيره Large ruminant medicine	2	(2)1	3	20	15	15	50	100	2 hours
7102	الامراض الباطنه للمجترات الصغيره Small ruminant medicine	2	(2)1	3	20	15	15	50	100	2 hours
7000A	المعلوماتية الحيوية Bioinformatics	1	(2)1	2	10	10	5	25	50	2 hours
7000B	التطبيقات الاحصائية واخلاقيات البحث والكتابة العلمية والنشر Applied statistics and research ethics and scientific writing and publications	1	-	1	-	-	-	50	50	2 hours
<b>Second semester: 15 Credit hours</b>										
7103	الامراض الباطنه للحيوانات المنزليه pet animal medicine	2	(2)1	3	20	15	15	50	100	2 hours
7104	الامراض الباطنه للخيول Equine medicine	2	(2)1	3	20	15	15	50	100	2 hours
7007	الكيمياء الحيوية للتمثيل الغذائى Metabolism of food stuff	2	(2)1	3	20	15	15	50	100	2 hours
7105	المعدية الفيروسية الامراض Infectious viral Diseases	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
<b>Elective courses</b>										



7057	تشخيص اضطرابات سوائل الجسم Diagnosis of body fluids disturbances	2	(2)1	3	20	15	15	50	100	2 hours
7100	التشخيص بالتصوير Diagnostic imaging	2	(2)1	3	20	15	15	50	100	2 hours
7088	التناسل والبرامج الحقلية وإدارة الحالة التناسلية في مزارع الألبان Filed programs for improvement and management of the reproductive status in dairy farms	2	(2)1	3	20	15	15	50	100	2 hours

### **PhD of veterinary medical sciences (Internal Medicine)**

#### **First semester: 11 Credit hours**

Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	Paper exam		
8248	تقنيات حديثة لتشخيص امراض المجترات Advanced methods in diagnosis of ruminant diseases	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
8263	التقنيات الحديثة لتشخيص الامراض المعدية Advanced Techniques for diagnosis of infectious diseases	2	(2)1	3	20	15	15	50	100	2 hours
8250	سيمنارات في مجال التخصص Specialized seminars in the field of specialization	-	-	2	-	-	-	-	50	-

#### **Second semester: 11 Credit hours**

8249	تقنيات حديثة لعلاج امراض المجترات Advanced methods in treatment of ruminant diseases	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
8251	سيمنارات في مجال التخصص Specialized seminars in the field of specialization	-	-	2	-	-	-	-	50	-

#### **Elective Courses ( Specialization)**

8252	تقنيات حديثة لعلاج امراض الخيول Advanced methods in treatment of equine diseases	2	(2)1	3	20	15	15	50	100	2 hours
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8253	تقنيات حديثة لعلاج امراض الحيوانات منزليه Advanced methods in treatment of pet animals' diseases	2	(2)1	3	20	15	15	50	100	2 hours
8254	التشخيص الجزيئى للامراض الباطنه Molecular diagnosis of veterinary internal diseases	2	(2)1	3	20	15	15	50	100	2 hours
8255	التشخيص المبكر للامراض الباطنه Early diagnosis of veterinary internal diseases	2	(2)1	3	20	15	15	50	100	2 hours
<b>Elective Courses ( Other Specializations)</b>										
8209	الخصوبة والتناسل فى الحيوان Animal reproduction and fertility	2	(2)1	3	20	15	15	50	100	2 hours
8090	تغذية المجترات Ruminant nutrition	2	(2)1	3	20	15	15	50	100	2 hours
8011	كيمياء حيوية متقدمة Advanced biochemistry	2	(2)1	3	20	15	15	50	100	2 hours
8254	التشخيص الجزيئى للامراض الباطنة Molecular diagnosis of veterinary internal diseases	2	(2)1	3	20	15	15	50	100	2 hours
8042	الاتجاهات الحديثة للعلاج بالادوية Recent trends in drug therapy	2	(2)1	3	20	15	15	50	100	2 hours
8239	جراحة الاعضاء الحسية Surgery of sensory organ	2	(2)1	3	20	15	15	50	100	2 hours



## B) Infectious diseases

### (ب) الأمراض المعدية

<b>Diploma of Farm animal medicine First semester: 15 Credit hours</b>										
Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	Paper exam		
6141	امراض باطنية عام General Animal medicine	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
6129	جراحة عامة General Surgery	2	(2)1	3	20	15	15	50	100	2 hours
6026	مناعة (1) Immunology (1)	2	(2)1	3	20	15	15	50	100	2 hours
<b>Second semester: 15 Credit hours</b>										
6146	الامراض المعدية البكتيرية والفطرية للمجترات والخيول Infectious Bacterial and Mycotic Diseases of pet animals	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
6035	فيروسات حيوانات المزرعة viruses of farm animals	2	(2)1	3	20	15	15	50	100	2 hours
6020	فارماكولوجي عام General pharmacology	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
<b>Elective courses (Specializations)</b>										
6139	أمراض نقص المناعة والوقاية من الأمراض الباطنية المعدية Immunity diseases and prevention of infectious and non- infectious diseases	2	(2)1	3	20	15	15	50	100	2 hours
6142	أمراض باطنية خاص مجترات Special animal medicine	2	(2)1	3	20	15	15	50	100	2 hours
6147	الأمراض المعدية الفيروسية والطفيلية للمجترات Infectious viral and Parasitic diseases of Ruminants	2	(2)1	3	20	15	15	50	100	2 hours
6143	أمراض باطنية خاص خيول Special animal medicine	2	(2)1	3	20	15	15	50	100	2 hours
6148	الأمراض المعدية الفيروسية والطفيلية للخيول Infectious viral and Parasitic diseases of Equines	2	(2)1	3	20	15	15	50	100	2 hours



<b>Elective Courses ( Other Specializations)</b>										
6072	تشخيص اضطرابات التمثيل الغذائي والشوارد والأملاح (باثولوجيا اكلينيكية أ) <b>Diagnosis of metabolic, electrolytes and minerals disturbances</b>	2	(2)1	3	20	15	15	50	100	2 hours
6041	اساسيات تغذية الحيوان (مقررات غذائية) <b>Basic Animal Nutrition</b>	2	(2)1	3	20	15	15	50	100	2 hours
6108	التوليد والتناسل <b>Gynaecology and Obstetrics</b>	2	(2)1	3	20	15	15	50	100	2 hours
6036	طفيليات معمل 1 <b>Clinical parasitology (1)</b>	2	(2)1	3	20	15	15	50	100	2 hours
Diploma in Farm Animal Medicine, Ruminant Department (students study courses on immunodeficiency diseases and prevention of internal and infectious diseases, a course on internal diseases specific to ruminants, and a course on viral and parasitic infectious diseases of ruminants). Diploma in Farm Animal Medicine, Equine Department (students study courses on immunodeficiency diseases and prevention of internal and infectious diseases, a course on internal diseases specific to horses, and a course on viral and parasitic infectious diseases of horses).										
<b>Master of veterinary medical sciences (Infectious diseases)</b>										
<b>First semester: 9 Credit hours</b>										
Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	Paper exam		
7105	الامراض المعدية الفيروسية <b>Infectious viral Diseases</b>	2	(2)1	3	20	15	15	50	100	2 hours
7106	الأمراض المعدية الفطرية <b>Infectious Mycotic Diseases</b>	2	(2)1	3	20	15	15	50	100	2 hours
7000A	المعلوماتية الحيوية <b>Bioinformatics</b>	1	(2)1	2	10	10	5	25	50	2 hours
7000B	التطبيقات الاحصائية واخلاقيات البحث والكتابة العلمية والنشر <b>Applied statistics and research ethics and scientific writing and publications</b>	1	-	1	-	-	-	50	50	2 hours
<b>Second semester: 15 Credit hours</b>										
7107	الأمراض المعدية الطفيلية <b>Infectious Parasitic Diseases</b>	2	(2)1	3	20	15	15	50	100	2 hours
7108	الأمراض المعدية البكتيرية <b>Infectious Bacterial Diseases</b>	2	(2)1	3	20	15	15	50	100	2 hours
7087	نقص الخصوبة و مسببات الاجهاض <b>Infertility and diseases causing abortion</b>	2	(2)1	3	20	15	15	50	100	2 hours
7102	الأمراض الباطنة للمجترات الصغيرة <b>Small ruminant medicine</b>	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours



Elective courses										
7101	امراض الباطنة للمجترات الكبيرة Large ruminant medicine	2	(2)1	3	20	15	15	50	100	2 hours
7026	تشخيصات معملية فيروسية laboratory diagnosis of viruses	2	(2)1	3	20	15	15	50	100	2 hours
7032	طفيليات معملية (2) Clinical parasitology(2)	2	(2)1	3	20	15	15	50	100	2 hours
<b>PhD of veterinary medical sciences (Infectious diseases)</b>										
<b>First semester: 11 Credit hours</b>										
Code	Courses	Theoretical h/w	Practical h/w	Total h/w	Exam scores				Total scores	Exam Time/ hours
					Practical exam	Oral exam	year works	Paper exam		
8256	الكبيرة الامراض المتوطنة للمجترات Endemic Diseases of large Ruminants	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
8255	التشخيص المبكر للامراض الباطنة Early diagnosis of veterinary internal diseases	2	(2)1	3	20	15	15	50	100	2 hours
8258	سيمنارات في مجال التخصص Specialized seminars in the field of specialization	-	-	2	-	-	-	-	50	-
<b>Second semester: 11 Credit hours</b>										
8257	الصغيرة الامراض المتوطنة للمجترات Endemic Diseases of small Ruminants	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
	مقرر اختياري من خارج مادة التخصص	2	(2)1	3	20	15	15	50	100	2 hours
8259	سيمنارات في مجال التخصص Specialized seminars in the field of specialization	-	-	2	-	-	-	-	50	-
<b>Elective Courses ( Specialization)</b>										
8260	الأمراض المتوطنة للابل Endemic Diseases of Camels	2	(2)1	3	20	15	15	50	100	2 hours
8261	الأمراض المتوطنة للخيل Endemic Equine Diseases	2	(2)1	3	20	15	15	50	100	2 hours
8262	الامراض المعدية للحيوانات المنزلية Infectious Diseases of pet animals	2	(2)1	3	20	15	15	50	100	2 hours
8263	التقنيات الحديثة لتشخيص الامراض المعدية	2	(2)1	3	20	15	15	50	100	2 hours



	<b>Advanced Techniques for diagnosis of infectious diseases</b>									
8264	برامج التحصين والعلاجات البيطرية <b>Vaccine programs and Veterinary drugs</b>	2	(2)1	3	20	15	15	50	100	2 hours
<b>Elective Courses ( Other Specializations)</b>										
8061	البيولوجيا الجزيئية للفيروسات <b>Molecular virology</b>	2	(2)1	3	20	15	15	50	100	2 hours
8045	الفارماكولوجيا الجزيئية <b>Molecular Pharmacology</b>	2	(2)1	3	20	15	15	50	100	2 hours



## Chapter Four

### Scientific Content of Courses

#### First: Diplomas

#### 1- Department of Anatomy and Embryology

ANE	6001	Course title	Arabic	تشريح عام
			English	General Anatomy
<b>Contents</b>				
Studying general osteology, arthrology, myology, neurology, general circulatory system, digestive system, respiratory system and urogenital system.				
ANE	6002	Course title	Arabic	تشريح الطيور والاسماك
			English	Anatomy of poultry and fish
<b>Contents</b>				
Studying the anatomy of different body systems of birds and fishes				
ANE	6003	Course title	Arabic	التشريح التطبيقي و السطحي
			English	Surface and Applied Anatomy
<b>Contents</b>				
Dissection of abdominal and thoracic wall; topography of abdomen, thorax and head; dissection of external genital organs; ruminant stomach and its relation to surrounding organs; dissection of knee; dissection of joints and nerves and sites of joint injection and nerve block as well as dissection of superficial lymph nodes				
ANE	6004	Course title	Arabic	اجنة عام
			English	General Embryology
<b>Content</b>				
Studying oogenesis and spermatogenesis; fertilization and zygote formation; cleavage; gastrulation and formation of the three germinal layers; formation of fetal membranes; implantation and placentation.				
ANE	6005	Course title	Arabic	التشريح التصويري
			English	Radiographic Anatomy
<b>Content</b>				
Studying radiographic images for bones of normal limbs by X-Rays, ultrasound, computed tomography and magnetic resonance imaging.				

#### 2- Department of Biochemistry

BIO	6006	Course title	Arabic	كيمياء حيوى عام (أ)
			English	General Biochemistry A
<b>Contents</b>				



		Carbohydrate Chemistry - Lipid chemistry - Protein chemistry – Immunochemistry		
<b>BIO</b>	6007	<b>Course title</b>	<i>Arabic</i>	كيمياء حيوية اكلينيكية (أ)
			<i>English</i>	<b>Clinical Biochemistry A</b>
<b>Contents</b>				
carbohydrate metabolism - Metabolic disorders of carbohydrates - carbohydrate metabolism - Metabolic disorders of lipid				
<b>BIO</b>	6008	<b>Course title</b>	<i>Arabic</i>	كيمياء حيوى عام (ب)
			<i>English</i>	<b>General Biochemistry B</b>
<b>Contents</b>				
Enzymes - Factors Affecting Enzyme Activity - Types and Functions of Co-Enzyme – Vitamins structure and function - Mineral - Mineral Properties - Mineral Metabolism - Mineral Deficiency				
<b>BIO</b>	6009	<b>Course title</b>	<i>Arabic</i>	كيمياء حيوية اكلينيكية (ب)
			<i>English</i>	<b>Clinical Biochemistry B</b>
<b>Content</b>				
protein metabolism - Metabolic disorders of protein - Nucleoprotein metabolism - Metabolic disorders of Nucleoprotein – Protein biosynthesis - hormone metabolism				

### 3- Department of Histology

<b>Code</b>	<b>Number</b>	<b>Course title</b>	<i>Arabic</i>	التقنيات الهستولوجية
<b>HIS</b>	6010		<i>English</i>	<b>Histological Techniques</b>
		<b>Contents</b>		
Different techniques used for preparation of histological slides from different body tissues and organs to be examined under light and electron microscopy				
<b>HIS</b>	6011	<b>Course title</b>	<i>Arabic</i>	اساسيات علم الخلية و كيمياء الخلية (هستولوجيا أ)
			<i>English</i>	<b>Basics of Cytology and Cytochemistry</b>
<b>Contents</b>				
Structure of the cell; cytoplasm and its organelles and inclusions, nucleus, and chemistry of the cell.				
<b>HIS</b>	6012	<b>Course title</b>	<i>Arabic</i>	اساسيات علم الانسجة العام
			<i>English</i>	<b>Basics of General Histology</b>
<b>Contents</b>				
Basics of structure of different body tissues (Epithelium, Connective tissue, Muscular tissue, Nervous tissue, Lymphatic tissue)				
<b>HIS</b>	6013	<b>Course title</b>	<i>Arabic</i>	هستولوجيا الحيوان (هستولوجيا ب)
			<i>English</i>	<b>Veterinary Histology</b>
<b>Content</b>				
Basics of histological structure of different body system (Digestive, Respiratory, Cardiovascular, Urogenital, Endocrine, Nervous, Integument, Sense organs).				
<b>HIS</b>	6014	<b>Course title</b>	<i>Arabic</i>	هستولوجيا الطيور و الاسماك
			<i>English</i>	<b>Histology of Poultry and Fish</b>
<b>Content</b>				
Basics of histological structure of different body system in birds and fish (Digestive, Respiratory, Cardiovascular, Urogenital, Nervous, Immune, Integument, Sense organs)				



## 4- Department of Physiology

Code	Number	Course title	Arabic	فسيولوجيا أ
			English	Physiology A
PYS	6015	<b>Contents</b>		
		Water metabolism & Balance, Composition of body fluids and Blood, General functions of blood, General properties of blood, Blood volume, Erythrocytes (function, morphology, structure, erythropoiesis, fate), types of anemia		
PYS	6016	Course title	Arabic	فسيولوجيا المناعة
			English	Physiology of immunity
PYS	6017	<b>Contents</b>		
		Leukocytes ((function, morphology, structure, erythropoiesis, fate), Function of blood in immunity, Types of leukocytes, Leucopoiesis, types of immunity.		
PYS	6017	Course title	Arabic	فسيولوجيا الطاقة والتمثيل الغذائي
			English	Physiology of metabolism and energy
PYS	6018	<b>Contents</b>		
		General metabolism, Basal metabolic rate, SDA, Direct calorimeter, Indirect calorimetric, Body temperature, thermoregulation		
PYS	6018	Course title	Arabic	فسيولوجيا (ب)
			English	Physiology B
PYS	6019	<b>Content</b>		
		Thrombocyte (shape, properties) , hemostasis, Mechanism of blood coagulation - Role of vitamin K in coagulation , Coagulation disorders		
PYS	6019	Course title	Arabic	فسيولوجيا التناسل
			English	Physiology of reproduction and lactation
PYS	6020	<b>Content</b>		
		Female genital system , Ovarian hormones, Estrous cycle, Pregnancy and placental hormones , Parturition and milk production, Male genital system, Accessory sex organs , Male hormones and capacitation		

## 5- Department of Pharmacology

Code	Number	Course title	Arabic	فارماكولوجيا عام
			English	General pharmacology
PYS	6020	<b>Contents</b>		
		Study pharmacokinetics (absorption, distribution, biotransformation and excretion) of the drugs and pharmacodynamics (action and mode of action) of different drugs.		
PYS	6021	Course title	Arabic	صيدلانيات
			English	Pharmaceutics
PYS	6021	<b>Contents</b>		
		Pharmaceutics is the discipline of pharmacy that deals with the process of turning a new chemical entity (NCE) or old drugs into a medication to be used safely and effectively by patients or animals. It is also called the science of dosage		





		form design.		
PYS	6022	<b>Course title</b>	<i>Arabic</i>	النباتات الطبية
			<i>English</i>	Medicinal plants
		<b>Contents</b>		
Deals with plants which synthesize hundreds of chemical compounds for functions including defense against insects, fungi, bacteria and diseases. Different parts of the plants contain active principles.				
PYS	6023	<b>Course title</b>	<i>Arabic</i>	فارماكولوجيا مضادات البكتيريا والفيروسات والطفيليات
			<i>English</i>	Pharmacology of anti-bacterial, anti-viral and anti-protozoal
		<b>Content</b>		
Deals with the different classification of the drugs that affect bacteria, viruses and protozoa. Therapeutic uses of these drugs, their spectrum of activity, mode of action and their hazard effects and toxicity.				
PYS	6024	<b>Course title</b>	<i>Arabic</i>	فارماكولوجيا اكلينيكيه
			<i>English</i>	Clinical pharmacology
		<b>Content</b>		
: It includes drug discovery, the study of the effects of drugs on their targets in living systems and their clinical use, as well as the study of biological function related to these chemicals. Clinical pharmacology includes application of pharmacological principles, such as pharmacodynamics and pharmacokinetics				

## 6- Department of Bacteriology, Immunology and Mycology

BIM	6025	<b>Course title</b>	<i>Arabic</i>	بكتريا (1)
			<i>English</i>	Bacteriology (1)
		<b>Contents</b>		
Introduction of microbiology-Taxonomy and classification of prokaryotes-Bacterial morphology, Bacterial structure and functions-Reproduction of bacteria-The unusual types of bacteria- The bacterial growth curve- Factors affecting microbial growth- Microbial nutrition- Bacterial end products- Preservation of bacteria- Relationship between the hosts and microbes- Virulence- components and factors				
BIM	6026	<b>Course title</b>	<i>Arabic</i>	مناعة (1)
			<i>English</i>	Immunology (1)
		<b>Contents</b>		
Introduction, Types of immunity- Innate immunity- Acquired immunity-Cells of immune system-Antigens: general characters, antigenic structure, bacterial antigens- Immunoglobulins, general characters, antibody structure, antibodies classes, The principal components of innate immunity-Adaptive immunity, humoral and cellular immunity, Hypersensitivity, types, differentiation,				
BIM	6027	<b>Course title</b>	<i>Arabic</i>	فطريات (1)
			<i>English</i>	Mycology (1)
		<b>Contents</b>		
Introduction, Position of fungi, Classification of fungi, Structure of the fungal cell,				



		Reproduction of fungi, Growth of fungi, Factors affecting growth		
BIM	6028	<b>Course title</b>	<i>Arabic</i>	بكتريا (2)
			<i>English</i>	Bacteriology (2)
<b>Content</b>				
Classification of medically important bacteria- Gram positive bacteria: Cocci (Staphylococci, Streptococci) Bacilli (Spore forming ): Aerobic B. anthracis & anthracoid) -Anaerobic (Clostridia)- Gram negative, Aerobic: Pseudomonas, Brucella, Pasteurella, Yersinia-Facultative anaerobe ( F. Enterobacteriaceae), Mycoplasma , Campylobacter				
BIM	6029	<b>Course title</b>	<i>Arabic</i>	مناعة (2)
			<i>English</i>	Immunology (2)
<b>Content</b>				
Immune response, Humoral immunity, Cell mediated immunity (types) - Fundamental; distractions in vivo for humoral and cellular immunity - Types of acquired immunity( active, passive, natural, artificial) - Types of allergy, Differentiation between Immediate and cellular immunity				
BIM	6030	<b>Course title</b>	<i>Arabic</i>	فطريات (2)
			<i>English</i>	Mycology (2)
<b>Content</b>				
Dermatophytes, Classification of dermatophytes, Genus Trichophyton - Genus Microsporum, Yeast, Definition, Classification, Candida - Cryptococcus, Diphasic fungi, Histoplasma, Blastomyces				

## 7- Department of Virology

<b>Code</b>	<b>Number</b>	<b>Course title</b>	<i>Arabic</i>	فيروسات (فيروسات) (1)
VIR	6031	<b>Course title</b>	<i>English</i>	structural and functional virology
			<b>Contents</b>	
Introduction to virus structure, Virus genomes, Virus proteins, Capsids, Virion membranes, Occlusion bodies, Other virion components, viral replication, viral pathogenesis				
VIR	6032	<b>Course title</b>	<i>Arabic</i>	فيروسات الطيور و الارانب والاسماك
			<i>English</i>	viruses of poultry rabbits and fish
<b>Contents</b>				
DNA and RNA viruses and families related to poultry, rabbits and fish				
VIR	6033	<b>Course title</b>	<i>Arabic</i>	اساسيات تصنيف الفيروسات
			<i>English</i>	basics of viruses' taxonomy
<b>Contents</b>				
History of virus classification and nomenclature, Modern virus classification and nomenclature, Baltimore classification of viruses				
VIR	6034	<b>Course title</b>	<i>Arabic</i>	فيروسات تطبيقية (فيروسات) (2)
			<i>English</i>	applied virology
<b>Content</b>				



		Viruses and their importance, Virus transmission, , viral replication, viral pathogenesis, Emerging viruses
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VIR	6035	Course title	Arabic	فيروسات حيوانات المزرعة
			English	viruses of farm animals
		Content	DNA and RNA viruses and families related to farm animals	

## 8- Department of Parasitology

PAR	6036	Course title	Arabic	الطفيليات المعملية (1)
			English	Clinical parasitology (1)
Contents				
Faecal examination (qualitative and quantitative method, fecal culture), Blood examination (collection of blood samples, wet mount method, thin blood film, thick blood film, staining of blood film, examination of blood film), Skin examination (collection of skin scraping, its preparation and examination, Immunodiagnosis (ELISA, HI test).				
PAR	6037	Course title	Arabic	الديدان الطفيلية 1
			English	Parasitic helminthes (1)
Contents				
Hosts and parasites, Trematodes of ruminants, Trematodes of equine and canine and pigs, Trematodes of birds and fish, Cotyloda canine, birds and fish. Cestodes of ruminants and equine, Cestodes of canine, Cestodes of birds and rodents. Nematodes of digestive tract of ruminants, Nematodes of respiratory system of ruminants, Nematodes of digestivetract of equine Nematodes of respiratory system of equine Nematodes of canine and swine and Nematodes of birds and rodents.				
PAR	6038	Course title	Arabic	الاوليات المتطفلة (1)
			English	Parasitic protozoa (1)
Contents				
General Protozoology, Introduction to haemoflagellates and enteroflagellates. Genital flagellates infect animals, birds and fishes. Introduction to Apicomplexa (Coccidian parasites). Introduction to Toxoplasma and Sarcocystis, Introduction to Haemosprinae Introduction to Piroplasmorina ( Babesia, Theileria) infect animals				
PAR	6039	Course title	Arabic	الحشرات الطبية و البيطرية (1)
			English	Medical and veterinary insects (1)
Content				
General entomology, Morphology of insects and Biology of insects, Introduction to Nematocera, Introduction to Brachycera, Diseases transmitted by insects. Introduction to Arachnida and blood sucking flies				
PAR	6040	Course title	Arabic	المناعة الطفيلية (2)
			English	Parasitic immunity (2)
Content				
Content: General immunology, Parasitic antigens, Immunological steps, Immunity				



to ectoparasites, Immunity to blood parasites , Immunity to helminthes, Cytokines

## 9- Department of Nutrition and Clinical Nutrition

Code	Number	Course title	Arabic	اساسيات تغذية الحيوان ( مقررات غذائيه )
NCN	6041		English	Basic Animal Nutrition
		<b>Contents</b>		
		Water – Carbohydrates – Lipids – Proteins - Nutritional importance of Vitamins - Nutritional importance Minerals - body composition - digestion and absorption		
NCN	6042		Arabic	مواد علف وتحليلها
			English	Feedstuffs Analysis
		<b>Contents</b>		
		Evaluation of Feed stuffs - digestibility trials - chemical analysis of feed stuffs - classification of feed stuffs -Basal Energy feeds -Protein supplements -Roughage - Forages – silage - minerals supplements -vitamin supplements		
NCN	6043		Arabic	علائق غير تقليديه وتركيب اعلاف
			English	Ration formulation and Non-conventional feeds
		<b>Contents</b>		
		Agriculture waste by-products for animals - Use of Food waste for Animals - Use of insect proteins for Animals, poultry and fish -Meat and fish factory by-products - Marine plants and algae as alternative protein sources -Ration formulation for beef cows, dairy, and poultry		
NCN	6044		Arabic	صحة واضافات اعلاف ومصانع علف
			English	Feed Additives and Feed Technology
		<b>Content</b>		
		Non-nutritive feed additives - Nutritive feed additives -feed preparation - feed manufacturing -feed storage		
NCN	6045		Arabic	أمراض التمثيل الغذائي
			English	Metabolic Diseases
		<b>Content</b>		
		Metabolic regulation - regulation of feed intake - Fate of nutrients in animal bodies - Metabolic diseases in ruminants -Metabolic diseases in horses and camels - Metabolic diseases in poultry and rabbits		

## 10- Department of Animal Wealth Development

### (A) Animal Production

Code	Number	Course title	Arabic	تأسيس قطعان ماشية إنتاج اللبن
AWD/P	6046		English	Establishment of dairy cattle farms
		<b>Contents</b>		
		Dairy cattle breeds - Essentials for establishing a profitable dairy farm - Location of the farm - Choosing dairy cattle breed - System of production - Feeding system - Marketing the milk -Obstacles of dairying,		
AWD/P	6047		Arabic	تربية وإنتاج السمان
			English	Breeding and Production of quails
		<b>Contents</b>		
		Breeds of quails - advantages and disadvantages of raising quails - Selection of		



		breeder flock, Different production systems - Environmental requirements - Reproduction and breeding - Incubation and hatching		
AWD/P	6048	<b>Course title</b>	<i>Arabic</i>	نظم إنتاج ماشية اللحم
			<i>English</i>	<b>Beef cattle production system</b>
		<b>Contents</b>		
Breeds of beef cattle - Cow-calf producer - Purebred breeder - Cattle feeders Improvement of weaning weight- Factors causing poor feed intake				
AWD/P	6049	<b>Course title</b>	<i>Arabic</i>	تربية و انتاج قطعان دجاج التسمين
			<i>English</i>	<b>Breeding and production of broiler</b>
		<b>Content</b>		
Broiler strains - Brooding - Managemental programs - Measuring broiler growing efficiency - Housing systems				
AWD/P	6050	<b>Course title</b>	<i>Arabic</i>	إنتاج الصوف والموهير
			<i>English</i>	<b>Wool and mohair production</b>
		<b>Content</b>		
Breeds of sheep and goats - Selecting and judging sheep and goat - Reproduction in sheep and goats Wool is the natural clothing of sheep - Virtue of wool - Growth and development of wool - Objectives in wool production - Mohair is produced from Angora goat - Mohair characteristics				

## (b) Economics and management of veterinary projects

<b>Code</b>	<b>Number</b>	<b>Course title</b>	<i>Arabic</i>	الطلب والعرض ونظرية سلوك المستهلك
AWD/E	6051		<i>English</i>	<b>Demand and Supply and consumer behavior theory</b>
		<b>Contents</b>		
		- Pricing (The determination of market price)-Price fixing- Cobweb equilibrium.		
AWD/E	6052	<b>Course title</b>	<i>Arabic</i>	النظرية الإنتاجية (قانون تناقص المنفعة والمراحل الانتاجية وشروط توازن الفرد المنتج
			<i>English</i>	<b>Production function theory (Law of diminishing return, Stages of production and Producer equilibrium).</b>
		<b>Contents</b>		
Production Function with Only One Variable Input- Law of diminishing returns - Stages of production function -Producer equilibrium				
AWD/E	6053	<b>Course title</b>	<i>Arabic</i>	دوال الإنتاج والتكاليف
			<i>English</i>	Production and cost function
		<b>Contents</b>		
Production function theory . costs and its classifications . Elasticity of production				
AWD/E	6054	<b>Course title</b>	<i>Arabic</i>	الكفاءة الاقتصادية والانتاجية لمزارع الانتاج الحيواني
			<i>English</i>	<b>Economic and Productive efficiency of animal production farms</b>
		<b>Contents</b>		
Efficiency types-Efficiency Measures-Efficiency Achievement-Efficiency of poultry farms-Efficiency of dairy farms-Efficiency of sheep and goat farms - Efficiency of fish farms-Efficiency of beef farms.				



