Ministry of Higher Education and Scientific Research
Scientific Supervision and Scientific Evaluation Apparatus
Directorate of Quality Assurance and Academic Accreditation
Accreditation Department

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Academic Program and Course Description

Al-Furat Al-Awsat Technical University/ Technical Institute/Kufa/ Department of Animal production techniques

Introduction:

The educational program is a well-planned set of courses that include procedures and experiences arranged in the form of an academic syllabus. Its main goal is to improve and build graduates' skills so they are ready for the job market. The program is reviewed and evaluated every year through internal or external audit procedures and programs like the External Examiner Program.

The academic program description is a short summary of the main features of the program and its courses. It shows what skills students are working to develop based on the program's goals. This description is very important because it is the main part of getting the program accredited, and it is written by the teaching staff together under the supervision of scientific committees in the scientific departments.

This guide, in its second version, includes a description of the academic program after updating the subjects and paragraphs of the previous guide in light of the updates and developments of the educational system in Iraq, which included the description of the academic program in its traditional form (annual, quarterly), as well as the adoption of the academic program description circulated according to the letter of the Department of Studies T 3/2906 on 3/5/2023 regarding the programs that adopt the Bologna Process as the basis for their work.

In this regard, we can only emphasize the importance of writing an academic programs and course description to ensure the proper functioning of the educational process.

Concepts and terminology:

Academic Program Description: **The academic program description provides a brief summary of its vision, mission and objectives, including an accurate description of the targeted learning outcomes according to specific learning strategies.**

Course Description: **Provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the students to achieve, proving whether they have made the most of the available learning opportunities. It is derived from the program description.**

Program Vision: **An ambitious picture for the future of the academic program to be sophisticated, inspiring, stimulating, realistic and applicable.**

Program Mission: **Briefly outlines the objectives and activities necessary to achieve them and defines the program's development paths and directions.**

Program Objectives: **They are statements that describe what the academic program intends to achieve within a specific period of time and are measurable and observable.**

Curriculum Structure: **All courses / subjects included in the academic program according to the approved learning system (quarterly, annual, Bologna Process) whether it is a requirement (ministry, university, college and scientific department) with the number of credit hours.**

Learning Outcomes: **A compatible set of knowledge, skills and values acquired by students after the successful completion of the academic program and must determine the learning outcomes of each course in a way that achieves the objectives of the program.**

Teaching and learning strategies: **They are the strategies used by the faculty members to develop students' teaching and learning, and they are plans that are followed to reach the learning goals. They describe all classroom and extra-curricular activities to achieve the learning outcomes of the program.**

Academic Program Description Form

University Name: Al-Furat Al-Awsat Technical University

Faculty/Institute: Technical Institute/Kufa

Scientific Department: Animal production techniques

Academic or Professional Program Name: Technical Diploma

Final Certificate Name: Technical diploma in animal production

Academic System: Semester

Description Preparation Date: 2025

File Completion Date: 29/2/2025

Signature:

Head of Department Name:

Shatha Atta Abeed

Date: 29 /2/2025

Signature:

Scientific Associate Name:

Dr. Ayad Muslim Hamzaa

Date: 29 / 2 2025

The file is checked by:

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Deparament:

Khoulood M.Abd – Ali

Date:

Signature:

Approval of the Dean

1. Program Vision

Excellence in performance and achieving leadership in high technical learning to meet the requirements of stake holders.

2. Program Mission

Qualifying human scientifically, practically, and technically to meet the requirements of stakeholders by relying on experienced and professional competencies in applying advanced curricula, keeping pace with science, and striving to achieve leadership in providing services at a level that achieves quality standards and interaction with society.

3. Program Objectives

1. Providing the student with technical skills in raising and managing productive field animals (cows, sheep, goats), poultry, and fish, which are the basis for sustaining work in government institutions and the private sector.

2. Preparing staff that will keep pace with scientific development in the field of animal production.

3- Enabling the student to link the lesson information to the environment surrounding him.

Provide the student with information that makes him think and develop his ideas.

4. Encouraging the student to present his information in seminars, seminars, and scientific debates, which enhances the student's self-confidence and makes him qualified to participate in scientific conferences and events.

5. Raising the reality and performance of the teaching staff in the department by attracting specialists and developing the efficiency of the current teaching staff.

6. Providing the requirements for conducting scientific and graduation research to contribute to developing the reality and performance of the department

7. Raising the performance and standard of work in the department's

laboratories and fields.

8. Finding ways to bring various types of farm animals into the country so that the student can know these types and ways to deal with them.

9. Establishing a small pioneer food industry laboratory to benefit from field products in preliminary research and studies.

10. Establishing a private fish farm to expand the scope of research and development of this important tributary.

4. Program Accreditation

Does the program have program accreditation? And from which agency?

Standards for accreditation of specialized programs and the Association of Arab Universities

5. Other external influences

Is there a sponsor for the program? **Ministry of Higher Education and Scientific Research**

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements				
College Requirements				
Department Requirements				
Summer Training				
Other				

7. Program Description

Year/Level	Course Code	Course Name	Credit Hours	
			theoretical	Practical
The first/autumn		Veterinary Principle	2	3
		Dairy Cattle Production	1	3
		Sheep & Goat Production	1	3
		Poultry Production	1	3
		Feed & Feeding	1	3
		Agriculture Machine & Equipment	1	2
		Computer App.	1	2
		Human rights & Democracy	2	-
		English language	2	-
		Arabic Language	2	-
The first / spring		Animal Health	2	3
		Meat Cattle Production	1	3
		Fish Production	1	3
		Poultry Nutrition	2	2
		Animal Production Machinery	1	2
		General Chemistry	2	2
The second / autumn		Animal Physiology	2	3
		Animal Diseases	1	3
		Animal Nutrition	2	2
		Meat maintains & Processing	1	3
		Animal Breeding	1	3
		Computer App. / 2	1	2
		English language	2	-
		Arabic Language	2	-
		Baath Crime in Iraq	2	-

The second spring		Poultry Diseases	2	3
		Hatching Technology	1	
		Dairy product	1	
		Fish Breeding	1	
		Reproductive Physiology & artificial insemination	2	3
		Forage Crops	1	2
		Animal production Economics	2	-
		project	-	2

*** This can include notes whether the course is basic or optional.**

8. Expected learning outcomes of the program	
Knowledge	
Learning Outcomes 1	Learning Outcomes Statement 1
Skills	
Learning Outcomes 2	Learning Outcomes Statement 2
Learning Outcomes 3	Learning Outcomes Statement 3
Ethics	
Learning Outcomes 4	Learning Outcomes Statement 4
Learning Outcomes 5	Learning Outcomes Statement 5

9. Teaching and Learning Strategies

1- Students understand how to obtain scientific sources from the library as well as from the Internet, and how to distinguish reliable sources from non-reliable ones.
2- Using illustrative means during the lecture, such as a point power presentation using a projector, and providing students with mock educational videos to increase their understanding of the topics.
3- Asking students questions from time to time for the purpose of their participation in the lesson and opening the door to discussion.
4- Giving students homework for the current topic and asking them to research the topic of the next lecture
5- For the purpose of developing their scientific research skills.

10. Evaluation methods

1- The student is evaluated by dividing the grade between daily, monthly and oral exams, participation in lectures, in addition to the final exam.