AWD/E	6055	<b>Course title</b>	<i>Arabic</i>	المشاكل والأمراض الاقتصادية التي تواجه المربي وكيفية التغلب عليها
			<i>English</i>	Economic problems and diseases that face the producer and how to avoid them
<b>Content</b>				
- Economic problems and diseases that face the producer in different animal production enterprises (dairy, beef, poultry, aquaculture, sheep and goat)-How to avoid these Economic Problems-Economic benefits from controlling problems and diseases.				

### (c) Genetics and genetic engineering

AWD/G	6056	<b>Course title</b>	<i>Arabic</i>	الوراثة السيتولوجية ومنشأ الكروموسوم الانقسامى
			<i>English</i>	Cytogenetic & Cytological origin chromosome
<b>Contents</b>				
Chromosome and chromatin structure.- Karyotyping and Banding technique.-Cell cycle control & check point - Cytological origin of mitotic chromosome - Specialized chromosome (polytene & lampbrush chromosome.				
AWD/G	6057	<b>Course title</b>	<i>Arabic</i>	الاختلافات الكروموسومية وتحديد الجنس
			<i>English</i>	Chromosome variation & sex determination
<b>Contents</b>				
Numerical chromosomal aberration - Structural chromosomal aberration - Sex determination - Fertility affected by chromosome - Chromosome composition & sex determination -Viability in aneuploid condition - Gene redundancy & amplification ribosomal RNA genes -Fragile sites in human.				
AWD/G	6058	<b>Course title</b>	<i>Arabic</i>	التغيرات التي تحدث فى النسب المندلية
			<i>English</i>	Modification of mendelian ratios.
<b>Contents</b>				
Different mode of inheritance - Potential function of allele - Multiple allele (Bombay phenotype) - Complementation analysis & allele.				
AWD/G	6059	<b>Course title</b>	<i>Arabic</i>	تركيب الحمض النووى الديوكسى الريبوزى
			<i>English</i>	Importance of DNA replication & synthesis
<b>Content</b>				
DNA synthesis at ends of linear chromosome - DNA recombination - Gene conversion - The genetic material early studies - Evidence favoring DNA in bacteria & bacteriophage - Transformation studies - Transfection experiment. - Molecular hybridization techniques-Reassociation kinetics & repetitive DNA.				
AWD/G	6060	<b>Course title</b>	<i>Arabic</i>	تشكيل الحمض النووى على الكروموسوم
			<i>English</i>	Organization of DNA in chromosomes & gene
<b>Content</b>				
Viral & bacterial chromosomes - Mitochondrial DNA - Repetitive DNA - Multigene families -Genome analysis				



## (d) Biostatistics

AWD/S	6061	<b>Course title</b>	<i>Arabic</i>	أساسيات الإحصاء الحيوي
			<i>English</i>	<b>The Basic of Biostatistics</b>
<b>Contents</b>				
Descriptive Statistics: Graphs, Measures of Central Tendency, Variability - Probability - Discrete Random Variables - Continuous Random Variables - Hypothesis Testing - T-tests (Independent T-Tests - Paired T-Tests) - One-Way ANOVA - Repeated Measures ANOVA - Two-Way ANOVA - Simple Regression and Correlation coefficients - Chi-Squared.				
AWD/S	6062	<b>Course title</b>	<i>Arabic</i>	تصميم التجارب
			<i>English</i>	<b>Experimental Design</b>
<b>Contents</b>				
-Types of simple experimental design and methods of application - Data collection methods & Data analysis of different experimental design - Principles of experimental design - Different terminology used in experimental design - Analysis of variance of experiments with one or more fixed and random factors - Randomized block designs - Experiment with crossed and nested factors.				
AWD/S	6063	<b>Course title</b>	<i>Arabic</i>	الإحصاء الوصفي والاستدلالي
			<i>English</i>	<b>Descriptive and Inferential Statistics</b>
<b>Contents</b>				
Types of variables and data - Population & sample -Types of Population - Why sampling? - Measurement levels - The representation of data by means of tables and graphs - Measures of central tendency, dispersion and skewness - Standard scores - Measures of association and the simple linear regression				
<b>Inferential statistics will address:</b>				
-The normal distribution - The Students t-distribution - The chi-square distribution - The sampling distribution of the mean - The z-test - The t-test - The chi-square test.				
AWD/S	6064	<b>Course title</b>	<i>Arabic</i>	أساسيات التوزيعات الاحتمالية
			<i>English</i>	<b>Principles of Probability Distribution</b>
<b>Content</b>				
Bases of probability – Outcome - Sample space – Event - Types of probability - Law of probability - Probability and Equal Likelihood - Conditional Probabilities - Bayes' Formula and Independent Events - Discrete Random Variables - Expectations of Discrete Random Variables - Variance - Binomial Random Variables - Repeated Trials and the so-called Modern Portfolio Theory- Poisson Random Variables and Poisson Processes - Continuous Random Variables - Uniform Random Variables - Normal Random Variables - Exponential Random Variables - Sums of Independent Random Variables - Expectation of Sums.				
AWD/S	6065	<b>Course title</b>	<i>Arabic</i>	أساسيات التحليل الاحصائي





		<i>English</i>	Bases of Statistical Analysis
<b>Content</b>			
-The normal distribution - Analysis of variance (ANOVA) - The sampling distribution of the mean, The z-test-The t-test - Comparison between two samples(T-test)-Non-parametric method (chi square test).			

## 11- Department of Pathology

<b>PAT</b>	6066	<b>Course title</b>	<i>Arabic</i>	باطولوجيا الالتهابات والاضطرابات في الدورة الدموية
			<i>English</i>	<b>Pathology of inflammation and disturbances in blood circulation</b>
<b>Contents</b>				
different methods for classification of inflammation, pathological effect of different types of inflammation, methods of wounds healing , disturbance of circulation (hyperemia-heamorrhage-infarction-edema-thrombosis), causes, classification of necrosis and pathological changes that are characteristic to each type of necrosis				
<b>PAT</b>	6067	<b>Course title</b>	<i>Arabic</i>	باطولوجيا الأيض والتنكز
			<i>English</i>	<b>Pathology of disturbances in cell metabolism and necrosis</b>
<b>Contents</b>				
pathological changes associated with disturbance in protein metabolism, pathological changes associated with disturbance in fat metabolism, pathological changes associated with disturbance in carbohydrate metabolism, pathological changes associated with disturbance in mineral metabolism, pathological changes associated with disturbance in pigment metabolism, causes, classification of necrosis and pathological changes that are characteristic to each type of necrosis				
<b>PAT</b>	6068	<b>Course title</b>	<i>Arabic</i>	باطولوجيا الأورام
			<i>English</i>	<b>Oncology</b>
<b>Contents</b>				
Studying classification of neoplasm-causes and methods of spreading of neoplasm -pathological changes in different types of neoplasm				
<b>PAT</b>	6069	<b>Course title</b>	<i>Arabic</i>	باطولوجيا المناعة
			<i>English</i>	<b>pathology of immunology</b>
<b>Content</b>				
pathological changes associated with hemopoietic system and diagnosis of different diseases affecting on immune-system depending on the pathological examination				
<b>PAT</b>	6070	<b>Course title</b>	<i>Arabic</i>	باطولوجيا الأمراض المختلفة ظاهريا بعد الوفاة
			<i>English</i>	<b>Post-mortem changes in different disease</b>
<b>Content</b>				
characteristic post-mortem changes related to different diseases				



## 12- Department of Clinical Pathology

Code	Number	Course title	Arabic	تشخيص أمراض خلايا الدم
CPA	6071		English	Diagnosis of Blood cells diseases
		<b>Contents</b>		
Hematopoiesis, abnormal shape of blood cells, recycling of blood cells, anemia and polycythemia, functions and interpretation of leukocytes and their relation to immunologic disturbances				
CPA	6072	Course title	Arabic	والاملاح تشخيص اضطرابات التمثيل الغذائي والشوارد (باثولوجيا اكلينية أ)
			English	Diagnosis of metabolic, electrolytes and minerals disturbances
<b>Contents</b>				
Diabetes mellitus, electrolytes, minerals, kidney function and urinalysis				
CPA	6073	Course title	Arabic	الامان الحيوي والاجهزة المعملية
			English	Laboratory biosecurity and apparatuses
<b>Contents</b>				
Laboratory biosecurity for all pathological laboratory samples, spectrophotometer, ELISA, hematology analyzer, electrophoresis, pH meter, flowcytometry				
CPA	6074	Course title	Arabic	تشخيص أمراض الجهاز الهضمي (باثولوجيا اكلينية ب)
			English	Diagnosis of digestive system diseases
<b>Content</b>				
Liver and pancreas function tests, absorption tests, Stool analysis				
CPA	6075	Course title	Arabic	تشخيص امراض المناعة وسرطانات الدم
			English	Diagnosis of immunologic diseases and blood tumors
<b>Content</b>				
Leukemia, plasma proteins disturbances, immunologic markers, and tumor markers				

## 13- Department of VETERINARY HYGIENE AND MANAGEMENT

### (A) Animal and Poultry Behavior

Code	Number	Course title	Arabic	سلوكيات المجترات
VHM/BE	6076		English	Behavior of ruminants
		<b>Contents</b>		
Dairy cattle breeds – systems of housing of dairy cattle- behavioral patterns of cattle –breeding of cattle –management during breeding, pregnancy and lactation -System of production – abnormal behavior in cattle and their control.				
VHM/BE	6077	Course title	Arabic	مبادئ الرفق بالحيوان
			English	Animal welfare



		<b>Contents</b>		
		Principals of animal welfare- different laws of animal welfare in Islamic and European countries- International animal legislations-Animal rights		
VHM/BE	6078	<b>Course title</b>	<i>Arabic</i>	سلوكيات ورعاية الجمال
			<i>English</i>	Behavior and management of camel
		<b>Contents</b>		
		Common terms of camel- breeds of camel- - normal physiology of camel – signs of health- behavioral patterns- sexual behavior and reproduction of camel- abnormal behaviors and their control-management during pregnancy – management of calf camel.		
VHM/BE	6079	<b>Course title</b>	<i>Arabic</i>	رعاية المجترات
			<i>English</i>	Management of ruminants
		<b>Content</b>		
		Management of cattle during breeding season, pregnancy, parturition, lactation – management of calves-different systems of cattle management		
VHM/BE	6080	<b>Course title</b>	<i>Arabic</i>	رعاية حيوانات التجارب
			<i>English</i>	Management of laboratory animals
		<b>Content</b>		
		Different types of lab animals – housing of lab animals – systems of housing – behavioral patterns of Lab-animals- breeding and systems of breeding- abnormal behavior of different lab animals.		

## **B) Animal Health, Poultry and Environment**

VHM	6081	<b>Course title</b>	<i>Arabic</i>	صحة وتسكين حيوانات المزرعة
			<i>English</i>	Hygienic principles of livestock housing
		<b>Contents</b>		
		Purposes of housing- Types of animal housing- General construction of animal house- Ventilation and Thermal insulation- Equine housing- Housing of dairy cattle, beef cattle and buffalo– Housing of calves - Camel house		
VHM	6083	<b>Course title</b>	<i>Arabic</i>	صحة بيئية
			<i>English</i>	Environmental hygiene
		<b>Contents</b>		
		Chemical and biological pollutants of water and animal health- Chemical and biological pollutants of air and animal health- Chemical and biological pollutants of soil and animal health- prevention and control of Environmental pollution		
VHM	6083	<b>Course title</b>	<i>Arabic</i>	مطهرات ومبيدات حشرية
			<i>English</i>	Disinfectants, Rodent control, control of disease vectors and insecticides
		<b>Contents</b>		
		Types of disinfectants- Ideal chemical disinfectant – Factors affecting efficiency of disinfectants Routine disinfection and cleansing steps in animal farms - How to test disinfectant and cleansing process- Common rodent species- Rodent control- Chemical control of rodents- Non- chemical control of rodents- Common vectors of veterinary importance- Designing a vector control program -Vector Control Strategies- Insecticides		



VHM	6084	<b>Course title</b>	<i>Arabic</i>	صحة وتسكين الدواجن
			<i>English</i>	Housing of Poultry
		<b>Content</b>		
Different System used for poultry farms -Systems used during rearing and production- Environmental controlled poultry houses- Cooling Systems-ventilation				
VHM	6085	<b>Course title</b>	<i>Arabic</i>	الامان الحيوي
			<i>English</i>	Biosecurity
		<b>Content</b>		
Principles of Biosecurity- Major component of biosecurity- system of biosecurity-Biosecurity programs for animal farms				

## 14- Department of Forensic Medicine and Toxicology

FMT	6086	<b>Course title</b>	<i>Arabic</i>	السموم العامه
			<i>English</i>	General Toxicology
		<b>Contents</b>		
Type of poisons - Factors affecting action of poisons-Causes of toxicity-Fate of poison-Diagnosis (history -symptom- P.M- Laboratory analysis)-Treatment (prevention of administration -prevention of further absorption -antidot)				
FMT	6087	<b>Course title</b>	<i>Arabic</i>	الاثار الجرائمية من الوجهه الطبيه الشرعيه
			<i>English</i>	Criminal evidence from Medico-legal point of view
		<b>Contents</b>		
Sample -Sample-Examination of hair, blood and body fluid				
FMT	6088	<b>Course title</b>	<i>Arabic</i>	الوجهه الطبيه الشرعيه للوفاه
			<i>English</i>	Death from Medico-legal point of view
		<b>Contents</b>		
Introduction - Causes and Type of death -Signs of death -Determination of time of death				
FMT	6089	<b>Course title</b>	<i>Arabic</i>	التزييف والتزوير والغش التجارى
			<i>English</i>	Counter feinting and Commercial fraud
		<b>Content</b>		
Introduction -Methods of adulteration -Screen tests for detection of adulteration-Advanced tests for adulteration				
FMT	6090	<b>Course title</b>	<i>Arabic</i>	الخريظه الوراثيه من الوجهه الطبيه الشرعيه
			<i>English</i>	Genetic map from Medico-legal point of view
		<b>Content</b>		
Introduction (history -definition – genetic counselling -DNA (structure, function, types) -DNA profiling (sampling – extraction -amplification) – Microsatellite				
FMT	6091	<b>Course title</b>	<i>Arabic</i>	الاختبارات المعملية للسموم
			<i>English</i>	Laboratory test for toxins
		<b>Content</b>		



		Samples (amount – collection -preservation – labelling)-Conventional laboratory tests (CBC -liver enzyme -inflammatory markers)-Specific laboratory test-Write a laboratory report- Conclusion		
FMT	6092	<b>Course title</b>	<i>Arabic</i>	التحول الاحيائي للسموم
			<i>English</i>	<b>Biotransformation of toxins</b>
		<b>Content</b>		
Definition -Reactions (oxidation -reduction – conjugation -Role of bio transformation in elimination of toxins				

## 15- Department of Aquatic Diseases and Management

		<b>Course title</b>	<i>Arabic</i>	اساسيات تربية ورعاية الاحياء المائية
AQDM	6093		<i>English</i>	<b>Principals of rearing and management of aquatic animals</b>
		<b>Contents</b>		
Principals of the culture facilities, seed production, keeping water quality, feeding and routine work				
AQDM	6094	<b>Course title</b>	<i>Arabic</i>	اسس تصميم المزارع السمكية
			<i>English</i>	<b>Principals of designing fish rearing facilities</b>
<b>Contents</b>				
Principals of site selection, water quality, topography, type of facility, water sources and its quality				
AQDM	6095	<b>Course title</b>	<i>Arabic</i>	بيولوجيا الاحياء المائية
			<i>English</i>	<b>aquatic animals' biology</b>
<b>Contents</b>				
Classifications of the aquatic animals, aquatic animals' respiration, osmoregulation, reproduction mechanisms				
AQDM	6096	<b>Course title</b>	<i>Arabic</i>	امراض الاسماك
			<i>English</i>	<b>Fish diseases</b>
<b>Content</b>				
Stress diseases relationships, fish immunity, the most common bacterial, mycotic and parasitic diseases				
AQDM	6097	<b>Course title</b>	<i>Arabic</i>	امراض القشريات والمحاريات
			<i>English</i>	<b>Crustacean and bivalve diseases</b>
<b>Content</b>				
crustacean and bivalves immune system, the most common diseases infecting crustacean and bivalves				

## 16- Department of Food Hygeine and Control



## (A) Meat Hygiene and Technology

Code	Number	Course title	Arabic	التفتيش الصحي على اللحوم ومنتجاتها
			English	Sanitary inspection of meat and its product
FHC	6098			
<b>Contents</b>				
Methods of slaughtering, types of abattoirs, types of slaughtering, preslaughter care, rigor mortis, A.M inspection, Emergency slaughtering vital and non vital slaughtering, bleeding, factors affecting efficiency of bleeding and post mortem inspection, Inspection of Meat products				
FHC	6099	Course title	Arabic	ميكروبيولوجيا الأغذية
			English	Food Microbiology
<b>Contents</b>				
Food Poisoning, Food Spoilage, Factors affecting growth of microorganisms causing food poisoning and sources of food contamination				
FHC	6100	Course title	Arabic	صحة لحوم الدواجن
			English	Poultry Meat Hygiene
<b>Contents</b>				
Poultry processing plant, A.M inspection, P.M inspection, Processing faults, Judgments of diseased and affected poultry carcasses.				
FHC	6101	Course title	Arabic	تكنولوجيا الأغذية
			English	Food Technology
<b>Content</b>				
Significance of food technology, Food additives, Binders and extenders, Casing, Methods of cooking, Sausage manufacture, Emulsion theory, General processing faults in food technology.				
FHC	6102	Course title	Arabic	كيمياء الأغذية
			English	Food Chemistry
<b>Content</b>				
Chemical composition of meat, nutritive value of meat, chemical indices for food spoilage, and methods of detection of adulteration of meat and meat products				

## (b) Quality control in Milk, oil and egg factories.

Code	Number	Course title	Arabic	برامج نظم مراقبة جودة الأغذية
			English	Food quality control systems program
FHC	6103			
<b>Contents</b>				
Application methods of comprehensive quality systems and HAACP at dairy products plant level"; Application methods of quality systems and management; Application of Good Manufacturing Practices and Application method of ISO 22000				
FHC	6104	Course title	Arabic	حفظ و تكنولوجيا الألبان والزيوت والدهون
			English	Preservation and technology milk, oils & fats
<b>Contents</b>				
Different methods for preservation of milk. Chemical and microbial spoilage				



		of milk and its products. Methods for extraction of vegetable oils and fats. Harmful changes of vegetable oils and fats and detection of their validity for human consumption. bDifferent types of vegetable oils and their application in food industry. The role of oils and fats in food system.		
FHC	6105	Course title	Arabic	ميكروبيولوجيا الألبان ومنتجاتها
			English	Microbiology of milk and its products
<b>Contents</b>				
Sources of milk contamination. Factors affecting microbial growth in milk and how to control them. Bacterial spoilage of milk and its products and ways for prevention. Fungi-causing spoilage of milk and their mycotoxins and ways for detecting them in milk. Food poisoning microorganisms due to consumption of milk and its products. Diseases transmitted to human due to consumption of milk and its products.				
FHC	6106	Course title	Arabic	تطبيقات لنظم مراقبة الجودة
			English	Applications for quality control systems
<b>Content</b>				
Detection of chemical, physical and microbial hazards exposed to dairy products including each step from the manufacturing steps and how to prevent them. Determination of critical control points and apply corrective action. Monitoring the corrective actions. Making file and record all corrective actions for all manufacturing steps. Detection of technological and microbial defects of dairy products (cream, butter, fermented milk, cheese, dried milk, concentrated milk and sweetened condensed milk) during and directly after production at plant level and during storage of the products.				
FHC	6107	Course title	Arabic	حفظ و تكنولوجيا البيض
			English	Preservation and technology of eggs
<b>Content</b>				
Composition of table eggs and their validity for human consumption. Egg faults. Egg microbiology. Ways for eggs preservation and their products. Functional eggs.				

## 17- Department of THERIOGENOLOGY

Code	Number	Course title	Arabic	التوليد والتناسل
THG	6108	Course title	English	Gynaecology and Obstetrics
			<b>Contents</b>	
<b>Gynacology:</b> Physiology of breeding –estrus cycle –estrus synchronization - pregnancy diagnosis –congenital, hormonal, environmental, pathological, causes of female infertility.				
<b>Obstetrics:</b> Pregnancy in different animal –affections of dam and fetus during pregnancy –stages of normal parturition –dam care –dystocia – normal Puerperium –problems occur in Puerperium.				
THG	6109	Course	Arabic	الذكورة ومشاكل نقص الخصوبة



		<b>title</b>	<i>English</i>	<b>Andrology and infertility</b>
		<b>Contents</b>		
		Comparative and functional anatomy of male genital system in farm animal – sexual behavior – causes of infertility in male (Impotentia coeundi, Erengenti and Generundi) – sire selection.		
<b>THG</b>	6110	<b>Course title</b>	<i>Arabic</i>	التقنيات الحديثة أنواعها واستخداماتها في التناسل
			<i>English</i>	<b>Advanced Reproductive Techniques</b>
		<b>Contents</b>		
		Different factors affect gamete production in farm animals – Estrus synchronization- technology of embryo transfer (importance of embryo transfer – selection of dams – induction of super ovulation – collection of embryos and evaluation – preparation of recipient dams – preservation of embryo by different methods – embryo transfer) – Diagnosis of pregnancy and reproductive diseases by ultrasound – advanced reproductive techniques (In vitro maturation, In vitro fertilization - Cloning		
<b>THG</b>	6111	<b>Course title</b>	<i>Arabic</i>	التلقيح الاصطناعي في الحيوان والطيور والاسماك
			<i>English</i>	<b>Artificial Insemination in animal, birds and Fish</b>
		<b>Content</b>		
		Comparative Functional anatomy of male reproductive tract in animals, birds , fishes –semen biology in animal ,birds ,and fishes – methods of semen collection and evaluation in animals , birds ,and fishes -principles of semen dilution and different types of diluents and methods of their preparation - principles of semen preservation by cooling and freezing – thawing of semen and female insemination- data recording		
<b>THG</b>	6112	<b>Course title</b>	<i>Arabic</i>	البرامج الحقلية للصحة التناسلية في مزارع الالبان
			<i>English</i>	<b>Field programs for reproductive health in dairy farms</b>
		<b>Content</b>		
		Importance of recording in reproductive management in dairy farms – types of records ( production records – insemination records – parturition recording – health records) using computer programs in recording, restoring and analysis of data – programs of synchronization in cows, buffaloes and sheep –Management of artificial insemination programs		
<b>THG</b>	6113	<b>Course title</b>	<i>Arabic</i>	مشاكل نقص الخصوبة في الاناث
			<i>English</i>	<b>Female infertility</b>
		<b>Content</b>		
		Comparative and Functional anatomy of female reproductive tract in different animals – reproductive physiology – estrous cycle and its physiological changes – reproductive examination – pregnancy diagnosis - congenital, hormonal, environmental, pathological, causes of female infertility.		
<b>THG</b>	6114	<b>Course title</b>	<i>Arabic</i>	التلوث البيئي والتناسل
			<i>English</i>	<b>Environmental pollution and reproduction</b>
		<b>Content</b>		
		Environmental pollutions affecting endocrine glands – sources of pollution – acute and chronic effect of environmental pollutions on fertility of farm animals – effect of pesticide on female reproductive tract (abortion – malformation of embryo –infertility) and male reproductive tract (infertility –		





		low semen quality)		
THG	6115	Course title	Arabic	الموجات فوق الصوتية وتشخيص حاله التناسليه للحيوان
			English	Diagnostic Reproductive ultrasonography in animal
<b>Content</b>				
Advantages of using ultrasound in farm animals – principles of ultrasonography – uses of diagnostic and therapeutic ultrasound – anatomical and topographical position of male and female reproductive tract in farm animals – using of ultrasound in evaluation of reproductive status – uses of ultrasound in evaluation of the reproductive affections - pregnancy diagnosis by ultrasound .				
THG	6116	Course title	Arabic	المناظير الطبية وتشخيص الأمراض التناسليه
			English	Laparoscopes and diagnosis of reproductive diseases
<b>Content</b>				
General view on laparoscopes and their history – contents of diagnostic laparoscopes – optical fibers –lens of laparoscopes – Hazards – recent advances in laparoscopes - diagnosis of female reproductive tract and treatment of infertility and other diseases – using laparoscopes in operations (ovariohysterectomy) - artificial insemination and embryo transfer by using laparoscopes .				