2- Practical tests to regulate the extent to which the student benefits from basic sciences through practical applications

3- Conducting weekly and monthly exams

4- Giving homework and making reports

5- Encouraging daily attendance and allocating grades for attendance, participation, and daily tests

11.Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Professor	Animal Production	Fish Production			1	
Assistant Professor	Veterinary Medicine	Parasites			1	
Assistant Professor	Veterinary Medicine	Animal Physiology			1	
lecturer	Animal Production	Reproductive Physiology			1	
Assistant Lecturer	Animal Production	Animal Nutrition			1	
Assistant Lecturer	Animal Production	Poultry Nutrition			1	
Assistant Lecturer	Animal Production	Poultry Physiology			1	

Professional Development

Mentoring new faculty members

- **Involving new teachers in intensive courses in modern teaching methods.**
- **Directing them to conduct scientific research and publish in reputable scientific journals, whether local or international**
- **Continuous presence with the teaching staff in theoretical and practical lectures in order to encourage them to practice teaching and training processes and solve the problems they face in an educational manner.**
- **Conducting seminars, workshops, and meetings to inform them of the regulations, instructions, and laws followed in the Ministry of Higher Education related to their civil rights,**
- **5- obligations, and duties toward the educational institution at the institution and department level.**

Professional development of faculty members

1- Involving teaching staff in courses, seminars and workshops within their agricultural and veterinary specialization within the university and in other reputable universities inside and outside Iraq.

2- Facilitating difficulties and providing continuous support in preparing the requirements for scientific research

3- Forming research work teams within the department to solve the problems facing the agricultural and veterinary departments in other state departments

12.Acceptance Criterion

Central admission through the Ministry (scientific + vocational)

1- Professional (agricultural)

2- Scientific (applied and biological)

13.The most important sources of information about the program

Relevant scientific books and research published in reputable journals - Department library - - College library - - University library - Purchase from book fairs - approved internet sites

14.Program Development Plan

1- Updating the curricula to suit the development and discoveries in the field of various animal production techniques and striving to write methodological books for the various scientific specializations in the department after obtaining the necessary approvals. They will be circulated to all institutions and universities of the Ministry of Education, in addition to writing books and programs for the practical side.

2- Translating the necessary and modern teaching curricula from English to Arabic while preserving foreign terminology in the translated curricula.

3- Updating theoretical and practical lectures with each new semester to keep pace with scientific developments.

4- Sending teaching staff and students, especially the top ones in their scientific departments, outside Iraq, especially in developed countries, to develop skills and for study purposes, whether primary or postgraduate study.

5- Exchanging experience between local, regional and international universities through the idea of a mutual visiting professor.

Program Skills Outline															
				Required program Learning outcomes											
Year/Level	Course Code	Course Name	Basic or optional	Knowledge				Skills				Ethics			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
The first/spring		Veterinary Principle	Basic		*					*		*			
		Dairy Cattle Production	Basic	*					*					*	
		Sheep & Goat Production	Basic		*					*		*			
		Poultry Production	Basic	*					*					*	*
		Feed & Feeding	Basic			*		*			*		*		
		Agriculture Machine & Equipment	Basic		*						*			*	
		Computer App.	Basic	*				*			*		*		
		Human rights	Basic		*					*		*	*		
		English language	Basic	*					*					*	*
The first/autmun		Animal Health	Basic		*					*		*	*		
		Meat Cattle	Basic	*					*					*	*

		Production													
		Fish Production	**Basic**	*			*			*		*	*		*
		Poultry Nutrition	**Basic**		*					*		*			
		Animal Production Machinery	**Basic**	*					*					*	*
		General Chemistry	**Basic**		*					*		*			
		Computer App.	**Basic**		*					*		*			
		Democracy	**Basic**	*					*					*	*
		English language	**Basic**		*					*		*	*		
The second /spring		**Animal Physiology**	**Basic**	*					*					*	*
		Animal Diseases	**Basic**			*					*		*		
		Animal Nutrition	**Basic**	*					*					*	*
		Meat maintains &Processing	**Basic**												
		Animal Breeding	**Basic**		*					*		*			
		Computer App. / 2	**Basic**	*					*					*	*
		project	**Basic**		*					*		*			
		English language	**Basic**		*					*		*			
The second/autmun		**Poultry Diseases**	**Basic**	*					*					*	*
		Hatching Technology	**Basic**	*					*					*	*
		Dairy product	**Basic**		*					*		*			
		Fish Breeding	**Basic**	*					*					*	*
		Reproductive Physiology & artificial insemination	**Basic**	*					*					*	*

		Forage Crops	**Basic**		*					*		*			
		Animal production Economics	**Basic**	*					*					*	*
		Computer App. / 2	**Basic**		*					*		*			
		Veterinary Principle	**Basic**	*					*					*	*
		Dairy Cattle Production	**Basic**		*					*		*			

- **Please tick the boxes corresponding to the individual program learning outcomes under evaluation.**

First Stage
Autumn Semester

Course Description Form

1- Course Name
Veterinary Principle
2- Course Code
/
3- Semester/Year
Autumn Semester (first) / Academic Year 2024 - 2025
4- Date of preparation of this description
20 / 2 / 2025
5- Available Attendance Forms
Theoretical lectures in the classroom and practical lectures in the laboratory and field
6- Number of credit hours (total) / number of units (total)
5 hours (2 theoretical + 3 practical) / 5 units **75 hrs. / 5 units**
7- Course administrator's name (if more than one name) with e-mail
Shatha Atta Abeed e. mail : kin.sht@atu.edu.iq
8- Course Objectives

Course Objectives	**After the end of the semester, the student will be able to know:** **The internal body systems of the animal and the animal's body's resi to diseases and types of pathogens such as bacteria and parasites.** **The study of diseases that affect animals (classification, methods of transmission, etc.).** **Types of veterinary medicines .** **Prevention and control of infectious diseases .** **Hormones (types of sex hormones) .** **Surgery, types of wounds, and others.**

9- Outputs of the required program and methods of teaching and evaluation

A- Cognitive objectives

1. Knowledge and understanding of the parts and details of the anatomical structure of the animal body.
2. Clarifying the basic concepts of pathogens, disease prevention, and treatment use .
3. Identify the clinical importance of some diseases that affect farm animals

B- Skills objectives of the program

B1- The ability to think about treating health problems affecting farm animals .
B2- Skills to link the anatomy and physiology of the animal's body with some diseases .
B3- The ability to link the imbalance occurring with some hormones in the body and its relationship to dystocia .
B4- Identifying the surgery, types of wounds, and their treatment

❖ **Teaching and learning methods**

1- Using the method of discussion and deriving the answer in the practical lecture when teaching the theoretical side of it .
2- Using the display or screen to display scientific pictures or films to attract the student's attention to interact with the lecture.
3- Use blackboard and colored pencils to clarify certain schemes and terms.
4- Using models and illustrations and conducting practical experiments in practical training.
5- Guiding students on some resources on websites to benefit from them to develop capabilities .

❖ **Assessment methods**

1- Conducting sudden and rapid tests in an attempt to evaluate and evaluate the previous lecture.
2- Demanding the preparation of reports on the resistance of ticks and scabies on animals and in animal pens from modern sources and seminars for topics related to the curriculum to encourage scientific research .
3- Conducting tests, oral, and practical.

C- Thinking skills

C1-The ability to make decisions by identifying different body parts, which contributes to practicing veterinary techniques in a scientific and accurate manner .
C2- Enabling students to think logically about the anatomical and physiological structure of the animal's body and make practical use of it in the practice of veterinary medicine .
C3- Developing the student's ability to dialogue and discussion .