## 18- Department of Poultry and Rabbit Diseases

Code	Number	Course title	Arabic	أمراض ومشاكل قطعان دجاج التسمين وطرق العلاج والوقايه
			English	Diseases of broiler chicken flocks and their prevention and control
<b>Contents</b>				
Studying the epidemiology, clinical signs, post mortem picture, laboratory diagnosis and methods of prevention and control of different bacterial, viral, mycotic, parasitic, nutritional and miscellaneous diseases affecting broiler chicken flocks.				
POD	6118	Course title	Arabic	أمراض الأرانب البكتيرييه
			English	Bacterial diseases of rabbits.
<b>Contents</b>				
Studying the epidemiology, clinical signs, post mortem picture, laboratory diagnosis and methods of prevention and control of different bacterial diseases affecting rabbit farms.				
POD	6119	Course title	Arabic	أمراض الطيور المائيه والبريه والمهاجره.
			English	Diseases of aquatic, wild and migratory birds.
<b>Contents</b>				
Studying the epidemiology, clinical signs, post mortem picture, laboratory diagnosis and methods of prevention and control of different bacterial, viral, mycotic, parasitic, nutritional and miscellaneous diseases affecting the aquatic, wild and migratory birds.				
POD	6120	Course title	Arabic	أمراض ومشاكل قطعان الامهات والبياض وطرق العلاج والوقايه.
			English	Diseases of breeders and layers flocks and their prevention and control.



		<b>Content</b>		
		Studying the epidemiology, clinical signs, post mortem picture, laboratory diagnosis and methods of prevention and control of different bacterial, viral, mycotic, parasitic, nutritional and miscellaneous diseases affecting breeders and layers flocks.		
<b>POD</b>	6121	<b>Course title</b>	<i>Arabic</i>	أمراض الأرانب الفيروسية.
			<i>English</i>	<b>Viral diseases of rabbits</b>
		<b>Content</b>		
			Studying the epidemiology, clinical signs, post mortem picture, laboratory diagnosis and methods of prevention and control of different viral diseases affecting the rabbit farms.	
<b>POD</b>	6122	<b>Course title</b>	<i>Arabic</i>	أمراض الأرانب الطفيلية والفطرية
			<i>English</i>	<b>Parasitic and mycotic diseases of rabbit.</b>
		<b>Content</b>		
			Studying the epidemiology, clinical signs, post mortem picture, laboratory diagnosis and methods of prevention and control of various parasitic and mycotic diseases affecting rabbit farms.	
<b>POD</b>	6123	<b>Course title</b>	<i>Arabic</i>	أمراض سوء التغذية والرعاية في الأرانب
			<i>English</i>	<b>Nutritional and bad management diseases of rabbit.</b>
		<b>Content</b>		
			Studying the epidemiology, clinical signs, post mortem picture, laboratory diagnosis and methods of prevention and control of different nutritional and bad management diseases affecting the rabbit farms.	

## 19- Department of zoonoses

<b>Code</b>	<b>Number</b>	<b>Course title</b>	<i>Arabic</i>	الامراض المشتركة عام
<b>ZON</b>	6124		<i>English</i>	<b>General zoonoses</b>
		<b>Contents</b>		
		Studying definition and classification of zoonoses and technical meaning of terms used in zoonoses		
<b>ZON</b>	6125	<b>Course title</b>	<i>Arabic</i>	الامراض المشتركة الريكتسية و الكلاميدية
			<i>English</i>	<b>Zoonotic rickettsia and chlamydial diseases</b>
		<b>Contents</b>		
			Studying etiological agents, reservoir, source of infection, mode of transmission, Clinical manifestation, laboratory diagnosis, prevention and control measures of zoonotic rickettsia and chlamydial diseases.	
<b>ZON</b>	6126	<b>Course title</b>	<i>Arabic</i>	امراض المشتركة والارشاد البيطري
			<i>English</i>	<b>Zoonotic diseases and veterinary guidance</b>
		<b>Contents</b>		
			Awareness courses in zoonotic diseases (bacterial, viral, mycotic and parasitic diseases) studying etiological agents, reservoir, mode of transmission, Clinical manifestation, laboratory diagnosis, prevention and control measures.	



ZON	6127	Course title	Arabic	الامراض المشتركة الفيروسية
			English	Viral zoonotic diseases
<b>Content</b>				
Studying viral zoonotic diseases (etiological agents, reservoir, source of infection, mode of transmission, Clinical manifestation, laboratory diagnosis, prevention and control measures.				
ZON	6128	Course title	Arabic	دور القوارض و حيوانات التجارب في نقل الامراض المشتركة
			English	Role of rodents and laboratory animals in zoonotic diseases
<b>Content</b>				
Studying role of rodents and laboratory animals in transmission of zoonotic diseases				

## 20- Department of Surgery, Anesthesiology and Radiology

Code	Number	Course title	Arabic	جراحة عامة
			English	General Surgery
<b>Contents</b>				
-Inflammation, Surgical swellings, Wound, Fracture, Septic surgical conditions-Sepsis & Antiseptic requirements, Suture materials, Suture pattern.				
SAR	6129	Course title	Arabic	جراحة خاصة
			English	Special surgery
<b>Contents</b>				
Different affections of the body systems				
SAR	6131	Course title	Arabic	التخدير
			English	Anesthesia
<b>Contents</b>				
Introduction, classification. - Local and regional analgesia. - Premedication & general anaesthesia.				
SAR	6132	Course title	Arabic	جراحة التجويف البطنى
			English	Surgery of the abdominal cavity
<b>Content</b>				
- Abdominal wall affections - Surgery of intra- abdominal organs				
SAR	6133	Course title	Arabic	جراحة القوائم
			English	Surgery of the limbs, hoof and claw
<b>Content</b>				
Diagnosis of lameness - Claw & hoof affections - Nerve affections				
SAR	6134	Course title	Arabic	الجراحة التجريبية
			English	Experimental Surgery
<b>Contents</b>				
Laparotomy-Laparo-gastrotomy & splenectomy - Cystotomy & ovariohysterectomy - Intestinal resection & anastomosis - Skin grafting				
SAR	6135	Course	Arabic	جراحة العظام



		<b>title</b>	<i>English</i>	<b>Orthopedic Surgery</b>
		<b>Contents</b>		
		Bone affections - Orthopaedic surgery at different locations		
SAR	6136	<b>Course title</b>	<i>Arabic</i>	الموجات فوق صوتية
			<i>English</i>	<b>Ultrasonography</b>
		<b>Contents</b>		
		Introduction & principle - Interpretation & artifacts		
SAR	6137	<b>Course title</b>	<i>Arabic</i>	الاشعة السينية
			<i>English</i>	<b>X-ray</b>
		<b>Contents</b>		
		Introduction & principle - Processing & Interpretation		

## 21- Department of Animal Medicine

### (A) Farm Animal Medicine

		<b>Course title</b>	<i>Arabic</i>	امراض باطنة عام للحيوانات الاليفة
ANM/ MD	6138	<b>Contents</b>		
		Studying general systemic states in pet animals as toxaemia, dehydration, fever, septicaemia and sudden death		
		<i>English</i>	<b>General pet animal medicine</b>	
ANM/ MD	6139	<b>Course title</b> (مشترك)	<i>Arabic</i>	امراض نقص المناعة والوقاية من الامراض الباطنة والمعدية
			<i>English</i>	<b>Immunity diseases and prevention of infectious and non- infectious diseases</b>
		<b>Contents</b>		
studying diseases of immunity and factors leading to immunosuppression and different methods of prevention of infectious and non-infectious diseases				
ANM/ MD	6140	<b>Course title</b>	<i>Arabic</i>	امراض باطنة خاص (جهازى) الحيوانات الاليفة
			<i>English</i>	<b>Special pet animal medicine</b>
		<b>Contents</b>		
Studying diseases of digestive system, respiratory system, cardiovascular system, urinary system, skin and endocrine system in pet animals				
ANM/ MD	6141	<b>Course title</b>	<i>Arabic</i>	امراض باطنة عام
			<i>English</i>	<b>General Animal medicine</b>
		<b>Content</b>		
Studying Studying general systemic states in farm animals as toxaemia, dehydration, fever, septicaemia and sudden death				
ANM/ MD	6142	<b>Course title</b>	<i>Arabic</i>	امراض باطنة خاص مجترات
			<i>English</i>	<b>Special animal medicine</b>
		<b>Content</b>		
Studying diseases of digestive system, respiratory system, cardiovascular system, urinary system, skin , nutritional deficiency and metabolic diseases in ruminants				
ANM/ MD	6143	<b>Course title</b>	<i>Arabic</i>	امراض باطنة خاص خيول
			<i>English</i>	<b>Special animal medicine</b>



		<b>Content</b>	
		Studying diseases of digestive system, respiratory system, cardiovascular system, urinary system, skin , nutritional deficiency and metabolic diseases in equine	

### (b) Pet medicine

Code	Number	Course title	Arabic	English	
ANMI/IN	6144		الامراض المعدية البكتيرية والفطرية للحيوانات الاليفه	<b>Infectious Bacterial and Mycotic Diseases of pet animals</b>	
		<b>Contents</b>	Studying infectious bacterial and mycotic diseases of pet animals, studying etiological agents, epidemiology, Clinical manifestation, laboratory diagnosis, prevention and control measures.		
ANMI/IN	6145		الامراض المعدية الفيروسية والطفيلية للحيوانات الاليفه	<b>Infectious viral and parasitic diseases of pet animals</b>	
		<b>Contents</b>	Studying infectious viral and parasitic diseases of pet animals, studying etiological agents, epidemiology, Clinical manifestation, laboratory diagnosis, prevention and control measures		
ANMI/IN	6146		الامراض المعدية البكتيرية والفطرية للمجترات والخيول	<b>Infectious Bacterial and mycotic diseases of Ruminants and Equines</b>	
		<b>Contents</b>	Studying infectious bacterial and mycotic diseases affecting ruminants and equines, studying etiological agents, epidemiology, Clinical manifestation, laboratory diagnosis, prevention and control measures		
ANMI/IN	6147		الامراض المعدية الفيروسية والطفيلية للمجترات	<b>Infectious viral and Parasitic diseases of Ruminants</b>	
		<b>Content</b>	Studying infectious viral and parasitic diseases affecting ruminants, studying etiological agents, epidemiology, Clinical manifestation, laboratory diagnosis, prevention and control measures		
ANMI/IN	6148		الامراض المعدية الفيروسية والطفيلية للخيول	<b>Infectious viral and Parasitic diseases of Equines</b>	
		<b>Content</b>	Studying infectious viral and parasitic diseases affecting equines, studying etiological agents, epidemiology, Clinical manifestation, laboratory diagnosis, prevention and control measures.		



## Second: Master's degree

### Scientific content of courses

**(A) The scientific content of courses is a college and university requirement for all Master's programs.**

Code	Number	Course title	<i>Arabic</i>	المعلوماتية الحيوية
FVTM	7000A		<i>English</i>	Bioinformatics
		<b>Contents</b> Studying sequence data bases, sequence analysis, sequence alignments, pairwise and local, global alignments		
FVTM	7000B		<i>Arabic</i>	التطبيقات الاحصائية واخلاقيات البحث والكتابة العلمية والنشر
			<i>English</i>	Applied statistics and research ethics and scientific writing and publications
<b>Contents</b> Studying calculation of the biological sampling size, numerical analysis, statistical analysis, statistical methods using the recent statistical programs. Research ethics, research methods and basis of scientific writing and publication.				



## (B) The scientific content of the courses in the various scientific departments

### 1- Department of Anatomy and Embryology

Code	Number	Course title	Arabic	أجنة خاص
ANE	7001		English	Special Embryology
<b>Contents</b>				
Studying development of nervous, digestive, respiratory, urogenital and cardiovascular systems as well as endocrine glands and sense organs				
ANE	7002		Arabic	تشريح الجهاز الهضمي والبولي التناسلي المقارن
			English	Comparative anatomy of digestive and urogenital systems
<b>Contents</b>				
Dissection of oral cavity, pharynx, esophagus, stomach, small and large intestines, liver and kidneys and their comparative aspects in different species. Dissection of urinary bladder, urethra, testes, penis, accessory genital organs, ovaries, uterine tube, uterus and mammary glands and their comparative aspects in different species as well as female external genital organs				
ANE	7003		Arabic	تشريح الارانب و حيوانات التجارب
			English	Anatomy of rabbits and experimental animals
<b>Contents</b>				
Studying the external features of experimental animals, dissection of internal organs of rabbits and rats as well as dogs and cats				
ANE	7004		Arabic	تشريح الجهاز العصبي والغدد الصماء واعضاء الحس
			English	Anatomy of nervous system, endocrine glands and sense organs
<b>Content</b>				
Studying brain, meninges, spinal cord, cranial nerves, spinal nerves, autonomic nervous system, pancreas, anatomy of eye ball and its surrounding bones, dissection of ocular muscles, nerves and blood vessels, anatomy of external, middle and inner ear, anatomy of muscles, nerves and blood vessels of ear, anatomy of the nose, salivary glands and skin and its appendages				

### 2- Department of Biochemistry

Code	Number	Course title	Arabic	الكيمياء الحيوية عام و كيمياء التغذية
BIO	7005		English	General biochemistry and nutritional biochemistry
<b>Contents</b>				
Carbohydrate Chemistry - Lipid chemistry - Protein chemistry – Immunochemistry				
BIO	7006		Arabic	الكيمياء الحيوية الاكلينيكية



		<i>English</i>	<b>Clinical Biochemistry</b>
		<b>Contents</b>	
		Metabolic disorders of carbohydrates - Metabolic disorders of lipid - Metabolic disorders of protein - Kidney, pancreas, heart, brain and liver dysfunction	
<b>BIO</b>	<b>7007</b>	<i>Arabic</i>	الكيمياء الحيوية للتمثيل الغذائي
		<i>English</i>	<b>Metabolism of food stuff</b>
		<b>Contents</b>	
		Bio-oxidation – carbohydrate metabolism - lipid metabolism - protein metabolism - hormone metabolism	
<b>BIO</b>	<b>7008</b>	<i>Arabic</i>	الكيمياء الحيوية و البيولوجيا الجزيئية
		<i>English</i>	<b>Biochemistry and molecular biology</b>
		<b>Content</b>	
		DNA metabolism - Biological DNA synthesis - Gene therapy - Microbiology of stem cells - Mechanics Polymerase chain reaction	

### 3- Department of Histology

<b>Code</b>	<b>Number</b>	<b>Course title</b>	<i>Arabic</i>	هستولوجيا عام
<b>HIS</b>	<b>7009</b>		<i>English</i>	<b>General Histology</b>
		<b>Contents</b>		
		Structure of cells and its components, epithelium and its types, Connective tissue and its cells, fibers and types, Muscular tissue and its types, Nervous tissue and nerve impulse transmission, Lymphatic tissue and role of immune cells.		
<b>HIS</b>	<b>7010</b>	<b>Course title</b>	<i>Arabic</i>	هستولوجيا الحيوان الخاص (أ)
			<i>English</i>	<b>Special Veterinary Histology (A)</b>
		<b>Contents</b>		
		Histological and histochemical structure of different organs of the Digestive, Respiratory, Cardiovascular, Nervous systems		
<b>HIS</b>	<b>7011</b>	<b>Course title</b>	<i>Arabic</i>	هستولوجيا الحيوان الخاص (ب)
			<i>English</i>	<b>Special Veterinary Histology (B)</b>
		<b>Contents</b>		
		Histological and histochemical structure of different organs of the Urogenital, Integument, Endocrine, Sense organs.		
<b>HIS</b>	<b>7012</b>	<b>Course title</b>	<i>Arabic</i>	هستولوجيا الطيور البرية والقشريات والرخويات
			<i>English</i>	<b>Histology of wild birds crustacaens and molluscs</b>
		<b>Contents</b>		
		Histological and histochemical structure of different organs of the wild birds, rabbits, and those of crustacaens and molluscs.		

### 4- Department of Physiology

<b>Code</b>	<b>Number</b>	<b>Course title</b>	<i>Arabic</i>	فسيولوجيا العضلات و الاعصاب و الحواس
<b>PYS</b>	<b>7013</b>		<i>English</i>	
		<b>Contents</b>		
		Muscle contraction and factors affecting it, Muscle (types, general properties of skeletal muscle, Smelling, touch , Ear (auditory organ), Eye, Reflex action,		





		C.N.S Autonomic nervous system		
PYS	7014	Course title	Arabic	فسيولوجيا النمو و التمثيل الغذائي
			English	Metabolism and energy
		Contents		
General metabolism, Basal metabolic rate, SDA, Direct calorimeter, Indirect calorimetric, Body temperature , thermoregulation				
PYS	7015	Course title	Arabic	فسيولوجيا الغدد الصماء
			English	Physiology of mammalian endocrine glands
		Contents		
Hormone cycle , Hypothalamus, Pituitary gland , Thyroid gland, The pancreases, The adrenal gland, Pineal gland, Local hormones, Parathyroid gland				
PYS	7016	Course title	Arabic	فسيولوجيا الجهاز الدوري والتنفسي والبولي
			English	Physiology of cardiovascular &respiratory &urinary system
		Content		
Physiology of cardio vascular system , respiratory system, urinary system, Acid –base balance, cardiac cycle, properties of cardiac muscle				

## 5- Department of Pharmacology

PYS	7017	Course title	Arabic	فارماكولوجيا الأجهزة
			English	Systemic pharmacology
		Contents		
Understand the principles of drug action on various functional systems (ANS, CNS, cardiovascular, respiratory, digestive, urinary and different systems in the body).				
PYS	7018	Course title	Arabic	فارماكولوجيا التداخلات الدوائية
			English	Drug interactions
		Contents		
Studying the interaction between a drug and another substance that prevents the drug from performing as expected, as interactions of drugs with other drugs (drug-drug interactions), as well as drugs with food (drug-food interactions) and other substances.				
PYS	7019	Course title	Arabic	المضادات الحيوية
			English	Antibiotics
		Contents		
Studying definition of antibiotic which is a type of antimicrobial substance active against bacteria and is the most important type of antibacterial agent for fighting bacterial infections. Antibiotic medications are widely used in the treatment and prevention of such infections. They may either kill or inhibit the growth of bacteria. Studying different classifications of antibiotics.				
PYS	7020	Course title	Arabic	التسمم الدوائي
			English	Drug toxicology
		Content		
Study the adverse effects that occur in living organisms and				



	evaluated drug intoxication or overdose. Drug toxicity refers to the level of damage that a compound can cause to an organism. The toxic effects of a drug are dose-dependent and can affect different tissues of the body
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## 6- Department of Bacteriology, Immunology and Mycology

<b>BIM</b>	7021	<b>Course title</b>	<i>Arabic</i>	بكتريا تصنيفية اجابية الجرام
			<i>English</i>	<b>Gram positive bacteria</b>
		<b>Contents</b>		
<p><i>Staphylococcus</i> species-<i>Streptococcus</i> Species-<i>Enterococcus</i> species-<i>Corynebacterium</i> species-<i>Rhodococcus equi</i>-<i>Mycobacterium</i> Species-<i>Listeria</i> Species-<i>Lactobacillus</i>-<i>Erysipelothrix</i> species-<i>Bacillus</i> Species-<i>Clostridium</i> species</p>				
<b>BIM</b>	7022	<b>Course title</b>	<i>Arabic</i>	فطريات
			<i>English</i>	<b>Fungi</b>
		<b>Contents</b>		
<p>Introduction, Position of fungi, Classification of fungi, Structure of the fungal cell, Reproduction of fungi, Growth of fungi, Factors affecting growth- Dermatophytes, Classification of dermatophytes, Genus <i>Trichophyton</i> - Genus <i>Microsporum</i>, Yeast, Definition, Classification, <i>Candida</i> - <i>Cryptococcus</i>, Diphasic fungi, <i>Histoplasma</i>, <i>Blastomyces</i></p>				
<b>BIM</b>	7023	<b>Course title</b>	<i>Arabic</i>	بكتريا تصنيفية سالبة الجرام
			<i>English</i>	<b>Gram negative bacteria</b>
		<b>Contents</b>		
<p><i>Enterobacteriaceae</i> (<i>Escherichia coli</i>-<i>Shigella</i>-<i>Salmonella</i> <i>Klebsiella</i>-<i>Enterobacter</i>-<i>Serratia</i>-<i>Proteus</i>-<i>Yersinia</i>-<i>Citrobacter</i>) - <i>Pseudomonas</i>, <i>Burkholderia</i> and <i>Stenotrophomonas</i> species (<i>Aeromonas</i>, <i>Plesiomonas</i> species-<i>Actinobacillus</i> species-<i>Pasteurella</i>, <i>Mannheimia</i>, <i>Bibersteinia</i> spp.-<i>Avibacterium</i> species-<i>Francisella tularensis</i>-<i>Brucella</i> species-<i>Lawsonia intracellularis</i> -<i>Haemophilus</i> and <i>Histophilus</i> species-<i>Taylorella equigenitalis</i>-<i>Bordetella</i> species-<i>Neisseria</i>-<i>Moraxella</i> species-<i>Bacteroides</i>-<i>Fusobacterium</i>-<i>Coxiella burnetii</i>); Spiral and curved bacteria (<i>Campylobacter</i>, <i>Heliobacter</i>, <i>Arcobacter</i>); <i>Spirochaetes</i> (<i>Leptospira</i>, <i>Treponema</i>, <i>Borrelia</i>, <i>Brachyspira</i>) ; and Pleomorphic microorganisms (<i>Mycoplasma</i>, <i>Rickettsia</i>, .....etc)</p>				
<b>BIM</b>	7024	<b>Course title</b>	<i>Arabic</i>	مناعة
			<i>English</i>	<b>Immunity</b>
		<b>Content</b>		
<p>Introduction, Types of immunity, Innate immunity, Acquired immunity; Cells of immune system, Antigens, general characters, antigenic</p>				



		structure, bacterial antigens, Immunoglobulines, general characters, antibody structure, antibodies classes, The principal components of innate immunity; Adaptive immunity, humoral and cellular immunity, Hypersensitivity, types, differentiation, Immune response, Humoral immunity, Cell mediated immunity( types), Fundamental; distinctions in vivo for humoral and cellular immunity, Types of acquired immunity( active, passive, natural, artificial); and Types of allergy, Differentiation between Immediate and cellular immunity.
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## 7- Department of Virology

Code	Number	Course title	Arabic	English
VIR	7025		فيروولوجي عام	general virology
		<b>Contents</b>		
		virus structure, viruses' physical properties, viruses' chemical properties, viruses' biological properties, viruses stability		
VIR	7026		تشخيصات معملية فيروسية	laboratory diagnosis of viruses
		<b>Contents</b>		
		Introduction to methods used in virology, Cultivation of viruses, Isolation of viruses, non- serological and serological identification		
VIR	7027		فيروولوجي خاص	special virology
		<b>Contents</b>		
		DNA and RNA viruses' families		
VIR	7028		فيروسات السرطانات	viral oncology
		<b>Content</b>		
		Introduction to viruses and cancer, DNA and RNA viruses causing cancer		

## 8- Department of Parasitology

Code	Number	Course title	Arabic	English
PAR	7029		الديدان الطفيلية (2)	Parasitic helminthes (2)
		<b>Contents</b>		
		Hosts and parasites, Trematodes (Fasciolidae, Dicrocoelidae, Paramphistomatidae, Heterophyidae, schistomatidae, Trematodes of fish. Nematodes (Ascaridae, Exyuridae, Dracunculidae, Trichuridae, Aquaridae, Ancylostomatidae, Families: Rhabditidae. And Strongyloidae. Families: Strongylidae , Trichonematidae ,Amidostomidae, Stephanuridaeand Syngamidae. Cotyloides (Diphyllobothridae). Cestodes (Taeniidae, Anoplocephalidae, Davinidae, Hymenolepididae, Dipylididae).		
PAR	7030		الاوليات المتطفلة (2)	Parasitic protozoa (2)
		<b>Contents</b>		



		General Protozoology, Haemoflagellates (Leishmania spp. Trypanosomes), Enteroflagellates infect animals, birds and fishes. Genital flagellates infect animals, birds and fishes. Apicomplexa (Coccidian parasites infect animals, birds and fishes. Toxoplasma and Sarcocystis infect animals, birds and fishes. Haemosprinae, (Plasmodium, Haemoproteu, Leucocytozoan infect animals, birds and fishes, Piroplasmorina ( Babesia, theileria) infect animals, birds and fishes.		
PAR	7031	<b>Course title</b>	<i>Arabic</i>	الحشرات الطبية و البيطرية المتطفلة (2)
			<i>English</i>	Medical and veterinary parasitic insects (2)
<b>Contents</b>				
Morphology of insects and Biology of insects Importance of arthropods , Culicidae, Simuliidae Ceratopognidae, Psychdidae, Hemiptera, Siphonoptera, Anoplura, Mallphaga. Order Acarina (Ixodidae, Argasidae, Psoroptidae, Sarcoptidae, Demodicidae). Control of ticks and mites, Tabanidae, Muscidae, Glossinidae, Caliphoridae, Hippoboscidae, Oestridae, Gastrophilidae, Myaisis producing fly.				
PAR	7032	<b>Course title</b>	<i>Arabic</i>	الطفيليات المعملية (2)
			<i>English</i>	Clinical parasitology(2)
<b>Content</b>				
Host parasite lis, Symptoms of parasitic diseases, Collection of samples. Diagnosis of GIT parasites Faecal examination (direct emear, Sedimentation, Floatation, Mac master technique, Bermanns technique, Stolls technique, Diagnosis of blood parasites Blood examination (blood film , Fixation and staining of blood film, Examination of blood film under oil emersion length, Types of blood film), Laboratory diagnosis of Skin examination. Serodiagnosis , PCR, ELiSA, HA, HI				

## 9- Department of Nutrition and Clinical Nutrition

<b>Code</b>	<b>Number</b>	<b>Course title</b>	<i>Arabic</i>	تغذية الدواجن والارانب
NCN	7033		<i>English</i>	<b>Poultry and Rabbits Nutrition</b>
		<b>Contents</b>		
Feed stuffs for poultry and rabbits - feeding Broiler - feeding Layer - feeding Breeder - feeding Duck - feeding Geese - feeding Quails and pigeon - feeding Turkey - Feeding of growing, pregnant and lactating rabbits				
NCN	7034	<b>Course title</b>	<i>Arabic</i>	تغذية أسماك
			<i>English</i>	<b>Fish Nutrition</b>
<b>Contents</b>				
Aquaculture - Digestion and absorption in fish - Larval nutrition and growth - Diet preparation for fish - Diet formulation for fish - Aquafeed manufacture - Water stability of fish feeds - Feeding of cultured finfish - Feeding practice in aquaculture				
NCN	7035	<b>Course title</b>	<i>Arabic</i>	تغذية المجترات
			<i>English</i>	<b>Ruminants Nutrition</b>



		<b>Contents</b>		
		Feeding of beef cattle - feeding of dairy cows - feeding of sheep - feeding of goat - feeding of camels - feeding buffaloes - nutrient requirement for lactation and reproduction - nutrient requirement for growth and fattening		
NCN	7036	<b>Course title</b>	<i>Arabic</i>	تغذية حيوانات التجارب والحيوانات الاليفة
			<i>English</i>	Laboratory and pet Animal Nutrition
		<b>Content</b>		
			Nutrient requirement for lab and pet animals - Feeding mice, guinea pigs and rats - Feeding dogs and cats	