❖ **Teaching and learning methods**

Blackboard, models, presentations using the screen or data show, illustrations, seminars,

❖ **Assessment methods**

Daily Exams, Oral Exams, Semester Exams, Practical Experience Training

D- General and qualifying skills transferred (other skills related to characterization and personal development)

1- Follow up the scientific development by contacting universities via the Internet .
2- Developing the student's ability to deal with information via the Internet .
3- Developing the student's ability to dialogue and discussion

10. Course Structure

weeks	hours	Required Learning Outcomes	Unit Name OR Subject Name	Learning Method	Evaluation method
((First + 2nd. + 3rd.))	Two hours For the Theoretical lesson	Identify the body's systems for various farm animals and its functions	Internal body systems	Generally performed Next: A lesson, Theoretical is: Giving a lecture Theoretical with the use of Discussion style And derive the answer from students use the offer on the screen to view photos or movies scientific to attract the attention of student to interact with the lecture + As for the, Practical lesson is done : Use Models and pictures explanations in practical training Make some practical experiments for a purpose examination of blood samples and stool and urine Make scientific visits to barns of animals and the Faculty of Medicine	As for the lessons, Theory: 1. Daily exams 2. Oral exams monthly exams and quarterly + As for the lessons, Practices: 1- Training is done on statues 2. Prompt to set up reports & seminars from recent sources related to the curriculum
Fourth					
Fifth		Identify the different types of bacteria	Bacteria, their types and characteristics		
Sixth					
Seven		Identify the different types of anemia and its causes	Types and causes of Anemia		
Eight	+	Identify the different types For immunity against various Infectious	Immunity and resistance		
Nine					
Ten	three Hours For the Practical lesson	Identify the different types of diseases and how they are transmitted between herd members	Diseases classification and methods of Its transmission		
Eleven					
Twelve					
Thirteen		Learn about different methods Which are used for various diagnoses diseases affecting animals farm	Diagnoses of the diseases		
((Fourteen + Fifteen))					
		Identify the different types vet medicines and methods of administering med veterinary and vaccines	Medicine and types of vet medicines		
		How to prevent and control infectious diseases	Prevention and control of Infectious diseases		
		Different types of mastitis and its causes	Mastitis types of inflammation of the		

			udder	Veterinarian for examination purpose signs of health and	
		Methods of diagnosing parasites Internal and externa field and Laboratory	Animal parasites	illness and learn about the roads various medications to adn and vaccines	
		Identify the different types wounds and how to treat them	Surgery, types of wounds		
		Childbirth: tools used in Child maternal and newborn care	Childbirth and types of dystocia		

11-Course Evaluation

Distribution of the grade out of 100 according to the tasks assigned to the student such as daily preparation and oral and monthly exams editorial and reports .... etc

12-Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	**مبادئ و ممارسات الطب البيطري / William R. Jenkins**
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

13- Course Development Plan

1- Updating the curricula to suit the development and recent discoveries in the field of specialization.

2- Translating English teaching curricula into Arabic while preserving foreign terms in the translated curricula.

3-Updating lectures annually.

4- Exchange of experience between universities through the idea of the visiting professor exchanged.

Course Description Form :

1. Course Name:	
Dairy cattle production	
2. Course Code:	
3. Semester / Year:	
Spring semester/2024	
4. Description Preparation Date:	
/ 2 / 2024	
5. Available Attendance Forms:	
Attendance in classrooms and scientific laboratories in the department	
6. Number of Credit Hours (Total) / Number of Units (Total)	
60 hours (15 theoretical hours + 45 practical hours) Number of units (total) / 4	
7. Course administrator's name (mention all, if more than one name)	
Name: Karrar Kadhim Abdul-Amir **Email: Karrar.Kadhim.iku@atu.edu.iq.**	
8. Course Objectives	
Course Objective	**1- That the student recognizes the economic importance of animal products** **2- For the student to recognize the types of cows, buffaloes, and dairy sheep and their classification** **3- For the student to become familiar with field operations for farm dairy animals** **4- For the student to become familiar with the types of records on the farm** **5- Introducing the student to methods of caring for farm animals and their needs**
9. Teaching and Learning Strategies	
Strategy	**1- Explanation and clarification** **2- Electronic and in-person lecture method** **3- Student groups** **4- Practical lessons in the institute's animal fields** **5- Scientific trips to fields in the region** **5- Self-learning method**

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The first	1Theoretical 3 practical	International dairy cattle breeds	Identify the components of the field of milk production, mechanical milking devices, and manual milking tools	A lecture + Laboratory	‹Examinations Quiz
the second	1Theoretical 3 practical	Arafa cattle and their milk production	Identify the breeds that produce milk in the field	A lecture + Laboratory	‹Examinations Quiz
the third	1Theoretical 3 practical	Care and feeding of dairy cattle	Identifying milk production records in the field/identifying the characteristics of livestock	A lecture + Laboratory	‹Examinations Quiz
the fourth	1Theoretical 3 practical	Installation and physiology of the udder	Livestock housing, isolation rooms, birth rooms, stores, fodder	lecture A + Laboratory	‹Examinations Quiz
Fifth	1Theoretical 3 practical	Factors affecting the increase and decrease in the level of milk production	Field operations/cleaning, feeding, production and their impact on milk production	A lecture + Laboratory	‹Examinations Quiz
sixth	1Theoretical 3 practical	International and Iraqi buffalo	Seasonal operations/numbering, drying	A lecture + Laboratory	‹Examinations Quiz
Seventh	1Theoretical 3 practical	Milk production in buffalo	Dairy cattle arbitration (tables)	A lecture + Laboratory	‹Examinations Quiz
Eighth	1Theoretical 3 practical	Goats and sheep and their milk production	Performing mechanical milking	A lecture + Laboratory	‹Examinations Quiz
ninth	1Theoretical 3 practical	Camels and their milk production	Performing the manual milking process and comparing it to mechanical milking	A lecture + Laboratory	‹Examinations Quiz
The tenth	1Theoretical 3 practical	Factors affecting battery components during production life	Breastfeeding and its types	lecture A + Laboratory	‹Examinations Quiz

Eleventh	**1Theoretical 3 practical**	**Hormones and their effect on milk production**	**Milk substitutes and the importance of colostrum**	**A lecture + Laboratory**	**‹Examinations Quiz**
Twelveth	**1Theoretical 3 practical**	**Genetic improvement/selection methods for dairy cattle**	**The development of milk breeds (information network)**	**A lecture + Laboratory**	**‹Examinations Quiz**
Thirteenth	**1Theoretical 3 practical**	**Establishing dairy cattle farms**	**Visit a milk production station (scientific visit)**	**A lecture + Laboratory**	**‹Examinations Quiz**
Fourteenth	**1Theoretical 3 practical**	**Storing and producing healthy and good milk**	**Visit the milk collection center (scientific visit)**	**A lecture + Laboratory**	**‹Examinations Quiz**
Fifteenth	**1Theoretical 3 practical**	**Protecting milk from contamination**	**Preparing and discussing visit reports to the milk production station and the Ministry of Milk Collection Center**	**A lecture + Laboratory**	**‹Examinations Quiz**

11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	**Milk cattle production d. Spokesman Hamid Al-Qudsi**
Main references (sources)	**Recent research and studies**
Recommended books and references (scientific journals, reports...)	**Animal Science Journal**
Electronic References, Websites	**Google Scholar**

Course Description Form

1. Course Name:
Sheep & goat production
2. Course Code:
3. Semester / Year:
Spring semester/2024 - 2025
4. Description Preparation Date:
/ 2 / 2025
5. Available Attendance Forms:
Attendance in classrooms and scientific laboratories in the department
6. Number of Credit Hours (Total) / Number of Units (Total)
60 hours (15 theoretical hours + 45 practical hours) Number of units (total) / 4
7. Course administrator's name (mention all, if more than one name)
Name: Humamh hussien ahmed **Email: .humamh@atu.edu.iq**
8. Course Objectives

Course Objectives	**. Introducing students to fish farming and its various sections, types and branches.** **. Introducing students to the types of breeding fish, the characteristics of each, and how to benefit from them.** **. Introducing and familiarizing students with the appropriate environment for growing and raising fish and methods of feeding them.** **. Introducing students to different breeding methods for breeding fish** **. Introducing students to how to benefit from fish wealth and increase its production using the correct scientific methods.** **. Introducing students to design and planning skills for establishing fish farms according to the scientific and practical foundations of this science**
9. Teaching and Learning Strategies	
Strategy	**• Developing students' cognitive skills by understanding information and concepts.** **• Developing students' intellectual skills.** **• Develop personal skills and assume responsibility.** **• Developing skills in dealing with the information network, the Internet and computer** **• Developing students' communication skills with each other on the one hand and with the community and the professor on the other hand** **• The ability to deal with sources of information by searching for new information in fish science.** **• . The ability to link theoretical lectures with practical applications.** **• Identifying scientific terms related to ichthyology using the English language, which gives students new linguistic skills**

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The first	1Theoretical 3 practical	Scientific foundations of sheep classification	Breeds of sheep found in the field, Iraqi sheep breeds	A lecture + Laboratory	‹Examinations Quiz
the second	1Theoretical 3 practical	Breeds of sheep for meat, milk and wool	Field operations for sheep/numbering, neutering, cutting the tail, removing the horns	A lecture + Laboratory	‹Examinations Quiz
the third	1Theoretical 3 practical	Reproduction and fertilization in sheep, reproductive systems	Seasonal field operations/mulching, wool shearing	A lecture + Laboratory	‹Examinations Quiz
the fourth	1Theoretical 3 practical	Sexual maturity, breeding season, methods of controlling the timing of molting	Daily field operations/providing feed and water, cleaning, holding and handling animals	A lecture + Laboratory	‹Examinations Quiz
Fifth	1Theoretical 3 practical	Pregnancy and birth period, caring for ewes before and after birth	Establishing the herd, choosing the breed, herd size, and when to buy sheep	A lecture + Laboratory	‹Examinations Quiz
sixth	1Theoretical 3 practical	Growth and development in sheep	Sheep pens and supplies, types of pens	A lecture + Laboratory	‹Examinations Quiz
Seventh	1Theoretical 3 practical	Milk production in sheep and factors affecting milk production	Breastfeeding and newborn care, newborn weight, preparing feeders and drinkers	A lecture + Laboratory	‹Examinations Quiz
Eighth	1Theoretical 3 practical	Properties and features of wool, morphological anatomy	The death of lambs, the causes of death	A lecture + Laboratory	‹Examinations Quiz
ninth	1Theoretical 3 practical	Stages of wool fiber growth, wool gradation	Estimating age in sheep, types of teeth	A lecture + Laboratory	‹Examinations Quiz
The tenth	1Theoretical 3 practical	Origin and classification of goats, location in the	Field records, types of records	A lecture + Laboratory	‹Examinations Quiz

		animal kingdom			
Eleventh	**1Theoretical 3 practical**	**Goat breeds in the world**	**Milking process, types of milking, manual, mechanical**	**A lecture + Laboratory**	**،Examinations Quiz**
Twelveth	**1Theoretical 3 practical**	**Goat reproduction, sexual puberty, sexual maturity**	**Phenotypic characteristics of goat breeds**	**A lecture + Laboratory**	**،Examinations Quiz**
Thirteenth	**1Theoretical 3 practical**	**Milk, hair and skin production in goats**	**Identify the types of hair in goats**	**A lecture + Laboratory**	**،Examinations Quiz**
Fourteenth	**1Theoretical 3 practical**	**Genetic improvement in sheep and goats**	**The process of shearing wool and hair**	**A lecture + Laboratory**	**،Examinations Quiz**
Fifteenth	**1Theoretical 3 practical**	**Fattening lambs and goats, managing fattening fields for sheep lambs and goats**	**A scientific trip to one of the typical fields**	**A lecture + Laboratory**	**،Examinations Quiz**

11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	**Sheep and goat production book**
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name: / Poultry production
2. Course Code:
3. Semester / Year: Fall and spring semester/2024
4. Description Preparation Date:2024\3\2
5. Available Attendance Forms: Attendance in classrooms and scientific laboratories in the department
6. Number of Credit Hours (Total) / Number of Units (Total) 60 hours (15 theoretical hours + 45 practical hours) Number of units (total) /
7. Course administrator's name (mention all, if more than one name)
Name :Batool Abad Albany shaker **Email: batoul.shaker@atu.edu.iq**
8. Course Objectives

Course Objectives	**At the end of the semester, the student will be fully familiar with the subject** **of poultry production** **• At the end of the semester, the student learns about the** **types of poultry, including chickens, ducks, geese, quail, and turkeys** **and the importance of each of them.** **• The student's knowledge of the importance of poultry production fo** **its main and secondary products** **• The student learns about the specifications that must be** **met or the conditions that must be met in poultry housing** **for the purpose of creating a special project**

9. Teaching and Learning Strategies

Strategy	**1 - Students understand how to obtain scientific sources from the library as well as from the Internet, and how to distinguish between reliable and non-reliable sources.** **2 - Using illustrative means during the lecture, such as point power presentation using the projector, and providing students with mock educational videos to increase their understanding of the topics.** **3 - Asking students questions from time to time for the purpose of their participation in the lesson and opening the door to discussion.** **4 - Giving students homework for the current topic and asking them to research the topic of the next lecture For the purpose of developing their scientific research skills.**

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2Theoretical 3 practical	The importance of the poultry industry i Iraq, international companies producing breeds of broiler chickens and egg chickens	Knowing the importance of th poultry industry with its varic main and secondary productions + studying the breeds that produce meat and eggs and their importance on the country's economy	a lecture + laboratory	Exams, exams
2	2Theoretical 3 practical	Reproductive functions poultry, egg formation, male and female reproductive systems, hormones and their control over egg formation	Knowing the importance reproduction and who responsible for the reproduc process in poultry, studying female and male systems i de and accurately,and what are factors affecting the product and formation of the egg.	a lecture + laboratory	Exams, exams

3	2Theoretica 3 practical	Physiological actions in the digestive system Poultry physiology poultry anatomy t see the various internal organs	Knowledge of t physiology of the digest system and how to bene from converting fe material into nutritio elements and th benefiting from it produce meat and eggs dissecting poultry a identifying its inter organs	a lecture + laboratory	Exams, exams
4	2Theoretica 3 practical	Natural and artificial hatching chickens. The basi components of hatching Maintenance poultry fields, th supplies, and t equipment used them	Knowledge of hatchi what are its natural a artificial types, what a the most important ba components of the hatchi process + maintenance poultry fields, and t importance of maintenar and its impact production	a lecture + laboratory	Exams, exams
5	2Theoretica 3 practical	Chicken houses, elements that mus be available in selecting and designing the field location, calculations of ventilation, coolin and lighting needs Types of feeders a manholes, th installation, operation a maintenance, ventilation a cooling devic heating devices	Knowing the elements th must be available in t locations of poultry fie and studying the design poultry fields and what a the factors affecting poul production + knowing t types of feeders a manholes used in poul fields and their impact production	a lecture + laboratory	Exams, exams
6	2Theoretica 3 practical	Various poultry equipment used in	Knowing many of t equipment used in poul	a lecture + laboratory	Exams, exams