## **10- Department of Animal Wealth Development**

### **(A) Animal and Poultry Production and Breeding**

AW D/P	7037	<b>Course title</b>	<i>Arabic</i>	تقييم وإنتخاب ماشية إنتاج اللبن
			<i>English</i>	Judging and selection of dairy cattle
		<b>Contents</b>		
		Dairy cattle breeds - Productive and reproductive performances of dairy cattle - Body condition score - Type evaluation - Selection of sire for artificial insemination Programed breeding - Milk yield and composition - Managing dry cow - Herd replacement and culling - Principle of selection - Predicting breeding value		
AW D/P	7038	<b>Course title</b>	<i>Arabic</i>	تربية وإنتاج الدجاج البياض
			<i>English</i>	Breeding and production of layers and breeders
		<b>Contents</b>		
		Strains of breeder and layer chickens - System of production - Egg production assessment measures - Egg quality traits - Incubation and hatchability		
AW D/P	7039	<b>Course title</b>	<i>Arabic</i>	نظم التزاوج والإنتخاب لماشية إنتاج اللحم
			<i>English</i>	System of mating and selection of beef cattle
		<b>Contents</b>		
		Beef cattle breeds - Crossbreeding system for beef cattle production - Hybrid vigor - Selection methods - Breeding value Beef cattle housing and equipment's Marketing of beef cattle - Receiving program for feeder cattle		
AW D/P	7040	<b>Course title</b>	<i>Arabic</i>	وراثة عشائر الأغنام والماعز
			<i>English</i>	Population genetics of sheep and goats
		<b>Content</b>		
		Breeds of sheep and goat - Establishing sheep and goat flocks Factor affecting genes and genotypes frequency - Hardy Weinberg equilibrium - Variation of economic traits in sheep and goats' populations - Principle of selection methods - Genetic improvement - Predicting breeding value		



## (b) Economics and management of veterinary projects

Code	Number	Course title	<i>Arabic</i>	ونظرية الموارد الاقتصادية وأهميتها في الطب البيطري، سلوك المستهلك
			<i>English</i>	Economic resources and its importance in veterinary medicine and consumer behavior theory
AWD/E	7041	<b>Contents</b>		
		Economic and Wealth -Veterinary Economics -Subject matter of economics -Problems of an economy -Causes of Economic Problem - Human wants/needs -Non-Economic Resources -Economic Resources -Steps of production process -Veterinary resources -Free Market Economy –Pricing		
AWD/E	7042	Course title	<i>Arabic</i>	النظرية الإنتاجية ودوال الإنتاج والتكاليف
			<i>English</i>	Production function theory and costs
AWD/E	7043	<b>Contents</b>		
		Economic concepts used in livestock production -Production Function theory -Law of diminishing returns -Stages of production function - Average and marginal product curves -Producer equilibrium -Costs of production		
AWD/E	7043	Course title	<i>Arabic</i>	الكفاءة الإنتاجية والاقتصادية ومعايير قياسها
			<i>English</i>	Economic and Productive efficiency and its measures
AWD/E	7044	<b>Contents</b>		
		Different terminology of efficiency- Economic efficiency- Productive efficiency - Efficiency measures		
AWD/E	7044	Course title	<i>Arabic</i>	القيمة الأھلأكية والسجلات وأدارة الجودة في الطب البيطري
			<i>English</i>	Depreciation & Records and Quality management in veterinary medicine
AWD/E	7044	<b>Content</b>		
		Depreciation - Depreciation of farm animals - Depreciation of the working animals- Sheep and goat depreciation - Poultry depreciation - farm records and accounts -Budgeting -Sensitivity analysis -Costs (definition, classification) -Benefits (definition, classification) -Quality management points -Problem Solving		

## (c) Genetics and genetic engineering

Code	Number	Course title	<i>Arabic</i>	تركيب الكروماتين والكروموسوم
			<i>English</i>	Chromatin & chromosome structure
AWD/G	7045	<b>Contents</b>		
		Chromosome and cell cycle - Interphase stage - The C value -Chromatin - Mitotic chromosome - Chromosomal shape & nomenclature b. karyotype - Banding technique in karyotype -Genetic Importance of		



		banding technique		
AW D/G	7046	<b>Course title</b>	<i>Arabic</i>	تضاعف المادة الوراثية والتعبير عنها
			<i>English</i>	<b>DNA replication &amp; expression</b>
<b>Contents</b>				
Genetic material - DNA replication -Genetic code -Genetic expression - Transcription -Translation				
AW D/G	7047	<b>Course title</b>	<i>Arabic</i>	تنظيم التعبير الجيني والبروتين الناتج عنها
			<i>English</i>	<b>Regulation of gene expression &amp; protein</b>
<b>Contents</b>				
Deciphering the genetic code - Intervening sequence & split genes - Splicing mechanism - RNA editing -Regulatory element & eukaryotic genes (promoter & enhancer) -Transcription factors -Genomic alteration & gene expression - DNA methylation.				
AW D/G	7048	<b>Course title</b>	<i>Arabic</i>	الطفرة ووراثته السرطان
			<i>English</i>	<b>DNA mutation &amp; cancer</b>
<b>Content</b>				
Classification – Mutagens - DNA repair mechanism - Mutation & cancer - Detection of mutation - Molecular basis of mutation - Site directed mutagenesis - Transposable genetic element - Insertion sequence - Bacterial transposon.				

#### d- Biostatistics

Code	Number	<b>Course title</b>	<i>Arabic</i>	طرق التحليل الاحصائي
			<i>English</i>	<b>Methods of Statistical Analysis</b>
AW D/S	7049	<b>Contents</b>		
		One-way analysis of variance - Two-way analysis of variance - Testing difference between two means using the Z test - Testing the difference between two means of independent samples using the t test - Chi square tests (test for goodness of fit - test using contingency tables).		
AW D/S	7050	<b>Course title</b>	<i>Arabic</i>	الأحتمالات والتوزيعات الاحتمالية
			<i>English</i>	<b>Probability and Probability Distribution</b>
<b>Contents</b>				
Permutations and Combinations - Multinomial Coefficients and More Counting - Sample Spaces and Set Theory -Axioms of Probability - Probability and Equal Likelihood - Conditional Probabilities - Bayes' Formula and Independent Events - Discrete Random Variables - Expectations of Discrete Random Variables - Variance - Binomial Random Variables - Repeated Trials and the so-called Modern Portfolio Theory. Poisson Random Variables and Poisson Processes -Continuous Random Variables - Uniform Random Variables - Normal Random Variables - Exponential Random Variables - Sums of Independent Random Variables - Expectation of Sums - Covariance and Correlation Conditional Expectation - Moment Generating Distributions.				
AW D/S	7051	<b>Course title</b>	<i>Arabic</i>	تحليل الاتحاد والارتباط الخطي
			<i>English</i>	<b>Linear correlation and regression</b>
<b>Contents</b>				



		Simple linear correlation analysis - Calculating of correlation coefficient – Testing the correlation coefficient - Simple linear regression – Calculating the regression coefficient – calculating the regression equation - Evaluating of regression equation – Testing the regression coefficient.		
<b>AW D/S</b>	7052	<b>Course title</b>	<i>Arabic</i>	الاحتمالات والاستدلال الاحصائي
			<i>English</i>	<b>Probability and Statistical Inference</b>
<b>Content</b>				
Permutations and Combinations - Multinomial Coefficients and More Counting - Sample Spaces and Set Theory 4 Axioms of Probability - Probability and Equal Likelihood - Conditional Probabilities - Bayes' Formula and Independent Events - Discrete Random Variables - Expectations of Discrete Random Variables - The normal distribution - The Students t-distribution - The chi-square distribution - The sampling distribution of the mean - The z-test - The t-test - The chi-square test.				

## 11- Department of Pathology

<b>Code</b>	<b>Number</b>	<b>Course title</b>	<i>Arabic</i>	باطولوجيا الجهاز الهضمي و الجهاز التنفسي ةالأمراض المتعلقة بهما
<b>PAT</b>	7053		<i>English</i>	<b>Pathology of digestive and respiratory systems and its related diseases</b>
<b>Contents</b>				
different pathological alterations in different organs of digestive and respiratory systems , pathological changes related to different diseases affecting digestive and respiratory systems				
<b>PAT</b>	7054	<b>Course title</b>	<i>Arabic</i>	باطولوجيا الجهاز البولي و الجهاز التناسلي و الأمراض المتعلقة بهما
			<i>English</i>	<b>Pathology of urinary and reproductive systems and its related diseases</b>
<b>Contents</b>				
different pathological alterations in different organs of urinary system , different pathological alterations in different organs of reproductive (male and female genital) systems , pathological changes related to different diseases affecting urinary and reproductive (male and female genital) systems				





PAT	7055	<b>Course title</b>	<i>Arabic</i>	باطولوجيا الجهاز الدورى و الجهاز العصبى و الأمراض المتعلقة بهما
			<i>English</i>	<b>Pathology of cardiovascular and nervous systems and its related diseases</b>
<b>Contents</b>				
different pathological alterations in different organs of cardiovascular system , different pathological alterations in different organs of nervous systems, pathological changes related to different diseases affecting cardiovascular and nervous systems				
PAT	7056	<b>Course title</b>	<i>Arabic</i>	باطولوجيا الأورام لأجهزة الجسم المختلفة
			<i>English</i>	<b>Oncology in different body systems</b>
<b>Content</b>				
different types of neoplastic changes in different body system (digestive, respiratory, cardiovascular, urinary, nervous, male and female genital systems), pathological changes associated with these different neoplastic lesions-				

## 12- Department of Clinical Pathology

CPA	7057	<b>Course title</b>	<i>Arabic</i>	تشخيص اضطرابات سوائل الجسم
			<i>English</i>	<b>Diagnosis of body fluids disturbances</b>
<b>Contents</b>				
Diagnosis of osmolarity, electrolytes, minerals, acid base balance, and body fluid cytology disturbances.				
CPA	7058	<b>Course title</b>	<i>Arabic</i>	اختبارات وظائف الأعضاء
			<i>English</i>	<b>Organs functions tests</b>
<b>Contents</b>				
Liver, kidney, pancreas and muscle function tests				
CPA	7059	<b>Course title</b>	<i>Arabic</i>	الهرمونات التشخيصية
			<i>English</i>	<b>Diagnostic hormones</b>
<b>Contents</b>				
Thyroid hormones, Parathyroid hormone, Calcitonin, Metabolic hormones, Erythropoietin, Renin, Aldosterone, Antidiuretic hormone, Growth hormone, Reproduction hormones				
CPA	7060	<b>Course title</b>	<i>Arabic</i>	دلالات السرطان
			<i>English</i>	<b>Tumor markers</b>
<b>Content</b>				
Tumor markers, leukopoiesis and Leukemia, EIISA and PCR				



## 13- Department of Veterinary Hygiene and Management

### (A) Animal and Poultry Behavior and Care

Code	Number	Course title	Arabic	سلوكيات ورعاية الخيول
			English	Behavior and management of Equines
VHM /BE	7061	<b>Contents</b>		
Characters of Arabian Horse –Ingestion, Elimination, Body care, Aggression, Social, Sexual Behavior – Post Foaling Care of Foal – Management of Horse During Breeding Season , Pregnancy and Parturition –Behavior Disorder and Control in Horse				
VHM /BE	7062	Course title	Arabic	سلوكيات و رعاية الحيوانات المنزلية الأليفة
			English	Behavior and management of pet animals
<b>Contents</b>				
Pet animals Breeds –Ingestion, Elimination, Body Care , Aggression, Social, Sexual Behavior – Management of pet animals During Breeding Season, Pregnancy and Parturition –Behavioral Disorders and Control in pet animals				
VHM /BE	7063	Course title	Arabic	سلوكيات ورعاية الدواجن
			English	Behavior and Management of Poultry
<b>Contents</b>				
Different Systems of Keeping Fowl, Ducks, Geese, Turkey, Pigeon, Quail and Ostrich – Broiler Management – Layer Management – Methods of Sanitizing House - Study Ingestion , Aggression, Social , Sexual Behavior – Factors Affecting Hatchability % and Hatchability Problems - Behavioral Disorders and Control in Poultry.				
VHM /BE	7064	Course title	Arabic	سلوكيات ورعاية حيوانات التجارب
			English	Behavior and Management of Laboratory Animals
<b>Content</b>				
Study Housing System of Laboratory Animals – Different Methods for Laboratory Animals Marking - Different Methods for Laboratory Animals Inoculation – Blood Samples Collection from Laboratory Animals - Different Methods for Laboratory Animals Anesthesia - Behavior and Management of Rats - Behavior and Management of Mice - Behavior and Management of Guinea Pig - Behavior and Management of Hamster				

### (b) Animal and poultry health and the environment

Code	Number	Course title	Arabic	تصميم مزارع الإبقار والجاموس
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VHM	7065	<i>English</i>		<b>Housing of cows and buffalo farms</b>
		<b>Contents</b>		
Aim of animal housing - General construction of buildings- Housing and design of dairy cattle, beef cattle and buffalo- Cow house system Cow house system- Milking parlour system- Housing of calves				
VHM	7066	<b>Course title</b>	<i>Arabic</i>	وبانيات بيطرية
			<i>English</i>	<b>Veterinary epidemiology</b>
<b>Contents</b>				
ways of transmission of pathogens - sources of infection -Determinants of disease- Disease events- Diagnostic tests- Sampling population- Outbreak investigation –notification –isolation –slaughters –herd immunization –hygienic disposal of dead carcass				
VHM	7067	<b>Course title</b>	<i>Arabic</i>	تصميم مزارع الدواجن ومعامل التفريخ
			<i>English</i>	<b>Housing of Poultry and hatcheries</b>
<b>Contents</b>				
Different System used for poultry farms -Systems used during rearing and production- Environmental controlled poultry houses- Cooling Systems-ventilation - Egg handling Equipment- Hatcheries design - various factors affecting fertility and hatching rate.				
VHM	7068	<b>Course title</b>	<i>Arabic</i>	مقاومة القوارض
			<i>English</i>	<b>Rodent control and control of disease vectors</b>
<b>Content</b>				
Common rodent species- Rodent control- Chemical control of rodents- Non- chemical control of rodents- Common vectors of veterinary importance- Designing a vector control program -Vector Control Strategies- Insecticides				

## **14- Department of Forensic Medicine and Toxicology**

Code	Number	<b>Course title</b>	<i>Arabic</i>	الاجراءات والقوانين والتقارير البيطرية
			<i>English</i>	<b>Procedures, Laws and veterinary reports</b>
FMT	7069	<b>Contents</b>		
Procedures for importation of animals and their product -Veterinary laws - Veterinary reports				
FMT	7070	<b>Course title</b>	<i>Arabic</i>	السموم البيئية
			<i>English</i>	<b>Environmental Toxicology</b>
<b>Contents</b>				
Air pollutant (types -toxicity -control)-Aquatic pollutant (types -toxicity -control) -Soil pollutant (types -toxicity -control) - Toxic effects of Dioxin, polyaromatic hydrocarbon)				
FMT	7071	<b>Course title</b>	<i>Arabic</i>	السموم وتأثيرها على أجهزة الجسم
			<i>English</i>	<b>Toxins and their effect on body systems</b>
<b>Contents</b>				
Toxin affect digestive system - Toxin affect reproductive system- Toxin affect respiratory system-Toxin affect cardiovascular system- Toxin affect urinary system- Immunotoxicology- Dermato-toxicity -				



		Neurotoxin		
FMT	7072	<b>Course title</b>	<i>Arabic</i>	اسباب الوفاة من الوجهة الطبية الشرعية
			<i>English</i>	Causes of death from Medico-legal point of view
		<b>Content</b>		
		Cause of death -Wounds -Burns -Asphyxia		

## 15- Department of Aquatic Diseases and Management

AQDM	7073	<b>Course title</b>	<i>Arabic</i>	استزراع ورعاية الاسماك والقشريات
			<i>English</i>	Management and culture of fish and crustacean
		<b>Contents</b>		
		The suitability of different rearing facilities for fish and crustacean culturing-selection of the seeds and timing of culturing, fertilization of the ponds- selection of suitable feed- daily routing work		
AQDM	7074	<b>Course title</b>	<i>Arabic</i>	تفريخ الاسماك والقشريات
			<i>English</i>	Fish and crustacean reproduction
		<b>Contents</b>		
		Selection of fish and crustacean broodstock-management of the broodstocks-natural and artificial propagation of cultured fish and crustacean-nursing of the hatched fry		
AQDM	7075	<b>Course title</b>	<i>Arabic</i>	الامراض البكتيرية و الفطرية في اسماك المياه العذبة
			<i>English</i>	bacterial and mycotic diseases of freshwater fishes
		<b>Contents</b>		
		Bacterial diseases of freshwater fishes: Septicemic bacterial diseases-granulomatous bacterial diseases-emerging and re-emerging bacterial diseases - control measures for bacterial diseases. Mycotic diseases of freshwater fishes: external and internal mycotic diseases, and control measures of mycotic diseases		
AQDM	7076	<b>Course title</b>	<i>Arabic</i>	الامراض الطفيلية والفيروسية في اسماك المياه العذبة
			<i>English</i>	Parasitic and viral diseases of freshwater fishes
		<b>Content</b>		
		Freshwater fishes' external and internal parasitic diseases - viral diseases of freshwater fishes		



## 16- Department of Food Hygiene and Control

### (A) Hygiene control of meat, poultry, fish and their products and animal slaughter wastes

FHC	7077	Course title	Arabic	المجازر والأحكام المتعلقة بالأمراض المختلفة
			English	Abattoirs and Judgment of different diseases
<b>Contents</b>				
Abattoirs (design & types), Bacterial diseases, Tuberculosis (Pathogenesis, Judgment and Control), Other Bacterial diseases, Lymphatic system, Viral diseases (Rabies, Rinder pest & FMD), Parasitic diseases ( <i>C. bovis</i> , <i>C. cellulosae</i> , & Trichinellosis).				
FHC	7078	Course title	Arabic	حفظ وتكنولوجيا الأغذية
			English	Food Technology and Preservation
<b>Contents</b>				
Technology of meat, poultry, and fish products, Curing agents, Coloring matters, Flavoring matters, Antioxidants, Carcinogenic substances and preservatives, Bacteriocins and natural preservatives.				
FHC	7079	Course title	Arabic	Food microbiology and food poisoning
			English	ميكروبيولوجيا الأغذية والتسمم الغذائي
<b>Contents</b>				
Sources of food contamination, Behavior of microorganisms in foods, Food spoilage, Food infection, Food intoxication, Pathogen Outbreaks, Control of food poisoning bacteria.				
FHC	7080	Course title	Arabic	التحليل الكيميائي للحوم والدواجن والأسماك
			English	Chemical analysis of meat, poultry and fish
<b>Content</b>				
Chemical examination of food items to determine their shelf-life, Detection of heavy metals, biogenic amines, antibiotics, hormones, pesticides and mycotoxin residues in meat, poultry and fish. Recent chemical diagnostic techniques applied for food analysis.				



## **(b) Hygeine control of milk and its products, oils, fats and eggs.**

Code	Number	Course title	Arabic	Arabic
FHC	7081		English	الرقابة الصحية علي لألبان ومنتجاتها Milk hygiene & control and its residues
<b>Contents</b>				
Natural properties and chemical composition of milk from different dairy animal Species. Factors affecting milk yield and compositions. Nutritive value of milk. Sanitary and keeping quality tests for milk to ensure of its validity for consumer and manufacturing . Ways for milk adulteration. Mastitis and its effect on milk quality. Residues of antibiotics, amines, hormones, chemical & environmental toxic substances and insecticides. Methods for detection of these residues and ways for prevention their access to milk.				
FHC	7082		English	صحة البيض ومنتجاته Sanitary egg and its products
<b>Contents</b>				
Egg microbiology. Common egg faults. Methods of egg preservation and different types of egg products. Natural antimicrobial substances found in egg and how to apply them as natural food preservatives.				
FHC	7083		English	الميكروبات وعلاقتها بالألبان و منتجاته Microorganisms and their relationship with milk and its products
<b>Contents</b>				
Different types of pathogenic microbes transmitted from milk and dairy products to human as well as microbes that cause spoilage to milk & its products. Sources of microbial contamination. Different methods for isolation and serotyping of microbes. Ways to prevent microbial access to milk & dairy products. Classification of beneficial microorganisms and methods for their propagation. Role of beneficial organisms in dairy industry and ways for their application in dairy products. Factors affecting growth of beneficial organisms and methodsfor their preservation.				
FHC	7084		English	صحة وجودة الزيوت والدهون المقدمة للإستهلاك الأدمي Sanitary and quality of edible oils and fats suitable for human consumption
<b>Content</b>				
Physical properties of different edible oils and fats. Chemical composition of oils and fats. Types of oils and fats that used in dairy industry and in food frying. The ideal application of each type of oil and fat and method for detection of its purity.Different forms of spoilage and rancidity of oils and fats and how to prevent them.				



## 17- Department of Theriognacology

<b>Code</b>	<b>Number</b>	<b>Course</b>	<i>Arabic</i>	التناسل في الإناث
		<b>title</b>	<i>English</i>	<b>Female reproduction</b>
<b>THG</b>	7085	<b>Contents</b>		
Applied physiological and anatomical aspects of female reproductive tract in domestic animals-Reproductive hormones-Physiological mechanisms control female reproductive activities (estrus, pregnancy, parturition and puerperium) – Physiological changes during female reproductive cycle (estrus, pregnancy, parturition, postpartum) – Disorders during female reproductive cycle (estrus, pregnancy, parturition, postpartum)-dam care – Calf care and colostrum feeding postpartum.				
<b>THG</b>	7086	<b>Course</b>	<i>Arabic</i>	الذكوره والتلقيح الاصطناعي ونقل الأجنه
		<b>title</b>	<i>English</i>	<b>Andrology, Artificial insemination and Embryo transfer</b>
<b>Contents</b>				
<i>Andrology:</i> Applied aspects of male physiology and anatomy – Semen biology – Hormonal control of male reproduction- sexual behavior and its measurements-Sire selection				
<i>Artificial insemination:</i> methods of semen collection and evaluation - principles of semen dilution and different types of diluents and methods of their preparation -principles of semen preservation by cooling and freezing – thawing of semen and female insemination- data recording.				
<i>Embryo transfer:</i> importance of embryo transfer – selection of dams – induction of super ovulation – collection of embryos and evaluation – preparation of recipient dams – preservation of embryo by different methods – embryo transfer)				
<i>Recent reproductive techniques:</i> In vitro maturation, In vitro fertilization - Cloning				
<b>THG</b>	7087	<b>Course</b>	<i>Arabic</i>	نقص الخصوبه ومسببات الاجهاض
		<b>title</b>	<i>English</i>	<b>Infertility and diseases causing abortion</b>
<b>Content</b>				
Causes of male and female infertility – non-infectious causes of abortion – infectious causes (bacterial-viral-parasitic-mycotic) of abortion and its control measures.				
<b>THG</b>	7088	<b>Course</b>	<i>Arabic</i>	التناسل والبرامج الحقلية لتحسين وإداره الحاله التناسلية في مزارع الالبان
		<b>title</b>	<i>English</i>	<b>Filed programs for improvement and management of the reproductive status in dairy farms</b>
<b>Content</b>				
<i>Field programs for improving of reproductive status:</i> Estrus synchronization programs in cows, buffaloes and sheep –Management of artificial insemination programs - Control and/or treatment of repeat breeder and Anestrus in domestic animals - Clinical nutrition for improving the reproductive status in male and female				



		<i>Reproductive management</i> : Importance of recording in reproductive management in dairy farms – types of records (production records – insemination records – parturition recording – health records) using computer programs in recording, restoring and analysis of data.
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## 18- Department of Poultry and Rabbit Diseases

Code	Number	Course title	Arabic	أمراض الدواجن والأرانب الفيروسيه والطفيليه.
			English	Viral and parasitic diseases affecting avian and rabbits
POD	7089		<b>Contents</b>	
			Studying the epidemiology, clinical signs, post mortem picture, laboratory diagnosis and methods of prevention and control of different viral and parasitic diseases affecting avian and rabbit farms.	
Code	Number	Course title	Arabic	الامراض المؤثرة في الجهاز المناعي للطيور والارانب
			English	Diseases affecting immune system of avian and rabbit
POD	7090		<b>Contents</b>	
			Studying the immune system of avian and rabbits, mechanism of immune response to different pathogenic agents in avian and rabbits, types and routes of vaccination to different bacterial, viral and protozoal diseases affecting avian and rabbits and different types of medications used to prevent diseases affecting avian and rabbits.	
Code	Number	Course title	Arabic	أمراض الدواجن والأرانب البكتيرية و الفطرية
			English	Bacterial and mycotic diseases affecting avian and rabbits
POD	7091		<b>Contents</b>	
			Studying the epidemiology, clinical signs, post mortem picture, laboratory diagnosis and methods of prevention and control of different bacterial and mycotic diseases affecting avian and rabbit farms.	
Code	Number	Course title	Arabic	التشخيص المعملی لأمراض الدواجن و الأرانب
			English	Laboratory diagnosis of avian and rabbits diseases
POD	7092		<b>Content</b>	
			Studying different laboratory methods used for diagnosis of different viral, bacterial, fungal, nutritional and parasitic diseases affecting avian and rabbit farms	

## 19- Department of Zoonoses

Code	Number	Course title	Arabic	الامراض المشتركة البكتيرية والفطرية
ZON	7093		English	zoonotic bacterial and mycotic diseases





		<b>Contents</b>		
		Zoonotic bacterial and mycotic diseases (etiological agents, reservoir, source of infection, mode of transmission, Clinical manifestation, laboratory diagnosis, prevention and control measures)		
ZON	7094	<b>Course title</b>	<i>Arabic</i>	الامراض المشتركة و التسمم الغذائي
			<i>English</i>	<b>Zoonotic diseases and food poisoning</b>
		<b>Contents</b>		
ZON	7095	<b>Course title</b>	<i>Arabic</i>	الامراض المشتركة الطفيلية
			<i>English</i>	<b>Parasitic zoonotic diseases</b>
		<b>Contents</b>		
ZON	7096	<b>Course title</b>	<i>Arabic</i>	دور الطيور الاسماك والحيوانات المنزلية في نقل الامراض المشتركة
			<i>English</i>	<b>Role of domestic birds, fish and household animals in the transmission of zoonotic diseases</b>
		<b>Content</b>		

## 20- Department of Surgery, Anesthesiology and Radiology

SAR	7097	<b>Course title</b>	<i>Arabic</i>	جراحة الانسجة الرخوة
			<i>English</i>	<b>Soft tissue surgery</b>
		<b>Contents</b>		
SAR	7098	<b>Course title</b>	<i>Arabic</i>	جراحة الانسجة الصلبة
			<i>English</i>	<b>Hard tissue surgery</b>
		<b>Contents</b>		
SAR	7099	<b>Course title</b>	<i>Arabic</i>	تخدير الحيوانات الصغيرة والكبيرة
			<i>English</i>	<b>Small and large animal anesthesia</b>
		<b>Contents</b>		
SAR	7100	<b>Course title</b>	<i>Arabic</i>	التشخيص بالتصوير
			<i>English</i>	<b>Diagnostic imaging</b>



	<b>Content</b>
	Diagnostic imaging of digestive system- Diagnostic imaging of urinary tract- Diagnostic imaging of genital system - Diagnostic imaging of locomotor system

## 21- Department of Animal Medicine

### (A) Internal Medicine

Code	Number	Course title	Arabic	الامراض الباطنه للمجترات الكبيرة
			English	Large ruminant medicine
ANM/MD	7101	<b>Contents</b>	Diseases of digestive system, respiratory system, cardiovascular system, urinary system, skin , nutritional deficiency and metabolic diseases in large ruminants	
		Arabic	الامراض الباطنه للمجترات الصغيرة	
ANM/MD	7102	English	Small ruminant medicine	
		<b>Contents</b>	Diseases of digestive system, respiratory system, cardiovascular system, urinary system, skin, nutritional deficiency and metabolic diseases in small ruminants	
ANM/MD	7103	Arabic	الامراض الباطنه للحيوانات المنزليه	
		English	pet animal medicine	
ANM/MD	7104	<b>Contents</b>	Diseases of digestive system, respiratory system, cardiovascular system, urinary system, skin and endocrine system in pet animals	
		Arabic	الامراض الباطنه للخيل	
ANM/MD	7104	English	Equine medicine	
		<b>Content</b>	Diseases of digestive system, respiratory system, cardiovascular system, urinary system, skin, nutritional deficiency and metabolic diseases in equine	

### (b) Infectious diseases

Code	Number	Course title	Arabic	الامراض المعدية الفيروسية
			English	Infectious viral Diseases
ANM/IN	7105	<b>Contents</b>	Infectious viral diseases, studying viral etiological agents, epidemiological study, Clinical manifestation, laboratory diagnosis,	



		prevention and control measures.		
ANMI/N	7106	<b>Course title</b>	<i>Arabic</i>	الأمراض المعدية الفطرية
			<i>English</i>	<b>Infectious Mycotic Diseases</b>
		<b>Contents</b>		
Infectious mycotic diseases, studying mycotic etiological agents, epidemiological study, Clinical manifestation, laboratory diagnosis, prevention and control measures.				
ANMI/N	7107	<b>Course title</b>	<i>Arabic</i>	: الأمراض المعدية الطفيلية
			<i>English</i>	<b>Infectious Parasitic Diseases</b>
		<b>Contents</b>		
Infectious parasitic diseases, studying parasitic etiological agents, Clinical manifestation, laboratory diagnosis, prevention and control measures				
ANMI/N	7108	<b>Course title</b>	<i>Arabic</i>	الأمراض المعدية البكتيرية
			<i>English</i>	<b>Infectious Bacterial Diseases</b>
		<b>Content</b>		
Infectious bacterial diseases, studying bacterial etiological agents, epidemiology, Clinical manifestation, laboratory diagnosis, prevention and control measures.				