		poultry houses Nursery metho the most importa daily operatio nursery requirements a problems	fields and their impact production + learni about daily operations poultry fields, what are t requirements that must met in poultry fields, a what are the proble facing breeders.		
7	2Theoretica 3 practical	Egg production, laying hen rearing systems, factors affecting egg production, metho used to calculate e production. Types hatcheries, hatchery setup, operation, specification of the typi hatchery	Knowing the importance eggs, how to raise layi hens, knowing the facte affecting egg production knowing the hatcheries a their types, how to oper them, and what are t most importa specifications that must available in a typi hatchery	a lecture + laboratory	Exams, exams
8	2Theoretica 3 practical	Production of biological eggs or programmed eggs with laying hens a turkeys Maintenance poultry fields, th supplies, and t equipment used them, refrigerati and heating devi for egg productio daily fi operations	Learning about e production not only chickens, but also in oth poultry such as turke ducks, etc. + Knowing h to maintain the fields a what devices a equipment must available in the fields benefit from them and th impact on production.	a lecture + laboratory	Exams, exams
9	2Theoretica 3 practical	Quail egg production,	Knowing what a quail and its econon	a lecture + laboratory	Exams, exams

		economic importance, gener rules followed in e production Egg examinati external appearance, inter contents examination, opti examination, e grading	importance + knowing t tests that are performed eggs prepared for hatchi and the conditions th must be met in the eg and the most importa tests that are performed a the optical examination		
10	2Theoretica 3 practical	Meat production, broiler rearing systems, factors affecting meat production Meat producti and the difficult that prevent t development of t industry, sorti chickens for m production	The importance of poult meat, what are the syste for raising broilers, wh are the factors that aff meat production + knowi the difficulties faci production	a lecture + laboratory	Exams, exams
11	2Theoretica 3 practical	Poultry slaughterhouse management and methods used in preparing and marketing meat chickens Operating a maintaining poult slaughterhouses, preparing chicke before and af slaughter	Knowing wh slaughterhouses are, th importance to poult production, how to use a maintain them, and t conditions that must be m by slaughterhouse worke	a lecture + laboratory	Exams, exams
12	2Theoretica 3 practical	Genetic improvement poultry, gene principles	Knowing gene improvement in gener what genetic improveme is for poultry in particul	a lecture + laboratory	Exams, exams

		genetics, quantitative a qualitative trai selection methods	and what are the desira characteristics of poult that are improved preserved.		
13	2Theoretica 3 practical	Turkey chicken types and breedin methods Disposal a utilization of poult products	Getting to know ma poultry, including turke geese, ducks, and quail, a methods of raising them knowing the importance by-products from poult and benefiting greatly fr them.	a lecture + laboratory	Exams, exams
14	2Theoretica 3 practical	Breeding and production of ostriches Economic calculations poultry projec cost and pro calculations	Identifying the ostrich bi its breeding and its economic importance + Every productive proj must know its econon feasibility, and the sa applies to..	a lecture + laboratory	Exams, exams
15	2Theoretica 3 practical	The most importa types of ornament chickens and methods of raising them A visit to one of t typical fields	Knowing the distinct types of poultry, includi ornamental chickens th amateurs want to raise, a breeding methods students visiting poult fields and getting to kn the contents of the fields general	a lecture + laboratory	Exams, exams

11.

Course Evaluation

12.Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc.

Learning and Teaching Resources	-
Required textbooks (curricular books, if any)	Book of principles of poult production The author is Dr. Ali Mahmoud A Kassar
Main references (sources)	Poultry production book Author: Saad Abdul Hussein Naji 1985
Recommended books and references (scient journals, reports...)	Organic nutritional needs of poultry Written by Prof. Dr. Ali Mahmoud A Kassar and Prof. Dr. Nihad Al-Nadawi Prof. Dr. Abdullah Abis Prof. Dr. Na Muhammad Naji Prof. Dr. Haier Razzes M.M. Saif Al-Kassar
Electronic References, Websites	animals of Agricultural sciences, AO

Course Description Form

1. Course Name:
Feed and Feeding
2. Course Code:
3. Semester / Year:
Autumn semester /2024 - 2025
4. Description Preparation Date:
/ 2 / 2025
5. Available Attendance Forms:
Attendance in classrooms and scientific laboratories in the department
6. Number of Credit Hours (Total) / Number of Units (Total)
60 hours (15 theoretical hours + 45 practical hours) Number of units (total) / 4
7. Course administrator's name (mention all, if more than one name)
Name: Humamh hussien ahmed **Email: .humamh@atu.edu.iq**
8. Course Objectives

Course Objectives	**• At the end of the semester, the student will have mastered the foundations of nutritional science in farm animals, which include cows, sheep, goats, buffalo, and camels, and the ability to conduct laboratory analyzes of food, methods of performing them, and high technology in order to reach the most accurate results as well.** **• At the end of the semester, the student learns about the parts and components of the digestive system, its anatomy, how it works, and learns about the glands that digest fodder materials and what the physiological process of digestion is for ruminants.** **• The student's knowledge of the classification of feed materials and the latest methods and techniques used in modern nutrition**

9. Teaching and Learning Strategies	
Strategy	1 - Students understand how to obtain scientific sources from the library a well as from the Internet, and how to distinguish between reliable and non-reliable sources. 2 - Using illustrative means during the lecture, such as point power presentation using the projector, and providing students with mock educational videos to increase their understanding of the topics. 3 - Asking students questions from time to time for the purpose of their participation in the lesson and opening the door to discussion. 4 - Giving students homework for the current topic and asking them to research the topic of the next lecture For the purpose of developing their scientific research skills.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The first	1Theoretical 3 practical	Definition of nutrition, the importance of nutrition for animals	Identify laboratory equipment and methods for taking samples from various feed materials	A lecture + Laboratory	،Examinations Quiz
the second	1Theoretical 3 practical	Composition of feed materials (water, carbohydrates, fats, proteins, vitamins, mineral salts)	Anatomy of the digestive system of ruminants	A lecture + Laboratory	،Examinations Quiz
the third	1Theoretical 3 practical	Digestion and absorption of nutritional compounds in ruminants and monogastric animals	Anatomy of the digestive system of monogastric animals (poultry and rabbits)	A lecture + Laboratory	،Examinations Quiz
the fourth	1Theoretical 3 practical	Classification and specifications of different feed materials	Conducting solution dilution operations (molar and molar concentration)	A lecture + Laboratory	،Examinations Quiz

Fifth	**1Theoretical 3 practical**	**Food and non-food supplements added to diets**	**Estimation of moisture in concentrated and coarse feed (green)**	**A lecture + Laboratory**	**‹Examinations Quiz**
sixth	**1Theoretical 3 practical**	**Meat cutting (minced meat, sausage and hamburger making)**	**Protein estimation**	**A lecture + Laboratory**	**‹Examinations Quiz**
Seventh	**1Theoretical 3 practical**	**Use of agricultural (plant and animal) and industrial waste in animal feed**	**Protein estimation**	**A lecture + Laboratory**	**‹Examinations Quiz**
Eighth	**1Theoretical 3 practical**	**Using hay and silage in animal feed**	**Fat estimation**	**A lecture + Laboratory**	**‹Examinations Quiz**
ninth	**1Theoretical 3 practical**	**Basic rules in forming relationships**	**Energy estimation**	**A lecture + Laboratory**	**‹Examinations Quiz**
The tenth	**1Theoretical 3 practical**	**Balancing relationships and forming relationships**	**Fiber estimation**	**A lecture + Laboratory**	**‹Examinations Quiz**
Eleventh	**1Theoretical 3 practical**	**Food poisoning**	**Fiber estimation**	**A lecture + Laboratory**	**‹Examinations Quiz**
Twelveth	**1Theoretical 3 practical**	**Studying the animal's need for energy and its fate in the animal's body**	**Determination of silica in feed materials and methods of adulteration of feed**	**A lecture + Laboratory**	**‹Examinations Quiz**
Thirteenth	**1Theoretical 3 practical**	**Nutritional standards and methods for measuring the nutritional value of feed materials**	**Mathematical applications on food balances**	**A lecture + Laboratory**	**‹Examinations Quiz**
Fourteenth	**1Theoretical 3 practical**	**Nutritional scales**	**Computational applications on nutritional standards**	**A lecture + Laboratory**	**‹Examinations Quiz**
Fifteenth	**1Theoretical 3 practical**	**Some important nutritional terms (weight gain, digestibility coefficient, conversion efficiency, nutritional ratio)**	**Visit one of the feed factories**	**A lecture + Laboratory**	**‹Examinations Quiz**

11. Course Evaluation	
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	**1- Animal food and nutrition book / author MacDonald** **2- Animal nutrition book**
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name: Pullers and agricultural machinery	
2. Course Code:	
3. Semester / Year: Fall and spring semester/2024	
4. Description Preparation Date:2024\3\2	
5. Available Attendance Forms: Attendance in classrooms and scientific laboratories in the department	
6. Number of Credit Hours (Total) / Number of Units (Total)\ 45 hours (15 theoretical hours + 30 practical hours) Number of units (total) / 3	
7. Course administrator's name (mention all, if more than one name)	
Name :Batool Abad Albany shaker **Email: batoul.shaker@atu.edu.iq**	
8. Course Objectives	
Course Objectives	**• At the end of the semester, the student will have complete knowledge of the subject of tractors and agricultural machinery.** **• The student learns about the importance of tractors and agricultural machinery** **• The student's knowledge of the types of agricultural tractor and their need** **• The student learns about the parts and components of agricultural machinery** **• The student learns about safety procedures when using agricultural tractors** **• The student's knowledge of the equipment used to combat agricultural pests and how they are used.** **• The student learns about many of the equipment and machines used in animal fields, such as scrapers, through which ruminant waste is disposed of.**

9. Teaching and Learning Strategies	
Strategy	**1 - Students understand how to obtain scientific sources from the library as well as from the Internet, and how to distinguish between reliable and non-reliable sources.** **2 - Using illustrative means during the lecture, such as point power presentation using the projector, and providing students with mock educational videos to increase their understanding of the topics.** **3 - Asking students questions from time to time for the purpose of their participation in the lesson and opening the door to discussion.** **4 - Giving students homework for the current topic and asking them to research the topic of the next lecture** **For the purpose of developing their scientific research skills.**

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2Theoretical 3 practical	The importance agricultural mechanization See the types of pullers and lear about their part	Recognizing the importance of agricultural mechanization of various types + See the types of pullers and learn about their different parts	a lecture + laboratory	Exams, exams
2 2	2Theoretical 3 practical	Types of pullers Main engine par and types of systems	Identify the type of agricultural pullers + Knowledge of t main engine pa and types systems agricultural	a lecture + laboratory	Exams, exams

			tractors		
3	2Theoretical 3 practical	Function of main t parts Parts of cooling systems and air systems	The function of the parts of the agricultural puller and all its compone + Identify the parts cooling systems agricultural machinery, addition to systems	a lecture + laboratory	Exams, exams
4	2Theoretical 3 practical	Quaterna and binar thermal cycles Parts of t lubricatio system	Knowledge of thermal cycles of their four- and binary types + Identify t parts of t lubricatior system	a lecture + laboratory	Exams, exams
5	2Theoretical 3 practical	Fuel system / diesel, gasoline f the engine Tug movement and t driving device	Fuel system f diesel and gasoli + learning to dr a tug	a lecture + laboratory	Exams, exams
6	2Theoretical 3 practical	Air, exhaust, cooling and lubrication syste Electrica systems f tug parts	Knowledge of the a exhaust, cooling a lubricatior system important for the bet functioning of agricultura machinery	a lecture + laboratory	Exams, exams
7	2Theoretical 3 practical	Electrical systen for diesel and	Identify t electrical system	a lecture + laboratory	Exams, exams

		gasoline engines The separator, its par and the ge shift devic	diesel and gasoli engines		
8	2Theoretical 3 practical	Hydraulic devic Practical traini on tug driving	Identify the hydraulic device and its types+ How to dr agricultura machinery	a lecture + laboratory	Exams, exams
9	2Theoretical 3 practical	Tug structure, movement and steering group Attaching tools to t tug	Learn about t external structu of the tug, steering grou and how to conn it	a lecture + laboratory	Exams, exams
10	2Theoretical 3 practical	Sustaining the t Identify the pa of sustainability	Identifying sustainability a its importan with agricultu tractors a various livesto production machines	a lecture + laboratory	Exams, exams
11	2Theoretical 3 practical	Smoothing equipment Types of plo and learni about t equipment used	Learn abo smoothing equipment + kn the types of plo and how to u them	a lecture + laboratory	Exams, exams
12	2Theoretical 3 practical	Planning and canal cutting equipment Types protective equipmen	How the stud gets to know t equipment f planning a cutting channels and the types equipment	a lecture + laboratory	Exams, exams

13	2Theoretical 3 practical	Cleaning equipment for ruminant fields Types of fi cleaning equipment	Knowing the different types of equipment and how they operate Modern tactic its worki mechanism	a lecture + laboratory	Exams, exams
14	2Theoretical 3 practical	Control equipment Watch the use pullers in t fields (Information Network	Learn about t types of p control equipme + watch many cl to learn how th work agricultural field	a lecture + laboratory	Exams, exams
15	2Theoretical 3 practical	Reaping and harvesting equipment Discussing t practical less and benefiti from the field specialization	Identifying t types of harvesti and harvesti equipment + scientific discussion f students regardi the curriculu items for t subject of tracte and agricultu machinery.	a lecture + laboratory	Exams, exams

11.

Course Evaluation

12.Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

Learning and Teaching Resources	
Required textbooks (curricular books, if any)	**- Book: Agricultural mechanization Prepared by: Professor Dr Mubarak Muhammad Mustaf Faculty of Agriculture - Ain Shams University Dr.. Essam Ahmed Al-Sahar Emeritus professor of agricultural engineering Faculty of Agriculture - Ain**

	Shams University **Number of pages of the book: 250 pages** **Source: https://www.agr lib.site/2020/07/blog-post_56.html**
Main references (sources)	**Comprehensive agricultu library**
Recommended books and references (scientific journa reports...)	**Agricultural tractors A.D. Mahmoud Ali Muhammad Mr. Dr. Ibrah Muhammad Omar**
Electronic References, Websites	**animals of Agricultural scienc AOAS**