## Third: PhD degree

### Scientific content of courses

#### 1- Department of Anatomy and Embryology

المقررات الإلزامية Compulsory courses				
ANE	8001	Course title	Arabic	التكوين الطبيعي للأعضاء وعلم التشوهات الخلقية
			English	Normal organogenesis and congenital malformations
		Contents		
				Studying development of different body organs and systems of birds and mammals which have veterinary medical importance, studying some congenital malformations during developmental stages of embryos
ANE	8002	Course title	Arabic	البيولوجيا الجزيئية والخلايا الجذعية
			English	Molecular biology and stem cells
		Contents		
				Studying developmental stages of different organs and effect of specialized genes on their development, studying organogenesis and gene expression of related genes, gene expression during evolution of organs of mammals, birds and fishes, presence of stem cells in different organs, comparison between embryonic and adult stem cells, modification of embryonic stem cells for its usage in adult phases as well as usage of stem cells for organogenesis
ANE	8003	Course title	Arabic	سمينارات في مجال التخصص
			English	Specialized seminars in the field of specialization
		Contents		
				Various seminars discussing topics and modern methods in the field of specialization, in addition to discussing distinguished research that adds new knowledge and technology that serves the research plan.
ANE	8004	Course title	Arabic	سمينارات في مجال التخصص
			English	Specialized seminars in the field of specialization
		Contents		
				Various seminars discussing topics and modern methods in the field of specialization, in addition to discussing distinguished research that adds new knowledge and technology that serves the research plan.



المقررات الاختيارية Elective courses				
Code	Number	Course title	Arabic	تشريح الجهاز التنفسي، الدوري، القلب والجهاز الليمفاوي المقارن
			English	Comparative anatomy of respiratory, cardiovascular and lymphatic systems
ANE	8005			
<b>Contents</b>				
Studying the anatomy of nasal cavity, nose, paranasal sinuses, larynx and trachea in different species as well as thoracic cavity, pleura and lungs in different species. Anatomy of the heart, coronary arteries, veins, arteries, lymph nodes and lymphatic vessels.				
ANE	8006	Course title	Arabic	تشريح القوائم
			English	Avian anatomy
<b>Contents</b>				
Studying bones of fore and hindlimbs, muscles, tendons and joints				
ANE	8007	Course title	Arabic	تشريح الجمال
			English	Anatomy of the Dromedary Camel
<b>Contents</b>				
Studying the characteristic anatomical features of camel in addition to studying the anatomy of skeletal, digestive, respiratory, urogenital, nervous and cardiovascular systems				
ANE	8008	Course title	Arabic	تشريح النعام
			English	Anatomy of Ostrich
<b>Content</b>				
Studying the characteristic anatomical features of ostrich in addition to studying the anatomy of skeletal, digestive, respiratory, urogenital, nervous and cardiovascular systems				
ANE	8009	Course title	Arabic	تشريح القشريات والرخويات
			English	Anatomy of crustaceans and molluscus
<b>Content</b>				
Studying the external anatomy of crustaceans and molluscus as well as different body systems .				
ANE	8010	Course title	Arabic	تشريح الحيوانات البرية
			English	Anatomy of wild animals
<b>Content</b>				
Studying the anatomy of skin and its appendages of wild animals in addition to studying the anatomy of skeletal, digestive, respiratory, urogenital and cardiovascular systems				

## 2- Department of Biochemistry

المقررات الإلزامية Compulsory courses				
Code	Number	Course title	Arabic	كيمياء حيوية متقدمة
			English	Advanced biochemistry
BIO	8011			



		<b>Contents</b>		
		Chemistry and metabolism of carbohydrates, lipids, proteins, enzymes, vitamins, minerals, toxins, hormones, immunity, DNA and body fluids		
<b>BIO</b>	8012	<b>Course title</b>	<i>Arabic</i>	كيمياء حيوية تطبيقية اكلينيكية متقدمة
			<i>English</i>	<b>Advanced clinical biochemistry</b>
		<b>Contents</b>		
			Metabolism associated with genetic disorder in carbohydrates, lipids, proteins, vitamins, minerals, toxins, hormones, immunity, DNA and body fluids and the resulted genetic diseases.	
<b>BIO</b>	8013	<b>Course title</b>	<i>Arabic</i>	سمنارات في مجال التخصص
			<i>English</i>	<b>Specialized seminars in the field of specialization</b>
		<b>Contents</b>		
			Various seminars discussing topics and modern methods in the field of specialization, in addition to discussing distinguished research that adds new knowledge and technology that serves the research plan.	
<b>BIO</b>	8014	<b>Course title</b>	<i>Arabic</i>	سمنارات في مجال التخصص
			<i>English</i>	<b>Specialized seminars in the field of specialization</b>
		<b>Contents</b>		
			Various seminars discussing topics and modern methods in the field of specialization, in addition to discussing distinguished research that adds new knowledge and technology that serves the research plan.	
<b>Elective courses المقررات الاختيارية</b>				
<b>Code</b>	<b>Number</b>	<b>Course title</b>	<i>Arabic</i>	الكيمياء الحيوية للخلايا الجزعية
<b>BIO</b>	8015		<i>English</i>	<b>Stem Cells</b>
			<b>Contents</b>	
			Stem Cell Definition - Stem Cell Gene Stem Cells - Stem Cell Therapy and Risk - Stem Cell Diagnostic Signatures - Micro-Collecting of the Human Genome Map	
<b>BIO</b>	8019	<b>Course title</b>	<i>Arabic</i>	الكيمياء الحيوية لبيولوجيا الاورام
			<i>English</i>	<b>Biology of cancers</b>
		<b>Contents</b>		
			Definition of cancer - the division and causes of cancer - free electrolytes and their relationship to cancer - the indications of tumors - the biochemical bases of anti-cancer treatments	
<b>BIO</b>	8017	<b>Course title</b>	<i>Arabic</i>	الكيمياء الحيوية للانزيمات
			<i>English</i>	<b>Clinical enzymology and its relation to inflammatory markers</b>
		<b>Contents</b>		
			General analyzes of liver function - General analyzes of kidney functions - Clinical diagnosis of yeast and inflammatory markers	
<b>BIO</b>	8017	<b>Course title</b>	<i>Arabic</i>	الاشارات الكيميائية الحيوية
			<i>English</i>	<b>Cytokines and signals transduction</b>
		<b>Contents</b>		
			General characteristics of hormones - Types of hormones – mode of action of hormones - the second messenger - Sensitive signal system	



BIO	8019	Course title	Arabic	الكيمياء الحيوية للبروتينات، و المناعة و الإشعاعات
			English	Protein Chemistry, Immunochemistry and Radiation
<b>Content</b>				
Amino acids - Chemistry of amino acids - Protein chemistry and nucleoproteins - Immonochemistry - Amino acid metabolism and metabolic disorders - Protein biosynthesis				
BIO	8020	Course title	Arabic	الكيمياء الحيوية لخلل الغدد الصماء و ازالة السموم
			English	Metabolic disorders of endocrine glands and detoxification of toxins
<b>Content</b>				
Definition of the disease - causes of the disease - medical subdivisions of the disease - partial bases of the disease - insulin receptors - errors of the metabolism of the disease - the expectation of safety of the disease after treatment -Toxicology - biochemical activation - detoxification - oxidative stress – detoxification				

### **3- Department of Histology**

المقررات الالزامية Compulsory courses				
Code	Number	Course title	Arabic	هستولوجيا التناسل و الغدد الصماء
			English	Histology of Reproduction and Endocrine
<b>Contents</b>				
Histological, immunohistochemical, and ultrastructure of the different organs of Male and Female Genital systems and Endocrine organs				
HIS	8021	Course title	Arabic	هستولوجيا الهضم و التنفس و الإخراج
			English	Histology of Digestion, Respiration and Excretion
<b>Contents</b>				
Histological, immunohistochemical, and ultrastructure of the different organs of (Digestive, Respiratory, Urinary) systems				
HIS	8022	Course title	Arabic	سمينارات في مجال التخصص
			English	Specialized seminars in the field of specialization
<b>Contents</b>				
Various seminars discussing topics and modern methods in the field of specialization, in addition to discussing distinguished research that adds new knowledge and technology that serves the research plan.				
HIS	8023	Course title	Arabic	علم الخلايا الجذعية و زراعة الأنسجة
			English	Stem cells and Tissue Culture
<b>Contents</b>				
Various seminars discussing topics and modern methods in the field of specialization, in addition to discussing distinguished research that adds new knowledge and technology that serves the research plan.				
المقررات الاختيارية Elective courses				
Code	Number	Course title	Arabic	علم الخلايا الجذعية و زراعة الأنسجة
HIS	8025		English	Stem cells and Tissue Culture



		<b>Contents</b>		
		Stem cells and their types and applications. Also, Basics of tissue culture and their different types and applications		
<b>HIS</b>	8026	<b>Course title</b>	<i>Arabic</i>	هستولوجيا الأعصاب و الحواس
			<i>English</i>	<b>Histology of nervous system and sense organs</b>
		<b>Contents</b>		
			Histological, immunohistochemical, and ultrastructure of nervous tissue and their cells, nervous system as well as sense organs (eye – ear) and skin	
<b>HIS</b>	8027	<b>Course title</b>	<i>Arabic</i>	هستولوجيا القلب و الدم و الجهاز الدوري
			<i>English</i>	<b>Histology of Cardiovascular system and Blood</b>
		<b>Contents</b>		
			Histological, immunohistochemical, and ultrastructure of different blood cells, heart, blood vessels	
<b>HIS</b>	8028	<b>Course title</b>	<i>Arabic</i>	هستولوجيا المناعة
			<i>English</i>	<b>Histology of Immune system</b>
		<b>Contents</b>		
			Histological, immunohistochemical, and ultrastructure of different immune cells as well as the different immune organs (Tonsils, Payer's patches, Thymus, Lymph node, Spleen).	
<b>HIS</b>	8029	<b>Course title</b>	<i>Arabic</i>	هستولوجيا الدواجن
			<i>English</i>	<b>Avian Histology</b>
		<b>Contents</b>		
			Histological, immunohistochemical, and ultrastructure of different organs of the birds and rabbits (Digestive, Respiratory, Cardiovascular, Nervous, Urogenital, Immune, Integument, Sense organs).	
<b>HIS</b>	8030	<b>Course title</b>	<i>Arabic</i>	هستولوجيا الاحياء المائية
			<i>English</i>	<b>Aquatic Histology</b>
		<b>Contents</b>		
			Histological, immunohistochemical, and ultrastructure of different organs of the aquatics (Digestive, Respiratory, Cardiovascular, Nervous, Urogenital, Immune, Integument, Sense organs)	

#### **4- Department of Physiology**

<b>المقررات الالزامية Compulsory courses</b>				
<b>Code</b>	<b>Number</b>	<b>Course title</b>	<i>Arabic</i>	فسيولوجيا الجهاز الدوري
			<i>English</i>	<b>Physiology of cardio-vascular system</b>
		<b>Contents</b>		
			Cardio vascular system – ECG – Blood pressure – Pulse – Cardiac cycle – Properties of cardiac muscle	
<b>PYS</b>	8031	<b>Course title</b>	<i>Arabic</i>	فسيولوجيا التناسل
			<i>English</i>	<b>Physiology of Reproduction</b>
		<b>Contents</b>		
			Female reproductive system – Ovarian hormones – Estrous cycle – Pregnancy	
<b>PYS</b>	8032	<b>Course title</b>	<i>Arabic</i>	فسيولوجيا التناسل
			<i>English</i>	<b>Physiology of Reproduction</b>
<b>Contents</b>				
			Female reproductive system – Ovarian hormones – Estrous cycle – Pregnancy	





		and Placental hormones – Parturition and milk production – Male genital system – Accessory sex organs – Male hormones and capacitation		
PYS	8033	<b>Course title</b>	<i>Arabic</i>	سمنارات فى مجال التخصص
			<i>English</i>	Specialized seminars in the field of specialization
<b>Contents</b>				
Various seminars discussing topics and modern methods in the field of specialization, in addition to discussing distinguished research that adds new knowledge and technology that serves the research plan.				
PYS	8034	<b>Course title</b>	<i>Arabic</i>	سمنارات فى مجال التخصص
			<i>English</i>	Specialized seminars in the field of specialization
<b>Contents</b>				
Various seminars discussing topics and modern methods in the field of specialization, in addition to discussing distinguished research that adds new knowledge and technology that serves the research plan.				
<b>المقررات الاختيارية Elective courses</b>				
<b>Code</b>	<b>Number</b>	<b>Course title</b>	<i>Arabic</i>	فسيولوجيا الجهاز التنفسي و البولوى
PYS	8035		<i>English</i>	
			<b>Contents</b>	
Mechanism of respiration, inspiration and expiration , hypoxia, o <sub>2</sub> dissociation curve, co <sub>2</sub> dissociation curve , GRF, calculation of GFR, kidney function test, Acid –base balance				
PYS	8036	<b>Course title</b>	<i>Arabic</i>	فسيولوجيا الجهاز الهضمى
			<i>English</i>	
<b>Contents</b>				
Neural and hormonal control of digestive system, ENS, salivary gland , saliva content and function , swallowing, The pancreas and Bile secretion , The small intestine, The large intestine, Vomiting ,stomach, Ruminant digestion				
PYS	8037	<b>Course title</b>	<i>Arabic</i>	فسيولوجيا الطاقة و التمثيل الغذائى
			<i>English</i>	Physiology of body energy and metabolism
<b>Contents</b>				
General metabolism, Basal metabolic rate, SDA, Direct calorimeter, Indirect calorimetric, Body temperature , thermoregulation				
PYS	8038	<b>Course title</b>	<i>Arabic</i>	فسيولوجيا الدواجن
			<i>English</i>	
<b>Content</b>				
Avian Factors affecting egg production, Avian Hematology& lymphatic tissue.-Avian Digestive& excretory systems, Avian Respiratory system, Avian Endocrine glands-Avian Female reproductive tract , male reproductive tract, molting, oviposition				
PYS	8039	<b>Course title</b>	<i>Arabic</i>	فسيولوجيا الاسماك
			<i>English</i>	
<b>Content</b>				
Taxonomy of fish, General morphology of fish, Digestive system of fish, Blood and circulation, Respiratory& excretory system, Reproduction				
PYS	8040	<b>Course title</b>	<i>Arabic</i>	فسيولوجيا انتاج اللبن
			<i>English</i>	
<b>Content</b>				



	Lactation cycle, Factors affecting milk production, Hormonal affecting milk production
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## 5- Department of Pharmacology

المقررات الإلزامية Compulsory courses				
Code	Number	Course title	Arabic	العلاجات الدوائية لحيوانات المزرعة والحيوانات الأليفة والأسماك
			English	Drug therapy for farm animals, pets and fish
PHR	8041	Contents		
		Studying the drugs used for treatment and prevention of different types of diseases, in farm animals, pets and fishes		
PHR	8042	Course title	Arabic	الاتجاهات الحديثة للعلاج بالأدوية
			English	Recent trends in drug therapy
PHR	8042	Contents		
		Studying the modern molecular biology methods and development was paralleled by significant environmental changes in the pharmaceutical industry. Continued advances in computer technology, microfluidics, nanotechnology, high-throughput screening, control and targeted drug delivery and pharmacogenomics. These should lead to the more efficacious and safer use of existing medicaments, and the development of novel drugs across most therapeutic classes through increases in our knowledge base, as well as more efficient drug development.		
PHR	8043	Course title	Arabic	سمینارات فی مجال التخصص
			English	Specialized seminars in the field of specialization
PHR	8043	Contents		
		Various seminars discussing topics and modern methods in the field of specialization, in addition to discussing distinguished research that adds new knowledge and technology that serves the research plan.		
PHR	8044	Course title	Arabic	سمینارات فی مجال التخصص
			English	Specialized seminars in the field of specialization
PHR	8044	Contents		
		Various seminars discussing topics and modern methods in the field of specialization, in addition to discussing distinguished research that adds new knowledge and technology that serves the research plan.		
المقررات الاختيارية Elective courses				
Code	Number	Course title	Arabic	الفارماكولوجيا الجزيئية
			English	Molecular Pharmacology
PYS	8045	Contents		
		Deals with the scientific study of the biochemical and biophysical characteristics of drugs at the molecular level and their interaction with, and effects on, biological macromolecules and cellular structures and processes.		
PYS	8046	Course title	Arabic	الفارماكولوجيا المناعية
			English	Immuno-pharmacology
PYS	8046	Contents		
		Deals with drugs acting on the immune system and, in addition, with the pharmacological actions of substances derived from the immune system		



PYS	8047	<b>Course title</b>	<i>Arabic</i>	فارماكولوجيا التمثيل الغذائي والهرمونات
			<i>English</i>	<b>Pharmacology of metabolism and hormones</b>
<b>Contents</b>				
Studying the drugs used for treatment and prevention of metabolic diseases affected animals. Also, studying classifications and therapeutic uses of hormones in veterinary medicine				
PYS	8048	<b>Course title</b>	<i>Arabic</i>	تقييم الأدوية في حيوانات التجارب
			<i>English</i>	<b>Drugs assessment in experimental animals</b>
<b>Contents</b>				
Studying using of animals to develop medical treatments, determine the toxicity of medications, check the safety of products destined for human use, and other biomedical, commercial, and health care uses. Animals will be artificially induced with disease's and conducts experiments. These diseases are artificially produced in laboratories in an attempt to mimic the human disease. This allows researchers to develop a new drug by testing on animals.				
PYS	8049	<b>Course title</b>	<i>Arabic</i>	عقاقير واعشاب
			<i>English</i>	<b>Pharmacognosy</b>
<b>Contents</b>				
Study of plants or other natural sources as a possible source of drugs. Study of the physical, chemical, biochemical and biological properties of drugs, drug substances or potential drugs or drug substances of natural origin as well as the search for new drugs from natural sources.				
PYS	8050	<b>Course title</b>	<i>Arabic</i>	العلاجات الحديثة للتسمم الدوائي
			<i>English</i>	<b>Modern treatments for drug poisoning</b>
<b>Contents</b>				
Studying the poisoning and drug overdoses. Educational and awareness programs, establishment of poison information and surveillance centers and regulations on pesticides/drug availability will form one of the important strategies for the prevention of these emergencies.				

## 6- Department of Bacteriology, Immunology and Mycology

المقررات الإلزامية Compulsory courses				
Code	Number	<b>Course title</b>	<i>Arabic</i>	الوراثة البكتيرية
			<i>English</i>	<b>Bacterial Genetics</b>
BIM	8051	<b>Contents</b>		
		Nucleic acids, structure, replication, genetic code, protein synthesis, gene expression, Bacterial plasmids, variation of bacteria, mutation, gene transfer, gene cloning.		
BIM	8052	<b>Course title</b>	<i>Arabic</i>	مناعة جزيئية وتشخيصية
			<i>English</i>	<b>Molecular and Diagnostic immunology</b>
<b>Contents</b>				
Antibodies and antigens and their detection, epitopes, Antibody specificity, Antigen antibody assays, ELISA, CFT, AGGL, FAT, Immunity to micobes,				



		Antibody responses to extracellular microbes, Immunity to intracellular bacteria, Immune responses against viruses, transplantation immunology, Vaccine, Congenital and acquired immunodeficiencies, Immunity to tumors and hypersensitivity disorders.		
BIM	8053	<b>Course title</b>	<i>Arabic</i>	سمینارات فی مجال التخصص
			<i>English</i>	Specialized seminars in the field of specialization
		<b>Contents</b>		
		Various seminars discussing topics and modern methods in the field of specialization, in addition to discussing distinguished research that adds new knowledge and technology that serves the research plan.		
BIM	8054	<b>Course title</b>	<i>Arabic</i>	سمینارات فی مجال التخصص
			<i>English</i>	Specialized seminars in the field of specialization
		<b>Contents</b>		
		Various seminars discussing topics and modern methods in the field of specialization, in addition to discussing distinguished research that adds new knowledge and technology that serves the research plan.		
<b>المقررات الاختيارية Elective courses</b>				
<b>Code</b>	<b>Number</b>	<b>Course title</b>	<i>Arabic</i>	بكتريا و فطريات التي تصيب حيوانات المزرعة
BIM	8055		<i>English</i>	Bacteria and fungi infect domestic animals
		<b>Contents</b>		
		Gram-negative bacteria (Family Enterobacteriaceae-Genus Leptospira-Genus Pseudomonas-Genus Campylobacter-Cyanobacteria -Genus Brucella-Genus Pasteurella-Genus Haemophilus-Genus chlamydia-Genus Fusobacterium-Genus Actinobacillus-Coxiella burnetii); Gram-Positive bacteria (Genus Clostridium-Genus Listeria-Bacillus anthracis-Actinomyces bovis-Genus Mycobacterium-Genus Corynebacterium-Genus Staphylococcus-Genus Streptococcus); Dermatophilus congolensis; Mycoplasma ; and Fungi (Genus Candida-Genus Cryptococcus-Genus Dermatophytes-Histoplasma capsulatum-Coccidioides immitis-Genus Aspergillus-Blastomyces dermatitis-Sporothrix schenckii		
BIM	8056	<b>Course title</b>	<i>Arabic</i>	البكتريا و الفطريات التي تصيب الاسماك
			<i>English</i>	Bacteria and fungi infect Fish
		<b>Contents</b>		
		Bacteria (Pseudomonas spp.-Aeromonas spp.; Mycobacterium spp. - Flavobacterium spp.-Myxobacteria-Yersinia ruckeri-Renibacterium salmoninarum-Photobacterium- Edwardsiella spp., Vibrio anguillarum); and Fungi (Saprolegnia-Branchiomyces spp., and Ichthyophonus hoferi).		
BIM	8057	<b>Course title</b>	<i>Arabic</i>	البكتريا المسببة للتسمم الغذائي
			<i>English</i>	Bacteria causes food poisoning
		<b>Contents</b>		
		Bacillus cereus-Campylobacter jejuni-Clostridium botulinum Clostridium perfringens-Escherichia coli -Listeria monocytogenes Pseudomonas -Salmonella-Shigella -Staphylococcus aureus Vibrio cholerae -Vibro parahaemolyticus and Yersinia enterocolitica.		
BIM	8058	<b>Course title</b>	<i>Arabic</i>	البكتريا و الفطريات التي تصيب الطيور و الارانب
			<i>English</i>	Bacteria and fungi infect rabbit and poultry



		<b>Content</b>		
		<b>Bacteria</b> ( <i>Pasteurella multocida</i> - <i>Salmonella</i> - <i>E. coli</i> - <i>Klebsiella Haemophilus paragallinerum</i> - <i>Chlamydia psittaci</i> - <i>Streptococcus gallinarum</i> - <i>Mycobacterium avium</i> - <i>M. bovis</i> - <i>Campylobacter jejuni</i> & <i>C. coli</i> ); and <b>Fungi</b> ( <i>Candida albicans</i> , Genus <i>Aspergillus</i> and Genus <i>Dermatophytes</i> ).		
BIM	8059	<b>Course title</b>	<i>Arabic</i>	البكتريا و الفطريات التي تصيب الحيوانات و الطيور البرية
			<i>English</i>	<b>Bacteria and fungi infect wild animal and birds</b>
		<b>Content</b>		
		<i>Pasteurella multocida</i> - <i>Mycobacterium</i> - <i>Salmonella</i> - <i>Chlamydia psittaci</i> - <i>Mycoplasma gallisepticum</i> - <i>Erysipelothrix rhusiopathiae</i> <i>Pasteurella anatipestifer</i> - <i>Clostridium perfringens</i> - <i>Clostridium colinum</i> - <i>Clostridium botulinum</i> - <i>Staphylococcus aureus</i> - <i>Francisella tularensis</i> - <i>E. coli</i> - <i>Listeria monocytogenes</i> - <i>Pasteurella aviseptica</i> - <i>Borrelia burgdorferi</i> - <i>Borrelia spirochete bacteria</i> , <i>Francisella tularensis</i> ( <i>Tularemia</i> ), <i>Leptospirosis</i> -genus <i>Treponema</i> , <i>Mycoplasma ovipneumoniae</i> and <i>Manheimia</i> and <i>Pasteurella spp.</i> , <i>Bacillus anthracis</i> - <i>Coxiella burnetii</i> - <i>Histoplasma</i> - <i>Cryptococcus gattii</i> ; Genus <i>Brucella</i> ; Genus <i>Mycobacterium</i> ; and <i>Dermatophilus congolensis</i>		
VIR	8060	<b>Course title</b>	<i>Arabic</i>	البكتريا و الفطريات التي تصيب الحيوانات الاليفة
			<i>English</i>	<b>Bacteria and fungi infect pet animals</b>
		<b>Content</b>		
		<b>Gram-negative bacteria</b> (Family <i>Enterobacteriaceae</i> :Genus <i>Leptospira</i> - <i>Campylobacter</i> - <i>Brucella</i> - <i>Haemophilus</i> - <i>chlamydia</i> - <i>Fusobacterium</i> - <i>Actinobacillus</i> - <i>Coxiella</i> ; <b>Gram-Positive bacteria</b> ( <i>Genus Clostridium</i> - <i>Listeria</i> - <i>anthracis</i> , <i>Actinomyces bovis</i> - <i>Mycobacterium</i> - <i>Corynebacterium</i> - <i>Staphylococcus</i> - <i>Streptococcus</i> - <i>Dermatophilus congolensis</i> and <i>Mycoplasma</i> ; and <b>Fungi</b> ( <i>Genus Candida</i> - <i>Cryptococcus</i> - <i>Dermatophytes</i> - <i>Histoplasma capsulatum</i> - <i>Coccidioides immitis</i> - <i>Genus Aspergillus</i> - <i>Blastomyces dermatitis</i> - <i>Sporothrix schenckii</i> .		

## 7- Department of Virology

المقررات الالزامية Compulsory courses				
Code	Number	Course title	<i>Arabic</i>	البيولوجيا الجزيئية للفيروسات
			<i>English</i>	<b>Molecular virology</b>
		<b>Contents</b>		
		Origins and evolution of viruses, viral genomic, viral proteomic, virus reverse genetic		
VIR	8062	<b>Course title</b>	<i>Arabic</i>	اللقاحات والمناعة الفيروسية
			<i>English</i>	<b>Viral immunity and vaccines</b>
		<b>Contents</b>		
		Viral antigen, presentation of viral antigen, viral immune response, antiviral drugs, live vaccines, inactivated vaccine, molecular based vaccines, adjuvants		
VIR	8063	<b>Course title</b>	<i>Arabic</i>	سمنارات في مجال التخصص
			<i>English</i>	<b>Specialized seminars in the field of specialization</b>
		<b>Contents</b>		
		Various seminars discussing topics and modern methods in the field of		



		specialization, in addition to discussing distinguished research that adds new knowledge and technology that serves the research plan.		
VIR	8064	Course title	Arabic	سمنارات في مجال التخصص
			English	Specialized seminars in the field of specialization
		Contents		

### المقررات الاختيارية Elective courses

Code	Number	Course title	Arabic	English
VIR	8065	Course title	Arabic	فيروسات الطيور والارانب
			English	Viruses of poultry and rabbits
		Contents		
VIR	8066	Course title	Arabic	فيروسات المجترات والجمال
			English	Viruses of ruminants and camels
		Contents		
VIR	8067	Course title	Arabic	فيروسات الاحياء المائية
			English	Viruses of aquarium
		Contents		
VIR	8068	Course title	Arabic	فيروسات الفصيلة الخيلية
			English	viruses of Solipeds
		Content		
VIR	8069	Course title	Arabic	فيروسات الحيوانات المنزلية الليفة
			English	viruses of pet animals
		Content		
VIR	8070	Course title	Arabic	فيروسات الاغذية ومنتجاتها و المخلفات الحيوانية
			English	Viruses of food products and animal wastes
		Content		

## 8- Department of Parasitology

### المقررات الالزامية Compulsory courses

Code	Number	Course title	Arabic	English
PAR	8071	Course title	Arabic	طفيليات خاص (1)
			English	Special parasitology (1)
		Contents		



		Dracunculidae, Trichuridae, Aquaridae, Ancylostomatidae Rhabditidae. Strongyloidae. Strongylidae Trichonematidae. Amidostomidae. Stephanuridae. Syngamidae. General immunology, Preparation of Parasitic antigens, Determination of immune Response, Cytokines, Immunity to blood parasites , Immunity to helminthes and protozoaImmunity to ectoparasites.		
PAR	8072	<b>Course title</b>	<i>Arabic</i>	طفيليات خاص (2)
			<i>English</i>	Special parasitology 2
		<b>Contents</b>		
General entomology, Morphology of insects and Biology of insects, Mosquitoes , Culicoides , Simulium Sand fly , Blood sucking Muscidae, Blood sucking Hippoboscidae. Diseases transmitted by insects, Hard ticks and soft ticks of animals and birds. Blood examination (blood film , Fixatin and staining of bood film, Examination of blood fim under oil emersion length, Types of blood film), General Protozology, Haemoflagellates (Leishmania spp. Trypanosomes) , Enteroflagellates infect animals, birds and fishes , Genital flagella tes infect animals, birds and fishes. Apicomplexa (Coccidian parasites infect animals.				
PAR	8073	<b>Course title</b>	<i>Arabic</i>	سمنارات في مجال التخصص
			<i>English</i>	Specialized seminars in the field of specialization
		<b>Contents</b>		
Various seminars discussing topics and modern methods in the field of specialization, in addition to discussing distinguished research that adds new knowledge and technology that serves the research plan.				
PAR	8074	<b>Course title</b>	<i>Arabic</i>	سمنارات في مجال التخصص
			<i>English</i>	Specialized seminars in the field of specialization
		<b>Contents</b>		
Various seminars discussing topics and modern methods in the field of specialization, in addition to discussing distinguished research that adds new knowledge and technology that serves the research plan.				
<b>المقررات الاختيارية Elective courses</b>				
<b>Code</b>	<b>Number</b>	<b>Course title</b>	<i>Arabic</i>	طفيليات الخيول
PAR	8075		<i>English</i>	Equine parasites
<b>Contents</b>				
Trematodes (Fasciola, Gastrodiscus aegyptiacus), Cestodes (Anoplocephalidae, ) Apicomplexa, Insecta, Arachanida (Ticks and mites), Protozoa (Trypanosomes and Babesia)Nematodes(parascaris epuorum, oxyuris equi, strongylidae, Strongyloides, Habronema, Filaridae.				
PAR	8076	<b>Course title</b>	<i>Arabic</i>	طفيليات الاسماك
			<i>English</i>	Fish parasites
		<b>Contents</b>		
Trematodes of fish, Cestodes of fish, Nematodes of fish, Protozoa of fish, Fish as I.H for some parasitic disease, Fish as F.H for some parasitic disease, Arthropods and leaches parasites.				
PAR	8077	<b>Course title</b>	<i>Arabic</i>	طفيليات الطيور
			<i>English</i>	Poultry parasites
		<b>Contents</b>		



		Trematodes of poultry, Cestodes of poultry, Nematodes of poultry, Protozoa of poultry. Arthropods of poultry		
PAR	8078	<b>Course title</b>	<i>Arabic</i>	المناعة الطفيلية
			<i>English</i>	Parasitic immunity
<b>Content</b>				
General immunology, Parasitic antigens, Immunological steps, Antibodies and cytokines. Immunity to blood parasites , Immunity to helminthes, Immunity to ectoparasites.				
PAR	8079	<b>Course title</b>	<i>Arabic</i>	طفيليات الحيوانات الاليفة
			<i>English</i>	Pet animals parasites
<b>Content</b>				
Trematodes (Fasciola, Heterophyes, ), Cestodes (Taenidae, Dipylididae).Nematodes (Toxocara canis, Toxocara cati, Toxascaris leolina, Capillaria, Spirocerca lupi, Filaridae Insecta, Arachanida (Ticks and mites), Protozoa (Giardia, Trypanosomes) and Apicomplexa				
PAR	8080	<b>Course title</b>	<i>Arabic</i>	طفيليات المجترات
			<i>English</i>	Ruminant parasites
<b>Content</b>				
Trematodes (Fasciola, Paramphistomatidae, Dicrocoelidae, Schistosomatidae, Cestodes (Anoplocephalidae,Taenidae, Thysanosomidae ), Nematodes(Ascaridae, Trichostrongylidae, Strongyloides, Filaridae, Capillaridae, Trichuridae, Insecta, Arachanida (Ticks and mites). Protozoa (Trypanosomes, Trichomonas foetus, Apicomplexa				

## 9- Department of Nutrition and Clinical Nutrition

المقررات الالزامية Compulsory courses				
Code	Number	<b>Course title</b>	<i>Arabic</i>	الاحتياجات الغذائية للدواجن والارانب
			<i>English</i>	Nutrient requirements for poultry and rabbits
<b>Contents</b>				
Energy requirement for poultry and rabbits - Protein requirement for poultry and rabbits -Vitamins requirement for poultry and rabbits -Mineral requirement for poultry and rabbits -Factors affecting nutrient requirement for poultry - Water requirement for poultry and rabbits- Composition of feed stuff for poultry and rabbits				
NCN	8082	<b>Course title</b>	<i>Arabic</i>	تغذية اكلينكيه
			<i>English</i>	Clinical Nutrition
<b>Contents</b>				
Alimentation of clinically ill animals-effect of diseases on nutritional needs of animals-Nutritional problems in management and feedlot practice-feeding animal during diseases-feeding therapy for animals-feeding support after and before surgical operation-role of nutrition in improvement the immunity against livestock diseases				
NCN	8083	<b>Course title</b>	<i>Arabic</i>	سمنارات في مجال التخصص
			<i>English</i>	Specialized seminars in the field of specialization
<b>Contents</b>				
Various seminars discussing topics and modern methods in the field of				





		specialization, in addition to discussing distinguished research that adds new knowledge and technology that serves the research plan.		
NCN	8084	<b>Course title</b>	<i>Arabic</i>	سمنارات في مجال التخصص
			<i>English</i>	<b>Specialized seminars in the field of specialization</b>
<b>Contents</b>				
Various seminars discussing topics and modern methods in the field of specialization, in addition to discussing distinguished research that adds new knowledge and technology that serves the research plan.				
<b>المقررات الاختيارية Elective courses</b>				
<b>Code</b>	<b>Number</b>	<b>Course title</b>	<i>Arabic</i>	الاحتياجات الغذائية للأسماك والحيوانات المائية
NCN	8085		<i>English</i>	<b>Nutrient requirements for Fish and Aquatic Animals</b>
			<b>Contents</b>	
Protein and amino acid requirement for fish and aquatic animals-Energy requirement for fish-lipids and fatty acids for fish-carbohydrate for fish-Major elements for fish-Minor elements for fish-vitamins requirement for fish-suitable feed stuffs used for fish				
NCN	8086	<b>Course title</b>	<i>Arabic</i>	تغذية الحيوانات والطيور البرية
			<i>English</i>	<b>Wild Animal Nutrition</b>
<b>Contents</b>				
Energy requirement for wild animal and birds-Protein requirement for wild animal and birds-Vitamins requirement for wild animal and birds-Mineral requirement for wild animal and birds-Water requirement for wild animal and birds				
NCN	8087	<b>Course title</b>	<i>Arabic</i>	تغذية الدواجن والارانب
			<i>English</i>	<b>Poultry and rabbit nutrition</b>
<b>Contents</b>				
Feed stuffs for poultry and rabbits-broiler feeding-layer feeding-breeder feeding-duck feeding-geese feeding-quails and pigeon feeding-turkey feeding-feeding of growing, pregnant and lactating rabbits				
NCN	8088	<b>Course title</b>	<i>Arabic</i>	امراض سوء التغذية
			<i>English</i>	<b>Malnutrition diseases</b>
<b>Content</b>				
Nutritional diseases in poultry and rabbits- nutritional problems in dairy cows and beef cattle- nutritional problems in sheep and goats-nutritional diseases in horses-nutritional diseases in fish-nutritional importance of vitamins and minerals in animals, poultry and fish				
NCN	8089	<b>Course title</b>	<i>Arabic</i>	تغذية الخيول
			<i>English</i>	<b>Horse nutrition</b>
<b>Content</b>				
Feeds suitable for horse and mules-system of feeding horses-feeding brood mare-feeding foals-raising and feeding orphan foals-feeding stallion-feeding donkeys and mules-nutrient requirement of horses- nutritive requirement for work-feeding sick horses.				
NCN	8090	<b>Course title</b>	<i>Arabic</i>	تغذية المجترات
			<i>English</i>	<b>Ruminant nutrition</b>



	<b>Content</b>
	Feeding of beef cattle- feeding of dairy cows-feeding of sheep- feeding of goat- feeding of camels-feeding buffaloes-nutrient requirement for lactation and reproduction-nutrient requirement for growth and fattening

## **10- Department of Animal Wealth Development**

### **(A) Animal and Poultry Production and Breeding**

<b>المقررات الإلزامية Compulsory courses</b>				
Code	Number	Course title	Arabic	الإنتخاب باستخدام الواسمات الجزيئية لتحسين خصوبة ماشية إنتاج اللبن
AWD/P	8091		English	Marker assisted selection for improvement of dairy cattle fertility
		<b>Contents</b>		
		Reproductive indices of dairy cattle - Bull fertility traits - Heritability of reproductive traits - Advantages of molecular marker selection - Types of molecular markers - Linkage disequilibrium - Allele and genotype frequency of molecular markers - Marker assisted selection		
AWD/P	8092	Course title	Arabic	تحسين صفات الذبيحة لماشية إنتاج اللحم
			English	Improvement of carcass quality for beef cattle
		<b>Contents</b>		
		Breeds of beef cattle - growth and development of beef cattle carcass cuts and components - carcass characteristics affecting meat palatability – aroma – flavor - tenderness - fat quality		
AWD/P	8093	Course title	Arabic	سمينارات في مجال التخصص
			English	Specialized seminars in the field of specialization
		<b>Contents</b>		
		Various seminars discussing topics and modern methods in the field of specialization, in addition to discussing distinguished research that adds new knowledge and technology that serves the research plan.		
AWD/P	9094	Course title	Arabic	سمينارات في مجال التخصص
			English	Specialized seminars in the field of specialization
		<b>Contents</b>		
		Various seminars discussing topics and modern methods in the field of specialization, in addition to discussing distinguished research that adds new knowledge and technology that serves the research plan.		
<b>المقررات الاختيارية Elective courses</b>				
Code	Number	Course title	Arabic	التقنيات البيولوجية الحديثة وإستخداماتها في إنتاج الدواجن
AWD/P	8095		English	Advanced molecular biology techniques and their applications in poultry production
		<b>Contents</b>		
		Egg production traits - growth efficiency traits - disease resistance traits - molecular biology techniques - advantages of molecular marker selection - types of molecular markers - linkage disequilibrium - allele and genotype frequency - marker assisted selection		



AWD/P	8096	<b>Course title</b>	<i>Arabic</i>	تربية وإنتاج الارانب
			<i>English</i>	<b>Breeding and production of rabbits</b>
<b>Contents</b>				
Local and foreign breeds of rabbits - Advantages of rabbit farming - Managing the rabbitry – Nutrition - Reproduction and breeding systems - Artificial insemination - Selection methods - Genetic improvement Breeding value				
AWD/P	8097	<b>Course title</b>	<i>Arabic</i>	نظم التزاوج و الانتخاب في ماشية انتاج اللبن
			<i>English</i>	<b>System of mating and selection of dairy cattle</b>
<b>Contents</b>				
Dairy cattle breeds - systems of mating - outbreeding and hybrid vigor – relationship and inbreeding - selection of dairy cattle - predicting breeding values - herd records evaluation of cow and bull fertility traits herd health raising dairy calves and heifers - biotechnology and milk production				
AWD/P	8098	<b>Course title</b>	<i>Arabic</i>	الواسمات الجزيئية لتحسين إنتاج الاغنام والماعز
			<i>English</i>	<b>Molecular markers for improvement of sheep and goat production</b>
<b>Content</b>				
Breed of sheep and goat - growth and body gain efficiency, wool and mohair production, reproduction and fertility traits, male fertility traits, heritability of reproductive traits, types of molecular markers, linkage disequilibrium, allele and genotype frequency of molecular markers, marker assisted selection				
AWD/P	8099	<b>Course title</b>	<i>Arabic</i>	الصفات الكمية لحيوانات المزرعة
			<i>English</i>	<b>Quantitative traits of livestock</b>
<b>Content</b>				
Genetic constitution of populations - Qualitative and quantitative traits - Variation of economic traits - System of mating - Genetic parameters of populations - Principle of selection - Predicting breeding value - Genetic gain				
AWD/P	8100	<b>Course title</b>	<i>Arabic</i>	تربية وإنتاج قطعان الطيور المائية
			<i>English</i>	<b>Breeding and production of water fowl</b>
<b>Content</b>				
Species and breeds of water fowl - Breeds of ducks and geese - Housing system and requirements - selecting breeders - breeders' facilities - egg production – incubation – hatching - brooding and rearing - principle of selection - predicting breeding value – marketing				

## **(b) Economics and management of veterinary projects**

المقررات الالزامية Compulsory courses				
Code	Number	Course title	<i>Arabic</i>	دراسات الجدوى لمشاريع الإنتاج الحيواني
AWD/E	8101	<b>Course title</b>	<i>English</i>	<b>Feasibility studies for animal production projects</b>
			<b>Contents</b>	
The role of project evaluation- introduction on feasibility study-classification of feasibility studies- schedule feasibility-operational feasibility-technical feasibility- market feasibility- economic feasibility- feasibility study procedures- feasibility study of pharmaceutical plant- feasibility study of				



		different animal production projects-role of feasibility study on economic growth		
AWD/E	8102	<b>Course title</b>	<i>Arabic</i>	التسويق وإدارة المشروعات البيطرية
			<i>English</i>	<b>Marketing and management of veterinary projects</b>
		<b>Contents</b>		
		Marketing introduction- marketing concept- steps for marketing a new product (marketing plan)- elements of marketing mix- product life cycle (plc)- forms of market		
AWD/E	8103	<b>Course title</b>	<i>Arabic</i>	سمينارات في مجال التخصص
			<i>English</i>	<b>Specialized seminars in the field of specialization</b>
		<b>Contents</b>		
		Various seminars discussing topics and modern methods in the field of specialization, in addition to discussing distinguished research that adds new knowledge and technology that serves the research plan.		
AWD/E	8104	<b>Course title</b>	<i>Arabic</i>	سمينارات في مجال التخصص
			<i>English</i>	<b>Specialized seminars in the field of specialization</b>
		<b>Contents</b>		
		Various seminars discussing topics and modern methods in the field of specialization, in addition to discussing distinguished research that adds new knowledge and technology that serves the research plan.		
<b>المقررات الاختيارية Elective courses</b>				
<b>Code</b>	<b>Number</b>	<b>Course title</b>	<i>Arabic</i>	التقييم الاقتصادي لمزارع انتاج الدواجن
AWD/E	8105		<i>English</i>	<b>Economic assessment of poultry production farms</b>
			<b>Contents</b>	
		Economic and productive efficiency of poultry production farms-The economic justification of poultry diseases control- poultry industry -Economic importance of feed additives in poultry production farms-Economic assessment of different diseases of poultry (bacterial, viral and parasitic diseases) and economic benefit of prevention of different poultry disease -Factors affecting economic and productive efficiency of poultry farms -Feasibility studies of poultry production farms.		
AWD/E	8106	<b>Course title</b>	<i>Arabic</i>	تأثير العوامل الوراثية والانتاجية المختلفة على الكفاءة الاقتصادية والانتاجية لمزارع الأغنام والماعز
			<i>English</i>	<b>Effect of various genetic and productive factors on the economic and productivity efficiency of sheep and goat farms</b>
		<b>Contents</b>		
		Marketing of sheep and goat production projects -Factors affecting productive and economic efficiency of sheep and goat farms-Economic assessment of different disease affecting sheep and goat- Economic and productive efficiency of sheep and goat production farms- Feasibility studies of sheep and goat production farms		
AWD/E	8107	<b>Course title</b>	<i>Arabic</i>	استخدام التقنيات الانتاجية الحديثة لتحسين صفات جودة و كمية اللحوم وعلاقتها بالأرباحية في ماشية انتاج اللحم
			<i>English</i>	<b>The use of modern production techniques to improve the quality and quantity of meat and its</b>



				<b>relation to profitability in cattle meat production</b>
		<b>Contents</b>		
		Economic assessment of different disease affecting beef production farms-Beef marketing -Economic and productive efficiency of beef production farms- Improving quality and amount of meat using different technique via improving nutrition, management, genetics etc- Feasibility studies of beef production farms		
AWD/E	8108	<b>Course title</b>	<i>Arabic</i>	تأثير بعض إضافات الأعلاف والمكملات الغذائية على الكفاءة الاقتصادية والانتاجية لحيوانات المزرعة
			<i>English</i>	<b>Effect of some feed additives and dietary supplements on the economic efficiency and productivity of farm animals</b>
		<b>Content</b>		
		Definition and types of feed additives- Effect of different feed additives on economic and productive efficiency of different animal production farms- Economic importance of feed additives in animal production farm-Economics of agro-industrial by-products- Improving production of animal production farms by using agro-industrial byproducts, different feed additives		
AWD/E	8109	<b>Course title</b>	<i>Arabic</i>	معايير الكفاءة الانتاجية والاقتصادية في الاستزراع السمكي
			<i>English</i>	<b>Economic and productive efficiency measures of aqua culture</b>
		<b>Contents</b>		
		Economic and productive efficiency of fish production farms- marketing of fish production projects- factors affecting productive and economic efficiency of fish production farms-economic assessment of different disease affecting fish production farms- economic and productive efficiency of fish production farms-improving quality and amount of meat from fish by using different technique via improving nutrition, management, genetics etc- feasibility studies of fish production farms		
AWD/E	8110	<b>Course title</b>	<i>Arabic</i>	تقييم الأداء الانتاجي والتناسلي لماشية انتاج اللبن
			<i>English</i>	
		<b>Content</b>		
		Economics of improved reproductive performance of dairy cattle-Feasibility studies of dairy projects- Factors affecting productive and economic efficiency of dairy production farms-Economic assessment of different disease affecting dairy production farms- Economic and productive efficiency of dairy production farms- improving quality and amount of milk from dairy by using different technique via improving nutrition, management, genetics etc.		

### (c) Genetics and genetic engineering

المقررات الإلزامية Compulsory courses				
<b>Code</b>	<b>Number</b>	<b>Course title</b>	<i>Arabic</i>	الهندسة الوراثية وتطبيقاتها
AWD/G	8111		<i>English</i>	<b>Genetic engineering &amp; its application</b>
		<b>Contents</b>		
		<i>Genetic manipulation:</i> Recombinant DNA & genetic engineering-Gene library-Gene transfer		



		<i>Methods for studying genome:</i> Polymerase chain reaction (PCR)-RFLPs (restriction fragment length polymorphism)-DNA fingerprinting-DNA sequencing		
AWD/G	8112	<b>Course title</b>	<i>Arabic</i>	وراثه الكائنات الدقيقة (بكتريا وفيرس)
			<i>English</i>	Genetic of bacteria & virus
<b>Contents</b>				
Bacterial mutation & growth-Genetic recombination in bacteria-The Rec proteins in bacteria-Bacterial Transformation-Transduction-Virus mediated bacterial DNA transfer-Mutation & recombination in virus-Other strategies for viral reproduction.				
AWD/G	8113	<b>Course title</b>	<i>Arabic</i>	سمينارات في مجال التخصص
			<i>English</i>	Specialized seminars in the field of specialization
<b>Contents</b>				
Various seminars discussing topics and modern methods in the field of specialization, in addition to discussing distinguished research that adds new knowledge and technology that serves the research plan.				
AWD/G	8114	<b>Course title</b>	<i>Arabic</i>	سمينارات في مجال التخصص
			<i>English</i>	Specialized seminars in the field of specialization
<b>Contents</b>				
Various seminars discussing topics and modern methods in the field of specialization, in addition to discussing distinguished research that adds new knowledge and technology that serves the research plan.				
<b>المقررات الاختيارية Elective courses</b>				
<b>Code</b>	<b>Number</b>	<b>Course title</b>	<i>Arabic</i>	الشفرة الوراثية والتعبير عنه
AWD/G	8115		<i>English</i>	Genetic code & its expression
			<b>Contents</b>	
Deciphering the genetic code-Intervening sequence & split genes-Splicing mechanism.-RNA editing				
AWD/G	8116	<b>Course title</b>	<i>Arabic</i>	تنظيم التعبير الجيني
			<i>English</i>	Regulation of gene expression
<b>Contents</b>				
Regulatory element & eukaryotic genes (promoter & enhancer)-Transcription Factors-Genomic alteration & gene expression-DNA methylation-Proteins end product of genes-The one gene – one enzyme hypothesis-Genes & enzymes (analysis of biochemical origin)-Protein structure & function-Post translational modification of proteins				
AWD/G	8117	<b>Course title</b>	<i>Arabic</i>	التحكم في الامراض الوراثية ذات التغير البيوكيميائي
			<i>English</i>	Control of Inherited diseases of biochemical origin
<b>Contents</b>				
Inborn error of metabolism-Inherited bleeding disorder-Inherited hemoglobin disorder				
AWD/G	8118	<b>Course title</b>	<i>Arabic</i>	وراثة المناعة وتخليق الاجسام المضادة
			<i>English</i>	Genetic of immunology
<b>Content</b>				
Immune genetics-Antibody-Red cell antigen-The major histocompatibility complex (MHC) & complement				



AWD/G	8119	<b>Course title</b>	<i>Arabic</i>	العلاج بالجينات وانتاج الادويه باستخدام الهندسه الوراثيه
			<i>English</i>	<b>DNA biotechnology &amp; its application</b>
<b>Content</b>				
Chromosome walking-PCR based DNA cloning-Analysis of cloned sequence-Restriction Mapping-Nucleic acid blotting-Mapping human genes-Genetic Markers-Positional cloning-Diagnosing & screening for genetic disorders-Allele specific nucleotides-DNA chips & genetic screening-Ethics of genetic testing-Target cell strategies-Ethical issues & future of gene therapy-Genome projects-Transgene & vaccine.				
AWD/G	8120	<b>Course title</b>	<i>Arabic</i>	أنواع المسرطنات واصلاح الحمض النووي
			<i>English</i>	<b>Type of mutagen &amp; it repair</b>
<b>Content</b>				
Detection of mutation-Molecular basis of mutation-Site directed mutagenesis-Transposable genetic element-Insertion Sequence-Bacterial transposon-DNA repair mechanism				

### (d) Biostatics

المقررات الالزامية Compulsory courses				
Code	Number	Course title	<i>Arabic</i>	التحليل التطبيقي للمتغيرات المتعدده
AWD/S	8121	<b>Course title</b>	<i>English</i>	<b>Applied analysis of multiple variables</b>
			<b>Contents</b>	
Basic properties of random vectors - basic properties of random vectors - multivariate normal distribution - multivariate correlation – multivariate regression - analysis of variance - discriminant analysis - principal components analysis.				
AWD/S	8122	<b>Course title</b>	<i>Arabic</i>	نماذج خطيه وتحليل الانحدار
			<i>English</i>	<b>Linear models and regression analysis</b>
<b>Contents</b>				
Simple linear correlation analysis - calculating of correlation coefficient - partial correlation and multiple correlation - multiple regression - multiple regression coefficient - evaluating of multiple regression - logistic regression analysis - logistic model				
AWD/S	8123	<b>Course title</b>	<i>Arabic</i>	سمنارات في مجال التخصص
			<i>English</i>	<b>Specialized seminars in the field of specialization</b>
<b>Contents</b>				
Various seminars discussing topics and modern methods in the field of specialization, in addition to discussing distinguished research that adds new knowledge and technology that serves the research plan.				
AWD/S	8124	<b>Course title</b>	<i>Arabic</i>	سمنارات في مجال التخصص
			<i>English</i>	<b>Specialized seminars in the field of specialization</b>
<b>Contents</b>				
Various seminars discussing topics and modern methods in the field of specialization, in addition to discussing distinguished research that adds new knowledge and technology that serves the research plan.				