Course Description Form

1. Course Name:	
Computer Application (1)	
2. Course Code:	
3. Semester / Year:	
Courses 2024 - 2025	
4. Description Preparation Date:	
29/2/2025	
5. Available Attendance Forms:	
Mandatory	
6. Number of Credit Hours (Total) / Number of Units (Total)	
7. Course administrator's name (mention all, if more than one name)	
Name: Zaid Amer Abbas **Email: Zaid.jeryo@atu.edu.iq**	
8. Course Objectives	
Course Objectives	**Identifying the calculator applications used related to the specialty and how to deal with them to support agricultural work.**
9. Teaching and Learning Strategies	
Strategy	**Education strategies** **It includes a set of general rules and broad outlines that concern means of achieving the desired goals of teaching through advance planning and setting future plans for (presentation - coordination – training - discussion), organizing the classroom environment, and classroom management for the purpose of developing students' education.** **Learning strategies** **It includes the behaviors and procedures that students engage in that aim to influence how they are able to process information and learn different tasks. Learning is strategic when students are aware of the special skills and strategies (specific procedures and methods) that they use in learning.**

10. Course Structure					
Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**
The first	**1**	**Understanding the topic and the ability to apply it correctly**	**The Computer - its definition - its advantages - comparing the Computer to humans - the development of computer generations - hardware components - software - measuring the Computer memory.**	**Lecture**	**Exam**
The Second	**1**	**Understanding the topic and the ability to apply it correctly**	**The Computer - its definition - its advantages - comparing the Computer to humans - the development of computer generations - hardware components - software - measuring the Computer memory.**	**Lecture**	**Exam**
The Third	**1**	**Understanding the topic and the ability to apply it correctly**	**Operating systems - their importance - their types - how to deal with the Ms - Dos operating system - its versions - what is new in its versions.**	**Lecture**	**Exam**
The Fourth	**1**	**Understanding the topic and the ability to apply it correctly**	**Internal and external commands - dealing with files**	**Lecture**	**Report + Evaluation**

			and directories - creating a directory - deleting a directory.		
The Fifth	1	Understanding the topic and the ability to apply it correctly	Browse files - Delete files - Change file name - Delete file - Rename file.	Lecture	Exam
The Sixth	1	Understanding the topic and the ability to apply it correctly	Formatting new disks - types of used disks - types of disk drives.	Lecture	Exam
The Seventh	1	Understanding the topic and the ability to apply it correctly	Configure batch file using edit, edlin, copycon.	Lecture	Exam
The Eighth	1	Understanding the topic and the ability to apply it correctly	Data tables - thei importance and us in agricultural fiel	Lecture	Exam
The Ninth	1	Understanding the topic and the ability to apply it correctly	Entering data relat to a specific plant crop (weight, lengt number, branche etc.) - moving colu and rows - copyin and deleting them adding columns a rows - storing - retrieving.	Lecture	Exam
The tenth	1	Understanding the topic and the ability to apply it correctly	Some important mathematical equations in extracting results for a specific crop (total, rate, percentage, square root, power, logarithm).	Lecture	Report + Evaluation
Eleventh	1	Understanding the topic and the ability to apply it correctly	Graphs and statistics for previously entered data and performing	Lecture	Exam

			statistical analyzes and charts on them.		
Twelveth	**1**	**Understanding the topic and the ability to apply it correctly**	**Graphs and statistics for previously entered data and performing statistical analyzes and charts on them.**	**Lecture**	**Exam**
Thirteenth	**1**	**Understanding the topic and the ability to apply it correctly**	**Databases - their types - types of files used in databases - the importance of databases in storing and retrieving data on a specific crop.**	**Lecture**	**Exam**
Fourteenth	**1**	**Understanding the topic and the ability to apply it correctly**	**Types of fields in the base file - creating a new file to study a specific crop that includes (crop name, scientific name, height, planting date, quantity of fertilizer, type of roots) - modifying file specifications.**	**Lecture**	**Exam**
Fifteenth	**1**	**Understanding the topic and the ability to apply it correctly**	**Entering data into the file formed in week (14) using Append - showing the contents of the file with the following commands List, Display, Blown**	**Lecture**	**Exam**

			and the difference between these commands.		
sixteen	١	**Understanding the topic and the ability to apply it correctly**	**Modify the data using the following commands Edit, Brows, Append, Replace, Delete, Recall, Packzap.**	**Lecture**	**Exam**
seventeenth	١	**Understanding the topic and the ability to apply it correctly**	**Moving the cursor inside the file and reaching a specific restriction or condition.**	**Lecture**	**Exam**
eighteen	١	**Understanding the topic and the ability to apply it correctly**	**Arranging and organizing the data within the file using sorting and indexing for a file containing a large group of previously entered crops.**	**Lecture**	**Exam**
nineteenth	١	**Understanding the topic and the ability to apply it correctly**	**Extract results with the following commands: Sum, Average, Total, Count.**	**Lecture**	**Exam**
The twentieth	١	**Understanding the topic and the ability to apply it correctly**	**Search and access a specific crop or characteristic in the base file or in an indexed file using the following commands: locate, found, seek.**	**Lecture**	**Exam**
Twenty one Twenty-two	١	**Understanding the topic and the**	**SAS ready application**	**Lecture**	**Exam**

Twenty-three And the twenty-four The twenty-fife The twenty-six		**ability to apply it correctly**	**training (For agricultural statistical analyses).**		
Twenty-Seven Twenty-eight The twenty-nint And the thirty	١	**Understanding the topic and the ability to apply it correctly**	**Training on ready-made applications in the field of plant production - comparing adding wheat or any crop - comparing levels of fertilizers added to a specific crop - comparing different irrigation methods for a specific crop - comparing yields for different seasons.**	**Lecture**	**Exam**

11.Course Evaluation

The student's evaluation in the educational program depends entirely on daily preparation, daily, oral, monthly and written exams and reports, noting that the passing grade is (50%) and according to the following mechanism:

1- The grade for the annual subjects is divided into two parts (50% pursuit and 50% final). The division between practical and theoretical is shown in the table below:

Article containing my work				**Article that does not contain my work**		
The exam		**Theoretical**	**Practical**	**The exam**		**Theoretical**
Pursuit	**First month exam**	10%	10%	**Pursuit**	**First month exam**	20%
	Second month exam	10%	10%		**Second month exam**	20%
	Evaluation*	5%	5%		**Evaluation***	10%
	Final	40%	10%		**final exam**	50%
	The total	65%	35%		**Total degree**	100%

* Evaluation is done by the subject teacher and depends on the student's attendance,

daily exams, homework, and behavior during the lecture.

2- Graduation research for second year students based on writing a scientific research and discussion.

In addition to continuous monitoring of the student's attendance at the theoretical lecture and laboratory, the student is considered not to have completed the subject if his hours of absence exceed 10% of the total hours for that subject.

12.Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Book of basics of plant diseases - Book of how to become a beekeeper - Book of soil fertility and plant nutrition - Book of garden insects - Book of the botanist - Book of plant biotechnology
Main references (sources)	First: peer-reviewed scientific journals. Second: Academic books. Third: Websites. Fourth: Scientific encyclopedias. Fifth: Scientific research.
Recommended books and references (scientific journals, reports...)	Methodical books - educational portfolios - laboratories - summer training.
Electronic References, Websites	Agricultural websites.

First Stage
Spring Semester

Course Description Form :

1. Course Name
Animal Hygiene OR Animal Health
2. Course Code
/
3. Semester/Year
Spring Semester (Second) / Academic Year 2024 - 2025
4. Date of preparation of this description
20 / 2 / 2025
5. Available Attendance Forms
Theoretical lectures in the classroom and practical lectures in the laboratory and field
6. Number of credit hours (total) / number of units (total)
5 hours (2 theoretical + 3 practical) / 5 units
7. Course administrator's name (if more than one name) with e-mail
Shatha Atta Abeed e. mail : kin.sht@atu.edu.iq
8. Course Objectives

Course Objectives	**A - General Objectives: The student is given a general idea of: Health conditions to be met in the air, drinking water, environmental conditions in animal pens** **B - Special Objectives: The student gets acquainted with: the health importance of air components, air pollutants , dust infection, ventilation, the role of water in the transfer of pathogens, types of sheds drainage waste and liquids from barns**

9. Outcomes of the required program and methods of teaching and evaluation
A- Cognitive objectives
1. Identify the clinical importance of the role of air and water in the transmission of pathogens .
2. Knowledge and understanding. For the health conditions that must be met in drinking water and watering animals .
3. Clarify the basic concepts of healthy ways to dispose of waste in barns .