المقررات الاختيارية Elective courses				
AWD/S	8125	Course title	Arabic	تصميم وتحليل التجارب
			English	Design and Analysis of Experiments
		Contents		
Bases of Experimental Design - Analysis of variance (ANOVA) - Randomized Complete Block Design (RCBD) - Factorial Experiment - Latin Square Design - Nested Design - Split Plot Design				
AWD/S	8126	Course title	Arabic	التحليل الإحصائي للوبائيات
			English	Statistical Analysis of Epidemiology
		Contents		
Basic of Epidemiology - Randomized Clinical Trials - Cohort Studies - Case-Control Studies - Cross-Sectional Studies - Estimating Risk and Interpretation of Data from Epidemiologic Studies - Measures of Association - Use of the Chi-Square Statistic - Bias and Confounding - Causal Association – Interaction.				
AWD/S	8127	Course title	Arabic	كمبيوتر ومعالجة المعلومات
			English	Computer and Word Processing
		Contents		
Parts of a Computer You Should Know - What to Look for When Buying - Setting Up a Comfortable and Safe Work Area - Virus Protection and Other Software That Should Be Set Up - Getting Your Computer Up and Running - Word Processing Basics - Power Point Basics – Excel Basics.				
AWD/S	8128	Course title	Arabic	نماذج التنبؤ وتحليل الانحدار
			English	Models of Prediction and Regression Analysis
		Content		
Review of multiple regression - Stepwise regression - Resampling techniques: the bootstrap and cross-validation - Classification using regression: discriminant analysis - Logistic regression and maximum likelihood - Multiple logistic regression				
AWD/S	8129	Course title	Arabic	طرق التحليل الإحصائي للبيانات
			English	Methods of Statistical Analysis
		Content		
Analysis of variance (ANOVA)-Comparison between two samples (t-test)-Non-parametric methods (chi square test)-Others non- parametric tests ( sign test - Run test – Rank test -kappa statistic)-MANCOVA-Logistic regression				
AWD/S	8130	Course title	Arabic	الاحتمالات والتوزيعات الاحتمالية (متقدم)
			English	Probability and Probability Distribution (advanced)
		Content		
Probability-Random Variable and Its Distribution-Function of a Random Variable and Its Distribution-Special Discrete Distributions and Their Properties-Special Absolutely Continuous Distributions and Their Properties-Random Vector and Its Joint Distribution-Asymptotic Distribution-Point Estimation-Interval Estimation-Testing of Hypotheses				

## 11- Department of Pathology





المقررات الإلزامية Compulsory courses				
PAT	8131	Course title	Arabic	باثولوجيا الأمراض المعدية لحيوانات المزرعة
			English	pathology of infectious diseases in farm animals
		Contents		
				Studying different infectious diseases of farm animals and pathological changes associated with these diseases and diagnosis of these diseases depending on the pathological examination
PAT	8132	Course title	Arabic	باثولوجيا الأمراض الطفيلية للطيور والأسماك
			English	pathology of parasitic diseases in poultry and fish
		Contents		
				Studying different parasitic diseases of poultry and fish and pathological changes associated with these diseases and diagnosis of these parasitic diseases depending on the pathological examination
PAT	8133	Course title	Arabic	سمينارات في مجال التخصص
			English	Specialized seminars in the field of specialization
		Contents		
				Various seminars discussing topics and modern methods in the field of specialization, in addition to discussing distinguished research that adds new knowledge and technology that serves the research plan.
PAT	8134	Course title	Arabic	سمينارات في مجال التخصص
			English	Specialized seminars in the field of specialization
		Contents		
				Various seminars discussing topics and modern methods in the field of specialization, in addition to discussing distinguished research that adds new knowledge and technology that serves the research plan.
المقررات الاختيارية Elective courses				
PAT	8135	Course title	Arabic	باثولوجيا الأمراض المختلفة للحيوانات الأليفة
			English	pathology of different diseases in pet animals
		Contents		
				Studying the pathological alterations associated with different diseases of pet animals and diagnosis of these condition depending on the pathological examination
PAT	8136	Course title	Arabic	باثولوجيا السموم
			English	Pathology of toxins
		Contents		
				Studying pathological effect of different types of toxic substances on different body organs
PAT	8137	Course title	Arabic	باثولوجيا الأورام المتقدم
			English	Pathology of advanced Oncology
		Contents		
				Studying classification of neoplasm, causes and methods of spreading of neoplasm, pathological changes in different types of neoplasm, diagnosis of neoplastic lesions using modern methods of diagnosis depending molecular



		pathological techniques		
PAT	8138	<b>Course title</b>	<i>Arabic</i>	باثولوجيا الامراض البكتيرية والفطرية للطيور والاسماك
			<i>English</i>	<b>pathology of Bacterial and mycotic diseases in fish</b>
		<b>Content</b>		
		Studying different bacterial and mycotic diseases of fish and pathological changes associated with these diseases and diagnosis of these diseases depending on the pathological examination		
PAT	8139	<b>Course title</b>	<i>Arabic</i>	باثولوجيا الامراض الفيروسية للطيور والاسماك
			<i>English</i>	<b>Pathology of viral diseases in poultry and fish</b>
		<b>Content</b>		
		Studying the pathological alterations associated with different viral diseases in poultry and fish and diagnosis of these diseases depending on the pathological examination		
PAT	8140	<b>Course title</b>	<i>Arabic</i>	باثولوجيا التجريبية الجراحية
			<i>English</i>	<b>Experimental surgical pathology</b>
		<b>Content</b>		
		Studying pathological changes associated with experimental induction of different surgical lesions and diagnosis of these condition depending on the pathological examination		

## 12- Department of Clinical Pathology

المقررات الالزامية Compulsory courses				
Code	Number	<b>Course title</b>	<i>Arabic</i>	دلالات الاجهاد واستجابة الجسم
			<i>English</i>	<b>Stress markers and body response</b>
		<b>Contents</b>		
		Oxidative stress, oxidative markers, effect of oxidative stress and body response, antioxidants		
CPA	8142	<b>Course title</b>	<i>Arabic</i>	تقنيات البيولوجيا الجزيئية والفلوسيتومتري
			<i>English</i>	<b>Molecular biology and flowcytometry</b>
		<b>Contents</b>		
		Uses of molecular biology and flowcytometry in diagnosis of organs function disturbances, immunologic and blood diseases		
CPA	8143	<b>Course title</b>	<i>Arabic</i>	سeminارات في مجال التخصص
			<i>English</i>	<b>Specialized seminars in the field of specialization</b>
		<b>Contents</b>		
		Various seminars discussing topics and modern methods in the field of specialization, in addition to discussing distinguished research that adds new knowledge and technology that serves the research plan.		
CPA	8144	<b>Course title</b>	<i>Arabic</i>	سeminارات في مجال التخصص
			<i>English</i>	<b>Specialized seminars in the field of specialization</b>
		<b>Contents</b>		
		Various seminars discussing topics and modern methods in the field of specialization, in addition to discussing distinguished research that adds new		



		knowledge and technology that serves the research plan.		
<b>المقررات الاختيارية Elective courses</b>				
<b>Code</b>	<b>Number</b>	<b>Course title</b>	<i>Arabic</i>	تشخيص الاضطرابات المناعية والالتهاب وموت الخلايا المبرمج واصلاح الانسجة
CPA	8145		<i>English</i>	<b>Diagnosis of immunologic disturbances, inflammation, apoptosis and tissue regeneration</b>
<b>Contents</b>				
Immunologic and inflammatory markers, cytokines, apoptosis and tissue regeneration markers				
<b>Code</b>	<b>Number</b>	<b>Course title</b>	<i>Arabic</i>	التشخيص باستخدام علامات سطح الخلية – النخاع العظمي والخلايا الجذعية
CPA	8146		<i>English</i>	<b>Diagnosis by cell surface markers- bone marrow and stem cells</b>
<b>Contents</b>				
Cluster of differentiation and cell surface receptors, bone marrow and stem cell				
<b>Code</b>	<b>Number</b>	<b>Course title</b>	<i>Arabic</i>	علم الخلايا التشخيصي
CPA	8147		<i>English</i>	<b>Diagnostic cytology</b>
<b>Contents</b>				
Body cavities, gastrointestinal system, respiratory system, reproductive system and urinary system fluid and aspiration cytology				
<b>Code</b>	<b>Number</b>	<b>Course title</b>	<i>Arabic</i>	باتولوجيا اكلينيكية الاسماك
CPA	8148		<i>English</i>	<b>Fish clinical pathology</b>
<b>Content</b>				
Hematology, organ function tests, electrolytes and body fluids tests				
<b>Code</b>	<b>Number</b>	<b>Course title</b>	<i>Arabic</i>	باتولوجيا اكلينيكية الطيور
CPA	8149		<i>English</i>	<b>Poultry clinical pathology</b>
<b>Content</b>				
Hematology, organ function tests, electrolytes and body fluids tests				
<b>Code</b>	<b>Number</b>	<b>Course title</b>	<i>Arabic</i>	اختبارات الكروت التشخيصية
CPA	8150		<i>English</i>	<b>Diagnostic SNAP Assays</b>
<b>Content</b>				
Diagnosis of metabolic, digestive and infectious diseases using snap tests				

## 13- Department of Veterinary Hygiene and Management

### (A) Animal and Poultry Behavior and Care

<b>المقررات الالزامية Compulsory courses</b>				
<b>Code</b>	<b>Number</b>	<b>Course title</b>	<i>Arabic</i>	الرفق بالحيوان
VHM/ BE	8151		<i>English</i>	<b>Animal welfare</b>
<b>Contents</b>				
Principals of animal and poultry welfare – Animal and poultry welfare problems-Animal welfare laws in Egypt and different European countries-International animal legislations-Animal rights				



VHM/ BE	8152	<b>Course title</b>	<i>Arabic</i>	التطبيقات الحديثة في قياس السلوكيات
			<i>English</i>	<b>Recent applications in measuring Behavior</b>
<b>Contents</b>				
Recent advances in measuring animal and poultry behavior – Different methods of animal and poultry behavior measuring –Analysis of different methods of animal and poultry behavior measuring				
VHM/ BE	8153	<b>Course title</b>	<i>Arabic</i>	سمينارات في مجال التخصص
			<i>English</i>	<b>Specialized seminars in the field of specialization</b>
<b>Contents</b>				
Various seminars discussing topics and modern methods in the field of specialization, in addition to discussing distinguished research that adds new knowledge and technology that serves the research plan.				
VHM/ BE	8154	<b>Course title</b>	<i>Arabic</i>	سمينارات في مجال التخصص
			<i>English</i>	<b>Specialized seminars in the field of specialization</b>
<b>Contents</b>				
Various seminars discussing topics and modern methods in the field of specialization, in addition to discussing distinguished research that adds new knowledge and technology that serves the research plan.				
<b>المقررات الاختيارية Elective courses</b>				
<b>Code</b>	<b>Number</b>	<b>Course title</b>	<i>Arabic</i>	سلوكيات و رعاية الأرناب
VHM/ BE	8155		<i>English</i>	<b>Rabbit behavior and management</b>
		<b>Contents</b>		
Rabbit local and foreign breeds- Rabbit systems of housing –reproduction in rabbits – management of breeding and growing rabbits- Behavioral problems and their treatment in rabbits				
VHM/ BE	8156	<b>Course title</b>	<i>Arabic</i>	سلوكيات و رعاية الكلاب والقطط
			<i>English</i>	<b>Behavior and management of dogs and cats</b>
<b>Contents</b>				
Local and foreign breeds of dogs and cats-feeding and reproductive behavior in dogs and cats – Body care behavior- Aggressive behavior-social behavior- management of dogs and cats during breeding season-behavioral problems in dogs and cats and how to deal with.				
VHM/ BE	8157	<b>Course title</b>	<i>Arabic</i>	سلوكيات و رعاية الحيوانات المنزلية
			<i>English</i>	<b>Behavior and management Pet Animals</b>
<b>Contents</b>				
Different Behavioral patterns in pet animals- breeds of pet animals-systems of pet animal management-management during breeding season-behavioral problems and their control				
VHM/ BE	8158	<b>Course title</b>	<i>Arabic</i>	سلوكيات و رعاية الأبقار و الجاموس و الجمال
			<i>English</i>	<b>Behavior and management of cows, Buffaloes and camels</b>
<b>Content</b>				
Local and foreign breeds of cows, Buffaloes and camels- behavioral patterns in cows, Buffaloes and camels- management of cows, Buffaloes and camels during breeding season –management of calves-abnormal behavioral patterns and their control				
VHM/	8159	<b>Course title</b>	<i>Arabic</i>	سلوكيات و رعاية الخيول



BE		<i>English</i> Behavior and management of Equines	
		<b>Content</b> General characters of Arabian and foreign breeds- behavioral patterns in equines- management during breeding season –management of young foals- abnormal behavior and their control	
VHM/ BE	8160	<b>Course title</b>	<i>Arabic</i> سلوكيات و رعاية حيوانات التجارب
			<i>English</i> Behavior and management of Laboratory animals
		<b>Content</b> Breeds and different species of Lab-animals-housing of lab-animals-marking and inoculation of lab-animals-blood sampling and euthanasia of lab-animals-behavioral patterns and management of Rats, mice, hamster and Guinea pig.	

### **(b) Animal and poultry health and the environment**

المقررات الإلزامية Compulsory courses				
Code	Number	Course title	<i>Arabic</i>	صحة الحيوان والدواجن
VHM	8161		<i>English</i>	Animal and poultry hygiene
		<b>Contents</b> Chemical and biological pollutants of water and animal health- Chemical and biological pollutants of air and animal health- Chemical and biological pollutants of soil and animal health- prevention and control of Environmental pollution.		
VHM	8162	<b>Course title</b>	<i>Arabic</i>	المبيدات و المطهرات البيطرية
			<i>English</i>	Insecticides and Disinfectants
		<b>Contents</b> Ideal character of insecticide - chemical composition of insecticides -mode of action of insecticides -methods of application of insecticides -toxicity of insecticides -resistance of insecticides - Ideal character of disinfectant - types of chemical disinfectants -mode of action of disinfectants -factors affect efficiency of disinfectants -cleaning and disinfection indifferent animal houses.		
VHM	8163	<b>Course title</b>	<i>Arabic</i>	سمينارات في مجال التخصص
			<i>English</i>	Specialized seminars in the field of specialization
		<b>Contents</b> Various seminars discussing topics and modern methods in the field of specialization, in addition to discussing distinguished research that adds new knowledge and technology that serves the research plan.		
VHM	8164	<b>Course title</b>	<i>Arabic</i>	سمينارات في مجال التخصص
			<i>English</i>	Specialized seminars in the field of specialization
		<b>Contents</b> Various seminars discussing topics and modern methods in the field of specialization, in addition to discussing distinguished research that adds new knowledge and technology that serves the research plan.		
المقررات الاختيارية Elective courses				
Code	Number	Course title	<i>Arabic</i>	صحة المياه
VHM	8165		<i>English</i>	Water Hygiene
		<b>Contents</b> Normal constituents of drinking water- Sources of drinking water-Biological		



		pollutants and water related diseases- Treatment of water hardness- Water sanitizers and treatment of drinking water		
VHM	8166	<b>Course title</b>	<i>Arabic</i>	صحة الهواء
			<i>English</i>	Air hygiene
<b>Contents</b>				
Normal constituents of air- Chemical pollutants and animal health- Biological pollutants and animal health- - Chemical pollutants and animal health .Prevention and control of air pollution in poultry houses- Air Temperature, Air humidity, Air movement and solar radiation - effect of environmental parameters on animal health- Amelioration and hygienic solution for extremes environmental parameters.				
VHM	8167	<b>Course title</b>	<i>Arabic</i>	صحة وتسكين مزارع الدواجن
			<i>English</i>	Hygiene and Housing of Poultry
<b>Contents</b>				
Different System used for poultry farms -Systems used during rearing and production of broilers- Systems used during rearing and production of layers- Systems used during rearing and production of breeders Environmental controlled poultry houses- Cooling Systems-ventilation				
VHM	6081	<b>Course title</b>	<i>Arabic</i>	صحة وتسكين حيوانات المزرعة
			<i>English</i>	Hygienic principles of livestock housing
<b>Content</b>				
Purposes of housing- Types of animal housing- General construction of animal house- Ventilation and Thermal insulation- Equine housing- Housing of dairy cattle, beef cattle and buffalo- Housing of calves - Camel house.				

## 14- Department of Forensic Medicine and Toxicology

المقررات الإلزامية Compulsory courses				
<b>Code</b>	<b>Number</b>	<b>Course title</b>	<i>Arabic</i>	السموم الوراثية
FMT	8169		<i>English</i>	Genetic toxins
			<b>Contents</b>	
Introduction-Factors affecting action of poisons-Mutation -Toxins with teratogenic effect- Toxins and carcinogenicity				
FMT	8170	<b>Course title</b>	<i>Arabic</i>	السموم من الوجهة الطبية الشرعية
			<i>English</i>	Toxins from Medico-legal aspect
<b>Contents</b>				
DNA profiling and identification and criminal aspect -uses of PCR for diagnosis of toxicity				
FMT	8171	<b>Course title</b>	<i>Arabic</i>	سمنارات في مجال التخصص
			<i>English</i>	Specialized seminars in the field of specialization
<b>Contents</b>				
Various seminars discussing topics and modern methods in the field of specialization, in addition to discussing distinguished research that adds new				



		knowledge and technology that serves the research plan.		
FMT	8172	Course title	Arabic	سمنارات في مجال التخصص
			English	Specialized seminars in the field of specialization
		<b>Contents</b>		
		Various seminars discussing topics and modern methods in the field of specialization, in addition to discussing distinguished research that adds new knowledge and technology that serves the research plan.		
<b>المقررات الاختيارية Elective courses</b>				
Code	Number	Course title	Arabic	الكيمياء الطبية الشرعية
FMT	8173	Course title	English	Forensic chemistry
			<b>Contents</b>	
		Introduction-Definition-Sampling and how to collect -Toxic effect of drugs , chemical- Evaluation of results from Medico-legal aspect		
FMT	8174	Course title	Arabic	التسمم الناشئ عن الاعلاف والاغذية
			English	Poisoning caused by feeding and food
		<b>Contents</b>		
		Growth promotor -Poisons plant -Food poison -Mycotoxins - Toxic effects due to feed additives- Toxic effect of food additives		
FMT	8175	Course title	Arabic	السموم الطبيعية والسموم الهوائية والغازية
			English	Natural, aerobic and volatile poisons
		<b>Contents</b>		
		Animal poisons (snake venom, scorpion, cantharides) -Volatile gases (carbon monoxide, sulfide, carbon tetra chlorides)		
FMT	8176	Course title	Arabic	السموم الحيوانية والفطرية
			English	Animal and Mycotoxin poisons
		<b>Content</b>		
		Animal poisons (snake venom, scorpion) - Mycotoxin (Aflatoxins , ochratoxins , fumonisins , moniliformins , zearalenones , fungal growth inhibition)		
FMT	8177	Course title	Arabic	تحديد وقت ونوع التغيرات الرميّة
			English	Specify the time and type of post mortem changes
		<b>Content</b>		
		Signs of death -Factor affecting different signs of death -Medico-legal importance of different signs of death - Estimation of postmortem interval -Role of forensic entomology		
FMT	8178	Course title	Arabic	الكشف عن طرق غش الاغذية
			English	Detection of food adulteration
		<b>Content</b>		
		Sampling--Meat adulteration- screen (rapid) test for detection of adulteration- Reports		

## 15- Department of Aquatic Diseases and Management

<b>المقررات الإلزامية Compulsory courses</b>				
Code	Number	Course title	Arabic	استخدام التكنولوجيا الحديثة في الاستزراع السمكي
AQDM	8179	Course title	English	the use biotechnology in aquaculture
			<b>Contents</b>	
		The role of biotechnology in improving fish growth, fish immunity, diagnosis		



		of diseases and control of diseases		
AQDM	8180	<b>Course title</b>	<i>Arabic</i>	الوقاية والتحكم في أمراض الأسماك والقشريات
			<i>English</i>	prevention and control of fish and crustacean diseases
<b>Contents</b>				
Biosecurity measures, application of disinfectants and antibiotics, the use of immunostimulants, and probiotics				
AQDM	8181	<b>Course title</b>	<i>Arabic</i>	سمينارات في مجال التخصص
			<i>English</i>	Specialized seminars in the field of specialization
<b>Contents</b>				
Various seminars discussing topics and modern methods in the field of specialization, in addition to discussing distinguished research that adds new knowledge and technology that serves the research plan.				
AQDM	8182	<b>Course title</b>	<i>Arabic</i>	سمينارات في مجال التخصص
			<i>English</i>	Specialized seminars in the field of specialization
<b>Contents</b>				
Various seminars discussing topics and modern methods in the field of specialization, in addition to discussing distinguished research that adds new knowledge and technology that serves the research plan.				
<b>المقررات الاختيارية Elective courses</b>				
<b>Code</b>	<b>Number</b>	<b>Course title</b>	<i>Arabic</i>	امراض اسماك الزينة
AQDM	8183		<i>English</i>	Aquarium fish diseases
			<b>Contents</b>	
Viral, bacterial, mycotic, parasitic and environmental diseases of aquarium fishes				
AQDM	8184	<b>Course title</b>	<i>Arabic</i>	الامراض البكتيرية والفطرية في اسماك المياه الشروب والمالحة
			<i>English</i>	Bacterial and mycotic diseases of brackish and marine fishes
<b>Contents</b>				
<i>Bacterial diseases of marine and brackish water fishes:</i> Septicemic bacterial diseases, granulomatous bacterial diseases, emerging and re-emerging bacterial diseases and control measures for bacterial diseases.				
<i>Mycotic diseases of marine and brackish water fishes:</i> external mycotic diseases, internal mycotic diseases and control measures of mycotic diseases				
AQDM	8185	<b>Course title</b>	<i>Arabic</i>	الامراض الطفيلية والفيروسية في اسماك المياه الشروب والمالحة
			<i>English</i>	Parasitic and viral diseases of brackish and marine water fishes
<b>Contents</b>				
Brackish and marine water fishes' external parasitic diseases and internal parasitic diseases, the most common viral diseases of brackish and marine water fishes				
AQDM	8186	<b>Course title</b>	<i>Arabic</i>	تفريخ اسماك المياه المالحة
			<i>English</i>	Reproduction of marine water fishes
<b>Content</b>				
selection of broodstock, management of the brood stock, management and nursing of the seeds, steps of natural and artificial propagation of the marine water fishes				





AQDM	8187	<b>Course title</b>	<i>Arabic</i>	الامان الحيوى و الامراض الوافدة للاحياء المائية
			<i>English</i>	<b>Biosecurity and exotic diseases of aquatic animals</b>
<b>Content</b>				
The biosecurity at the farm level, national and international levels, types of exotic fish diseases and quarantine measures				
AQDM	8188	<b>Course title</b>	<i>Arabic</i>	أمراض النقص الغذائى والأمراض البينية فى الاسماك
			<i>English</i>	<b>Nutritional deficiency and enviromental diseases of fish</b>
<b>Content</b>				
Diseases associated with carbohydrates deficiency, diseases associated with lipids deficiency, diseases associated with vitamins and minerals deficiency, as well as the environmental diseases .				

## 16- Department of Food Hygeine and Control

### (A) Hygeine control of meat, poultry, fish and their products and animal slaughter wastes

المقررات الإلزامية Compulsory courses				
Code	Number	Course title	<i>Arabic</i>	<i>English</i>
FHC	8189	<b>Course title</b>	<i>Arabic</i>	مضافات الأغذية والمواد الحافظة الكيميائية
			<i>English</i>	<b>Food Additives and Chemical Preservatives</b>
<b>Contents</b>				
Importance of food additives (starch, soy protein, milk powder), Nitrites & Nitrates, Bacteriocins, Ascorbate, sorbate, mono-sodium glutamate and other chemical preservatives. Permissible limits of food additives and preservatives. Public health hazards of such agents.				
FHC	8190	<b>Course title</b>	<i>Arabic</i>	التحليل الكيميائى والميكروبيولوجى للأغذية
			<i>English</i>	<b>Chemical and Microbiological Analysis of Foods</b>
<b>Contents</b>				
Quality indices of certain foods, Determination of quality and shelf life of foods by chemical and microbiological examination, Recent Food diagnostic techniques for detection of meat adulteration and spoilage, residues, PCR and ELISA.				
FHC	8191	<b>Course title</b>	<i>Arabic</i>	سمينارات فى مجال التخصص
			<i>English</i>	<b>Specialized seminars in the field of specialization</b>
<b>Contents</b>				
Various seminars discussing topics and modern methods in the field of specialization, in addition to discussing distinguished research that adds new knowledge and technology that serves the research plan.				
FHC	8192	<b>Course title</b>	<i>Arabic</i>	سمينارات فى مجال التخصص
			<i>English</i>	<b>Specialized seminars in the field of specialization</b>
<b>Contents</b>				
Various seminars discussing topics and modern methods in the field of				



		specialization, in addition to discussing distinguished research that adds new knowledge and technology that serves the research plan.		
<b>المقررات الاختيارية Elective courses</b>				
<b>Code</b>	<b>Number</b>	<b>Course title</b>	<i>Arabic</i>	<i>English</i>
FHC	8193		نظام الهاسبب فى المنشآت الغذائية	HACCP system in Food Serving establishments
<b>Contents</b>				
Definition of HACCP, HACCP Basics, Types of hazards, Identification of Critical Control Points and Corrective Action, HACCP Programs, Data Documentation, Program Evaluation of food safety.				
FHC	8194		شئون صحية فى أماكن تداول الغذاء	Sanitation of Food Establishments
<b>Contents</b>				
Programs of cleaning and disinfection used for Sanitation of different processing plants and food establishments, SSOP and GMPs. Application of different sanitary programs for standard food production.				
FHC	8195		التسمم الغذائى والسموم البحرية	Food Poisoning and Marine toxins
<b>Contents</b>				
Classification of food poisoning, Taxonomy of food poisoning bacteria, Amnesic, Scombroid and paralytic shellfish poisoning, Gempylotoxins, Sources and control of marine toxins.				
FHC	8196		مخلفات الدبائح الحيوانية	Animal By-products
<b>Content</b>				
Sources and advantages of animal by-products, blood, bones, hides, wool, hair, horns, intestine, rumen, Role of rumen in drug manufacture, Collection and preservation of endocrine glands.				
FHC	8197		نظم الجودة الشاملة	Total Quality Management Systems
<b>Content</b>				
Quality and their leaders and their applicability in food factories and the return of them on the safety and quality of food.				
FHC	8198		الضارة فى الأغذية المتبقية	Harmful residues in Foods
<b>Content</b>				
Antibiotics, Biogenic amines, Hormones, Hesticides, Mycotoxins, Heavy metals, Antibiotics and other residues (Sources, Detection, Public health significance and Control).				

## **(b) Hygeine control of milk and its products, oils, fats and eggs.**



المقررات الإلزامية Compulsory courses				
FHC	8199	Course title	Arabic	الحفظ الحيوي للألبان ومنتجاتها
			English	Bio-preservation of milk and dairy products
		Contents		
				Traditional methods for manufacture and preservation of dairy products. Bio-preservation of milk and dairy products by using non-Pathogenic, beneficial organisms, their bacteriocins and other natural preservatives.
FHC	8200	Course title	Arabic	منتجات الألبان الوظيفية
			English	Functional dairy products
		Contents		
				Natural antimicrobial proteins presented in milk. Method for extraction, hydrolysis and purification of these proteins. Application of these substances in dairy products as natural preservatives and their therapeutic uses against some diseases.
FHC	8201	Course title	Arabic	سeminارات في مجال التخصص
			English	Specialized seminars in the field of specialization
		Contents		
				Various seminars discussing topics and modern methods in the field of specialization, in addition to discussing distinguished research that adds new knowledge and technology that serves the research plan.
FHC	8202	Course title	Arabic	سeminارات في مجال التخصص
			English	Specialized seminars in the field of specialization
		Contents		
				Various seminars discussing topics and modern methods in the field of specialization, in addition to discussing distinguished research that adds new knowledge and technology that serves the research plan.
المقررات الاختيارية Elective courses				
FHC	8203	Course title	Arabic	الاستخدامات الوظيفية والعلاجية للبيض
			English	Functional and therapeutic uses of eggs
		Contents		
				Natural antimicrobial substances in eggs. How to apply these substances as natural preservatives and their therapeutic uses against some diseases.
FHC	8204	Course title	Arabic	شئون صحية لمزارع ومصانع الألبان
			English	Health affairs for dairy farms and dairy plants
		Contents		
				Detection the types of detergents and sanitizers suitable for equipment in farms and dairy plants and how to evaluate them at farm level. Ways of cleaning and sanitization and make sure of their effectiveness. Quality system used to ensure safety of milk and its products. Ways for application of automatic control system in dairy farms and dairy plants and their return on the products quality from the economic and public health point of view.
FHC	8205	Course title	Arabic	المخاطر الصحية للاستخدام المتكرر لزيوت القلي
			English	Health risks of repeated use of frying oil
		Contents		
				Mechanism of frying. Type of oils used in frying. Physical and chemical



		changes occurred during and after frying. Harmful changes of vegetable oils and fats and detection of their validity for human consumption. Method for controlling these harmful effects.		
FHC	8206	<b>Course title</b>	<i>Arabic</i>	المواصفات القياسية للألبان ومنتجاتها
			<i>English</i>	Standards specifications for milk and its products
<b>Content</b>				
Egyptian organization standardization and quality (EOSQ). International specifications for dairy products as Codex Alimentarius, FDA, WHO. How to manufacture any dairy product that meets any of these specifications. Comparing each dairy product with standard specification related to microbial and chemical analysis. Matching all existing components on label with the contents of each products inside the package.				
FHC	8207	<b>Course title</b>	<i>Arabic</i>	مصادر تلوث الألبان ومنتجاتها
			<i>English</i>	Sources of contamination of milk and its products.
<b>Content</b>				
Different sources of milk contamination and its products. Microorganisms associated with milk and its products. Factors affecting microbial growth. Spoilage of milk and its products. Diseases transmitted to human through milk.				
FHC	8208	<b>Course title</b>	<i>Arabic</i>	انتاج اللبن النظيف
			<i>English</i>	Production of clean milk
<b>Content</b>				
Healthy requirements to be followed for production of clean milk that safe and suitable for human consumption from the moment it leaves the udder of dairy animal till reach the mouth of consumer that packed with safety way free from physical, chemical and microbial contaminants. Different forms of dairy spoilage and ways for their prevention				

## 17- Department of Theriogenology

المقررات الإلزامية Compulsory courses				
Code	Number	Course title	<i>Arabic</i>	الخصوبة والتناسل في الحيوان
THG	8209	<b>Course title</b>	<i>Arabic</i>	Animal reproduction and fertility
			<i>English</i>	
<b>Contents</b>				
Physiology of reproduction in male and female - estrus cycle in female and sexual behavior in male- reproductive examination – Diagnosis of pregnancy – semen biology- effect of environmental factors on ovarian and testicular functions – Management of puberty, estrus, ovulation and parturition - principles of assisted reproductive techniques (IVF- Embryo transfer) – Following up the ovarian activity, ovulation and pregnancy by the laboratory methods and ultrasound – diagnosis of male and female infertility problems by ultrasound – semen biochemical and cytological analysis – microbiological and cytological examination of vagina and prepuce - – microbiological examination of aborted feti				
THG	8210	<b>Course title</b>	<i>Arabic</i>	التناسل والمناعة
			<i>English</i>	Reproductive immunology
<b>Contents</b>				



		About the immune system – natural and acquired immunity – blood testicular barrier – sperm and seminal plasma antigens – response of the female genital system toward the sperm at insemination time – The immunological response to the transfer of sperm from insemination to fertilization sites – Fertilization - The immunological response to fetus – Adaptation of fetu with the female genital system – role of cytokines in male and female reproduction - The immunological response to use of hormones –The uses of immunological methods to prevent pregnancy in animals.		
THG	8211	Course title	Arabic	سمينارات في مجال التخصص
			English	Specialized seminars in the field of specialization
<b>Contents</b>				
سيمينارات متنوعة تناقش الموضوعات و الطرق الحديثة في مجال التخصص بالاضافة الى مناقشة الابحاث المتميزة و التي تضيف معارف و تكنولوجيا جديدة تخدم خطة البحث				
THG	8212	Course title	Arabic	سمينارات في مجال التخصص
			English	Specialized seminars in the field of specialization
<b>Contents</b>				
Various seminars discussing topics and modern methods in the field of specialization, in addition to discussing distinguished research that adds new knowledge and technology that serves the research plan.				
<b>المقررات الاختيارية Elective courses</b>				
Code	Number	Course title	Arabic	التناسل والتوليد والتلقيح الاصطناعي في الماشية
THG	8213		English	Gynaecology, Obstetrics and Artificial Insemination in cattle
<b>Contents</b>				
<i>Obstetrics:</i> Pregnancy in different animal –affections of dam and fetus during pregnancy –stages of normal parturition –dam care –dystocia – normal and abnormal Puerperium in cattle				
<i>Gynacology:</i> Physiology of breeding –estrus cycle –estrus synchronization - pregnancy diagnosis –congenital, hormonal, environmental, pathological, causes of female infertility in cattle				
<i>Andrology:</i> Comparative and functional anatomy of male genital system in farm animal – sexual behavior – causes of infertility in bull – sire selection in bull.				
<i>Artificial insemination:</i> methods of semen collection and evaluation - principles of semen dilution and different types of diluents and methods of their preparation -principles of semen preservation by cooling and freezing – thawing of semen and female insemination in cattle.				
THG	8214	Course title	Arabic	التناسل والتوليد والتلقيح الاصطناعي في الجمال
			English	Gynaecology, Obstetrics and Artificial Insemination in Camel
<b>Contents</b>				
<i>Obstetrics:</i> Pregnancy in different animal –affections of dam and fetus during pregnancy –stages of normal parturition –dam care –dystocia – normal and abnormal Puerperium in camel				
<i>Gynacology:</i> Physiology of breeding –estrus cycle –estrus synchronization - pregnancy diagnosis –congenital, hormonal, environmental, pathological, causes of female infertility in camel				



		<p><i>Andrology</i> Comparative and functional anatomy of male genital system in farm animal – sexual behavior – causes of infertility in male in camel.  <i>Artificial insemination:</i> methods of semen collection and evaluation - principles of semen dilution and different types of diluents and methods of their preparation -principles of semen preservation by cooling and freezing – thawing of semen and female insemination in camel.</p>		
THG	8215	<b>Course title</b>	<i>Arabic</i>	التناسل والتوليد والتلقيح الاصطناعي في الخيول
			<i>English</i>	<b>Gynaecology, Obstetrics and Artificial Insemination in equine</b>
<b>Contents</b>				
<p><i>Obstetrics:</i> Pregnancy in different animal –affections of dam and fetus during pregnancy –stages of normal parturition –dam care –dystocia – normal and abnormal Puerperium in equine  <i>Gynacology:</i> Physiology of breeding –estrus cycle –estrus synchronization - pregnancy diagnosis –congenital, hormonal, environmental, pathological, causes of female infertility in equine  <i>Andrology</i> Comparative and functional anatomy of male genital system in farm animal – sexual behavior – causes of infertility in stallions.  <i>Artificial insemination:</i> methods of semen collection and evaluation - principles of semen dilution and different types of diluents and methods of their preparation -principles of semen preservation by cooling and freezing – thawing of semen and female insemination in equine.</p>				
THG	8216	<b>Course title</b>	<i>Arabic</i>	التناسل والتوليد والتلقيح الاصطناعي في الاغنام
			<i>English</i>	<b>Gynaecology, Obstetrics and Artificial Insemination in sheep</b>
<b>Content</b>				
<p><i>Obstetrics:</i> Pregnancy in different animal –affections of dam and fetus during pregnancy –stages of normal parturition –dam care –dystocia – normal and abnormal Puerperium in ovine  <i>Gynacology:</i> Physiology of breeding –estrus cycle –estrus synchronization - pregnancy diagnosis –congenital, hormonal, environmental, pathological, causes of female infertility in ovine  <i>Andrology</i> Comparative and functional anatomy of male genital system in farm animal – sexual behavior – causes of infertility in rams.  <i>Artificial insemination:</i> methods of semen collection and evaluation - principles of semen dilution and different types of diluents and methods of their preparation -principles of semen preservation by cooling and freezing – thawing of semen and female insemination in ovine.</p>				
THG	8217	<b>Course title</b>	<i>Arabic</i>	التناسل والتوليد والتلقيح الاصطناعي في الحيوانات المنزلي
			<i>English</i>	<b>Gynaecology, Obstetrics and Artificial Insemination in pet animals</b>
<b>Content</b>				
<p><i>Obstetrics:</i> Pregnancy in different animal –affections of dam and fetus during pregnancy –stages of normal parturition –dam care –dystocia – normal and abnormal Puerperium in pets.  <i>Gynacology:</i> Physiology of breeding –estrus cycle –estrus synchronization - pregnancy diagnosis –congenital, hormonal, environmental, pathological, causes of female infertility in ovine  <i>Andrology</i> Comparative and functional anatomy of male genital system in</p>				



		farm animal – sexual behavior – causes of infertility in pets. <i>Artificial insemination:</i> methods of semen collection and evaluation - principles of semen dilution and different types of diluents and methods of their preparation -principles of semen preservation by cooling and freezing – thawing of semen and female insemination in pets.		
THG	8218	Course title	Arabic	التناسل والتوليد والتلقيح الاصطناعي في الماعز
			English	Gynaecology, Obstetrics and Artificial Insemination in cattle
<b>Content</b>				
<p><i>Obstetrics:</i> Pregnancy in different animal –affections of dam and fetus during pregnancy –stages of normal parturition –dam care –dystocia – normal and abnormal Puerperium in caprine</p> <p><i>Gynacology:</i> Physiology of breeding –estrus cycle –estrus synchronization -pregnancy diagnosis –congenital, hormonal, environmental, pathological, causes of female infertility in ovine</p> <p><i>Andrology</i> Comparative and functional anatomy of male genital system in farm animal – sexual behavior – causes of infertility in bucks.</p> <p><i>Artificial insemination:</i> methods of semen collection and evaluation -principles of semen dilution and different types of diluents and methods of their preparation - principles of semen preservation by cooling and freezing – thawing of semen and female insemination in caprine.</p>				

## 18- Department of Poultry and Rabbit Diseases

المقررات الإلزامية Compulsory courses				
Code	Number	Course title	Arabic	Arabic
POD	8219	Course title	Arabic	أمراض الدواجن والأرانب الفيروسية (متقدم).
			English	Viral diseases affecting avian and rabbits (advanced).
<b>Contents</b>				
Advanced studying to the epidemiology, clinical signs, post mortem picture, laboratory diagnosis and methods of prevention and control of different viral diseases affecting avian and rabbit farms.				
POD	8220	Course title	Arabic	أمراض الدواجن والأرانب البكتيرية (متقدم).
			English	Bacterial diseases affecting avian and rabbits (advanced).
<b>Contents</b>				
Advanced studying to the epidemiology, clinical signs, post mortem picture, laboratory diagnosis and methods of prevention and control of different bacterial diseases affecting avian and rabbit farms				
POD	8221	Course title	Arabic	سمينارات في مجال التخصص
			English	Specialized seminars in the field of specialization
<b>Contents</b>				
Various seminars discussing topics and modern methods in the field of specialization, in addition to discussing distinguished research that adds new knowledge and technology that serves the research plan.				
POD	8222	Course	Arabic	سمينارات في مجال التخصص



		title	English	Specialized seminars in the field of specialization
		<b>Contents</b>		
		Various seminars discussing topics and modern methods in the field of specialization, in addition to discussing distinguished research that adds new knowledge and technology that serves the research plan.		
<b>المقررات الاختيارية Elective courses</b>				
Code	Number	Course title	Arabic	Arabic
POD	8223		English	أمراض الدواجن والأرانب الطفيلية و الفطرية (متقدم).
			English	Parasitic and mycotic diseases affecting avian and rabbits (advanced).
		<b>Contents</b>		
		Advanced studying to the epidemiology, clinical signs, post mortem picture, laboratory diagnosis and methods of prevention and control of different parasitic and mycotic diseases affecting avian and rabbit farms.		
POD	8224	Course title	Arabic	التشخيص المعملّي المتقدم لأمراض الدواجن والأرانب الفيروسية والطفيلية.
			English	Advanced lab. diagnosis of viral and parasitic diseases affecting avian and rabbits.
		<b>Contents</b>		
		Studying different laboratory methods used for diagnosis of different viral and parasitic diseases affecting avian and rabbit farms.		
POD	8225	Course title	Arabic	التشخيص المعملّي المتقدم لأمراض الدواجن والأرانب البكتيرية و الفطرية
			English	Advanced lab. diagnosis bacterial and mycotic diseases affecting avian and rabbits.
		<b>Contents</b>		
		Studying different laboratory methods used for diagnosis of different bacterial and mycotic diseases affecting avian and rabbit farms		
POD	8226	Course title	Arabic	أمراض الدواجن الغير وبائية و طرق العلاج و الوقايه
			English	Non-epidemic diseases affecting poultry and their prevention and control methods.
		<b>Content</b>		
		Studying the epidemiology, clinical signs, post mortem picture, laboratory diagnosis and methods of prevention and control of different non-epidemic diseases affecting poultry farms.		
POD	8227	Course title	Arabic	طرق الوقايه من أمراض الدواجن و الأرانب الوبائية.
			English	Preventive methods for epidemic diseases affecting avian and rabbits
		<b>Content</b>		
		Studying the methods of prevention and control of different epidemic diseases affecting avian and rabbit farms.		

## 19- Department of Zoonoses

<b>المقررات الإلزامية Compulsory courses</b>				
Code	Number	Course title	Arabic	وبانيات الامراض المشتركة
ZON	8228		English	Epidemiology of zoonotic diseases





		<b>Contents</b>		
		Epidemiological study of zoonotic diseases (bacterial, viral, parasitic and mycotic zoonotic diseases) and its prevention and control		
ZON	8229	<b>Course title</b>	<i>Arabic</i>	دور حيوانات المزرعة في نقل الامراض المشتركة
			<i>English</i>	<b>Role of farm animals in zoonotic diseases transmission</b>
		<b>Contents</b>		
		Studying role of farm animals in the transmission of bacterial, viral, parasitic and mycotic zoonotic diseases		
ZON	8230	<b>Course title</b>	<i>Arabic</i>	سمينارات في مجال التخصص
			<i>English</i>	<b>Specialized seminars in the field of specialization</b>
		<b>Contents</b>		
		Various seminars discussing topics and modern methods in the field of specialization, in addition to discussing distinguished research that adds new knowledge and technology that serves the research plan.		
ZON	8231	<b>Course title</b>	<i>Arabic</i>	سمينارات في مجال التخصص
			<i>English</i>	<b>Specialized seminars in the field of specialization</b>
		<b>Contents</b>		
		Various seminars discussing topics and modern methods in the field of specialization, in addition to discussing distinguished research that adds new knowledge and technology that serves the research plan.		
<b>المقررات الاختيارية Elective courses</b>				
<b>Code</b>	<b>Number</b>	<b>Course title</b>	<i>Arabic</i>	امراض المهنة المشتركة
ZON	8232		<i>English</i>	<b>Occupational zoonotic diseases</b>
			<b>Contents</b>	
		Studying occupational bacterial, viral, parasitic and mycotic zoonotic diseases that can be transmitted to man. Studying etiological agents, reservoir, source of infection, mode of transmission, Clinical manifestation, laboratory diagnosis, prevention and control measures of zoonotic		
ZON	8233	<b>Course title</b>	<i>Arabic</i>	امراض المجترات المشتركة
			<i>English</i>	<b>zoonotic diseases in ruminants</b>
		<b>Contents</b>		
		Studying role of small and large ruminants in transmission of zoonotic diseases Studying etiological agents, reservoir, source of infection, mode of transmission, Clinical manifestation, laboratory diagnosis, prevention and control		
ZON	8234	<b>Course title</b>	<i>Arabic</i>	الحشرات المسببة للامراض المشتركة
			<i>English</i>	<b>zoonotic diseases by insects</b>
		<b>Contents</b>		
		Studying role of insects in transmission of zoonotic diseases Studying etiological agents, reservoir, source of infection, mode of transmission, Clinical manifestation, laboratory diagnosis, prevention and control measures of zoonotic		
ZON	8235	<b>Course</b>	<i>Arabic</i>	امراض الفطو و الكلاب المشتركة



		<b>title</b>	<i>English</i>	<b>zoonotic diseases in Dogs and cats</b>
		<b>Content</b>		
		Studying role of dogs and cats in transmission of zoonotic diseases Studying etiological agents, reservoir, source of infection, mode of transmission, Clinical manifestation, laboratory diagnosis, prevention and control		
ZON	8236	<b>Course title</b>	<i>Arabic</i>	امراض الطيور و الدواجن المشتركة
			<i>English</i>	<b>Zoonotic diseases in Birds and poultry</b>
		<b>Content</b>		
		Studying role of Birds and poultry in transmission of zoonotic diseases Studying etiological agents, reservoir, source of infection, mode of transmission, Clinical manifestation, laboratory diagnosis, prevention and control.		
ZON	8237	<b>Course title</b>	<i>Arabic</i>	دور التربة في نقل الامراض المشتركة
			<i>English</i>	<b>Role of soil in transmission of zoonotic diseases</b>
		<b>Content</b>		
		Studying role of soil in transmission of zoonotic diseases Studying etiological agents, reservoir, source of infection, mode of transmission, Clinical manifestation, laboratory diagnosis, prevention and control measures of zoonotic diseases		

## 20- Department of Surgery, Anesthesiology and Radiology

المقررات الإلزامية Compulsory courses				
Code	Number	Course title	<i>Arabic</i>	<i>English</i>
SAR	8238			جراحة الاعضاء التناسلية
			<i>English</i>	<b>Surgery of vital organs</b>
		<b>Contents</b>		
		Regenerative surgery (PRP, PRF & Stem cell)- Male genital Female genital systems		
SAR	8239			جراحة الاعضاء الحسية
			<i>English</i>	<b>Surgery of sensory organ</b>
		<b>Contents</b>		
		Ophthalmology- Ear affections- Foot pad affections		
SAR	8240			سمينارات في مجال التخصص
			<i>English</i>	<b>Specialized seminars in the field of specialization</b>
		<b>Contents</b>		
		Various seminars discussing topics and modern methods in the field of specialization, in addition to discussing distinguished research that adds new knowledge and technology that serves the research plan.		
SAR	8241			سمينارات في مجال التخصص
			<i>English</i>	<b>Specialized seminars in the field of specialization</b>
		<b>Contents</b>		
		Various seminars discussing topics and modern methods in the field of specialization, in addition to discussing distinguished research that adds new knowledge and technology that serves the research plan.		



المقررات الاختيارية Elective courses				
Code	Number	Course title	Arabic	الاشعة بالصبغات
			English	Contrast radiography
SAR	8242			
<b>Contents</b>				
Types of contrast media- Contrast radiography of digestive system, respiratory system, urinary system, genital system, vascular system, ophthalmology				
SAR	8243	Course title	Arabic	جراحة الجهاز الهيكلي
			English	Surgery of musculoskeletal system
<b>Contents</b>				
Types of bone fixation-- Bone grafting				
SAR	8244	Course title	Arabic	جراحة الجهاز التنفسي
			English	Surgery of respiratory system
<b>Contents</b>				
Affections of nasal cavity, Paranasal sinus, Trachea and Larynx				
SAR	8245	Course title	Arabic	جراحة الاوتار والمفاصل
			English	Surgery of joint and tendon
<b>Content</b>				
Joint affections-- Joint prosthesis- Suture of tendon- Tendon affections				
SAR	8246	Course title	Arabic	بروتوكولات التخدير في الحيوانات المختلفة
			English	Anesthetic protocol of different animals
<b>Content</b>				
Ruminant anesthesia- Equine anesthesia- Dog & cat anesthesia- Wild & zoo anesthesia- Experimental animal anesthesia				
SAR	8247	Course title	Arabic	جراحة تجويف الفم
			English	Surgery of the oral cavity
<b>Contents</b>				
Lips - Tongue & salivary gland- Teeth & oropharynx- Tonsillitis				

## 21- Department of Animal Medicine

### (A) Internal Medicine

المقررات الإلزامية Compulsory courses				
Code	Number	Course title	Arabic	تقنيات حديثة لتشخيص امراض المجترات
			English	Advanced methods in diagnosis of ruminant diseases
ANM/MD	8248			
<b>Contents</b>				
Studying advanced methods in the diagnosis of digestive system, respiratory system, cardiovascular system, urinary system, skin , nutritional deficiency and metabolic diseases in ruminants				
ANM/MD	8249	Course title	Arabic	تقنيات حديثة لعلاج امراض المجترات
			English	Advanced methods in treatment of ruminant diseases
<b>Contents</b>				
Studying advanced methods in the treatment of digestive system, respiratory system, cardiovascular system, urinary system, skin , nutritional deficiency and				



		metabolic diseases in ruminants		
ANM/MD	8250	<b>Course title</b>	<i>Arabic</i>	سمينارات في مجال التخصص
			<i>English</i>	Specialized seminars in the field of specialization
<b>Contents</b>				
Various seminars discussing topics and modern methods in the field of specialization, in addition to discussing distinguished research that adds new knowledge and technology that serves the research plan.				
ANM/MD	8251	<b>Course title</b>	<i>Arabic</i>	سمينارات في مجال التخصص
			<i>English</i>	Specialized seminars in the field of specialization
<b>Contents</b>				
Various seminars discussing topics and modern methods in the field of specialization, in addition to discussing distinguished research that adds new knowledge and technology that serves the research plan.				
<b>المقررات الاختيارية Elective courses</b>				
ANM/MD	8252	<b>Course title</b>	<i>Arabic</i>	تقنيات حديثة لعلاج امراض الخيول
			<i>English</i>	Advanced methods in treatment of equine diseases
<b>Contents</b>				
Studying advanced methods in the treatment of digestive system, respiratory system, cardiovascular system, urinary system, skin , nutritional deficiency and metabolic diseases in equine				
ANM/MD	8253	<b>Course title</b>	<i>Arabic</i>	تقنيات حديثة لعلاج امراض الحيوانات المنزليه
			<i>English</i>	Advanced methods in treatment of pet animals' diseases
<b>Contents</b>				
Studying advanced methods in the treatment of digestive system, respiratory system, cardiovascular system, urinary system, skin , nutritional deficiency and metabolic diseases in pet animals				
ANM/MD	8254	<b>Course title</b>	<i>Arabic</i>	التشخيص الجزيئي للأمراض الباطنه
			<i>English</i>	Molecular diagnosis of veterinary internal diseases
<b>Content</b>				
Studying genes, gene sequencing and gene expression related to different veterinary internal diseases in animals				
ANM/MD	8255	<b>Course title</b>	<i>Arabic</i>	التشخيص المبكر للأمراض الباطنه
			<i>English</i>	Early diagnosis of veterinary internal diseases
<b>Content</b>				
Studying different methods and markers of early diagnosis of veterinary internal diseases in animals				

## **(b) Infectious diseases**

<b>المقررات الإلزامية Compulsory courses</b>				
<b>Code</b>	<b>Number</b>	<b>Course title</b>	<i>Arabic</i>	الامراض المتوطنه للمجترات الكبيره
			<i>English</i>	Endemic Diseases of large Ruminants
ANM/IN	8256	<b>Contents</b>		
Studying endemic infectious diseases affecting large ruminants, studying its				



		etiological agents either bacterial, viral and parasitic, epidemiology, Clinical manifestation, laboratory diagnosis, prevention and control measures		
ANM/IN	8257	<b>Course title</b>	<i>Arabic</i>	الامراض المتوطنة للمجترات الصغيرة
			<i>English</i>	<b>Endemic Diseases of small Ruminants</b>
<b>Contents</b>				
Studying endemic infectious diseases affecting small ruminants, studying its etiological agents either bacterial, viral and parasitic, epidemiology, Clinical manifestation, laboratory diagnosis, prevention and control measures				
ANM/IN	8258	<b>Course title</b>	<i>Arabic</i>	سمينارات في مجال التخصص
			<i>English</i>	<b>Specialized seminars in the field of specialization</b>
<b>Contents</b>				
Various seminars discussing topics and modern methods in the field of specialization, in addition to discussing distinguished research that adds new knowledge and technology that serves the research plan.				
ANM/IN	8259	<b>Course title</b>	<i>Arabic</i>	سمينارات في مجال التخصص
			<i>English</i>	<b>Specialized seminars in the field of specialization</b>
<b>Contents</b>				
Various seminars discussing topics and modern methods in the field of specialization, in addition to discussing distinguished research that adds new knowledge and technology that serves the research plan.				
<b>المقررات الاختيارية Elective courses</b>				
<b>Code</b>	<b>Number</b>	<b>Course title</b>	<i>Arabic</i>	الأمراض المتوطنة للابل
ANM/IN	8260	<b>Course title</b>	<i>English</i>	<b>Endemic Diseases of Camels</b>
			<b>Contents</b>	
Studying endemic infectious diseases affecting camels, studying its etiological agents either bacterial, viral and parasitic, Clinical manifestation, laboratory diagnosis, prevention and control measures				
ANM/IN	8261	<b>Course title</b>	<i>Arabic</i>	الأمراض المتوطنة للخيل
			<i>English</i>	<b>Endemic Equine Diseases</b>
<b>Contents</b>				
Studying endemic infectious diseases of equines, studying its etiological agents either bacterial, viral and parasitic, Clinical manifestation, laboratory diagnosis, prevention and control measures				
ANM/IN	8262	<b>Course title</b>	<i>Arabic</i>	الامراض المعدية للحيوانات المنزلية
			<i>English</i>	<b>Infectious Diseases of pet animals</b>
<b>Contents</b>				
Studying infectious diseases affecting pet animals, studying its etiological agents either bacterial, viral and parasitic, Clinical manifestation, laboratory diagnosis, prevention and control measures.				
ANM/IN	8263	<b>Course title</b>	<i>Arabic</i>	التقنيات الحديثة لتشخيص الامراض المعدية
			<i>English</i>	<b>Advanced Techniques for diagnosis of infectious diseases</b>
<b>Content</b>				
Studying advanced methods used in diagnosis of veterinary infectious diseases. Such as PCR, real time PCR, Molecular cloning, Gene sequencing for etiological agents, phytogetic diseases.... ect.				
ANM/IN	8264	<b>Course</b>	<i>Arabic</i>	برامج التحصين و العلاجات البيطرية



		<b>title</b>	<i>English</i>	<b>Vaccine programs and Veterinary drugs</b>
		<b>Content</b>		
		Studying methods of preparation of veterinary vaccines for epidemic diseases in Egypt, and preparation of vaccination programs for control of endemic diseases and prevention of Exotic diseases.		
ANM/IN	8265	<b>Course title</b>	<i>Arabic</i>	امراض الضرع وحديثي الولادة
			<i>English</i>	<b>Infectious diseases of udder and newborn calves</b>
		<b>Content</b>		
		Studying infectious diseases affecting udder and newborn calves. In addition, the different etiological agents (bacterial, viral and parasitic) clinical symptoms, laboratory diagnosis, methods of treatment, and preventive measures and control of these diseases.		