B- Skills objectives of the program

B1- Ability to think about methods of measuring microbial contamination in air and water .

B2- Skills of linking the estimation of gas (CO_2) as evidence of air pollution in barns .

B3- The ability to know the general specifications of the sheds: light, ventilation, roof, entrance, door openings .

B4- Identify the methods of using pesticides, immersion and baths and the dangers of immersion .

❖ Teaching and learning methods

1- **Using the method of discussion and deriving the answer in the practical lecture when teaching the theoretical side of it .**

2- **Using the display or screen to display scientific pictures or films to attract the student's attention to interact with the lecture.**

3- **Use blackboard and colored pencils to clarify certain schemes and terms.**

4- **Using models and illustrations and conducting practical experiments in practical training.**

5- **Guiding students on some resources on websites to benefit from them to develop capabilities .**

❖ Assessment methods

1- **Conducting sudden and rapid tests in an attempt to evaluate and evaluate the previous lecture.**

2- **Demanding the preparation of reports on the resistance of ticks and scabies on animals and in animal pens from modern sources and seminars for topics related to the curriculum to encourage scientific research .**

3- **Conducting tests, oral, and practical.**

C- Thinking skills

C1- The ability to make a decision in the examination of water to judge its purity: local examination of the water source, how to take samples from Tap, wells, surface water .

C2- Enabling students to think logically Drinking water purification (natural and artificial purification) .

C3- Developing the student's ability to dialogue and discussion .

❖ Teaching and learning methods

Blackboard, models, presentations using the screen or data show, illustrations, seminars,

❖ Assessment methods

Daily Exams, Oral Exams, Semester Exams, Practical Experience Training

D- General and qualifying skills transferred (other skills related to characterization and personal development)

1- **Follow up the scientific development by contacting universities via the Internet .**

2- **Developing the student's ability to deal with information via the Internet .**

3- **Developing the student's ability to dialogue and discussion .**

10. Course Structure

weeks	hours	Required Learning Outcomes	Unit Name OR Subject Name	Learning Method	Evaluation method
First 2nd. 3rd. Fourth Fifth Sixth Seven Eight Nine Ten Eleven Twelve Thirteen Fourteen Fifteen	Two hours For the Theoretical lesson + three Hours For the Practical lesson	Recognize the components of air Natural pollutants and pollutants that Happening inside residences Animals Health importance For air, sun light Inside the barns Definition of ventilation and its importance Inside the barns Identify water sources Learn about the conditions Health Duty Availability in drinking water The importance of water in the transport of pathogens Infectious diseases and toxins Chemical Learn about the different ways Which are used for	Air, health importance For air comp pollutants air inside resid animals and their health importance The health importance of speed air, sun and light . Ventilation, air exchange and air volume . Water, Water Sources: Water rain, surface water, seas and groundwater Health Conditions due availability in drinking Water. Watering of animals The role of water in the transport of pathogenic diseases, microbes pathogenic, parasites, chemical toxins . Purification of drinking water, purpose including natural and synthetic purification of water, add Chlorine and minor	Generally performed Next: A lesson, Theoretical is: Giving a lecture Theoretical with the use of Discussion style And derive the answer from Students use the offer on the screen to view photos or movies scientific to attract the attention of student to interact with the lecture + As for the, Practical lesson is done: use models and images caption in hands conduct each other practical experiments for the purpose of water Inspection & assurance from its purity, check air & other conduct visits scientific to sheds animals	As for the lessons, Theory: 1. Daily exams 2. Oral exams monthly exams and quarterly + As for the lessons, Practices: 1- Training is done on Statues 2. Prompt to set up reports & seminars from recent sources related to the curriculum

		water purification Identify important materials that are used in the construction of sheds animals How to behave litter Liquid and solid of barns Drainage methods For Liquid and solid waste From barns General specifications of sheds milk cattle General specifications of the premises, General specifications of Theaters Calf pens system Sheep pens, cattle pens Fattening and sheep pens	powder and potassium permanganate . Animal pens, location building, construction, ro Thermal insulation . Waste and fluid disposal From barns, dung warehouse liquid, drain pipes and traps . Healthy ways to get rid of Droppings in barns General specifications of sheds milk cattle . General specifications of the premises, Types (mobile and fixed) General specifications of theaters Calf pens, environment, s Calf pens . Sheep pens, cattle pens Fattening and sheep pens		

11-Course Evaluation

Distribution of the grade out of 100 according to the tasks assigned to the student such as daily preparation and oral and monthly exams editorial and reports .... etc

12-Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	
Recommended books and references (scientific journals, re	
Electronic References, Websites	

13- Course Development Plan

1- Updating the curricula to suit the development and recent discoveries in the field of specialization.

2- Translating English teaching curricula into Arabic while preserving foreign terms in the translated curricula.

3-Updating lectures annually.

4- Exchange of experience between universities through the idea of the visiting professor exchanged.

Course Description Form

1. Course Name: Poultry Nutrition	
2. Course Code:	
3. Semester / Year: /Fall and spring semester/2024 - 2025	
4. Description Preparation Date:2025\3\2	
5. Available Attendance Forms: Attendance in classrooms and scientific laboratories in the department	
6. Number of Credit Hours (Total) / Number of Units (Total)\ 60 hours (30 theoretical hours + 30 practical hours) Number of units (total) / 4	
7. Course administrator's name (mention all, if more than one name)	
Name :Batool Abad Albany shaker **Email: batoul.shaker@atu.edu.iq**	
8. Course Objectives	
Course Objectives	**• At the end of the semester, the student will have complete knowledge of poultry feed** **• At the end of the semester, the student learns about the components of feed** **for different types of poultry, including broiler chickens, layers, turkeys, ducks, quail, and others.** **• The student's knowledge of the energy and protein needs of poultry and how to balance them to carry out all vital activities.** **• The student's knowledge of nutritional deficiency diseases in poultry** **And how they are treated by balancing the nutrients included in composition of the diet**
9. Teaching and Learning Strategies	
Strategy	**1 - Students understand how to obtain scientific sources from the library as well as from the Internet, and how to distinguish between reliable and non-reliable sources.** **2 - Using illustrative means during the lecture, such as point power presentation using the projector, and providing students with mock educational videos to increase their understanding of the topics.** **3 - Asking students questions from time to time for the purpose of their participation in the lesson and opening the door to discussion.** **4 - Giving students homework for the current topic and asking them to research the topic of the next lecture** **For the purpose of developing their scientific research skills**

10. Course Structure	

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	1Theoretical 3 practical	The concept nutrition: t basic nutrie that birds ne and th functions	Knowing what nutrition is and what are the bas nutritional elements that bir need to carry ou all vital activities	a lecture + laboratory	Exams, Exams
2	1Theoretical 3 practical	Energy concept, main sources of energy, digestio and absorption fats and carbohydrates, relationship between energy and feed density	Knowing wh energy is, wh feed materi provide the bo with energy, a how they a digested a absorbed by t body	a lecture + laboratory	Exams, Exams
3	1Theoretical 3 practical	The nature of fe materials used i feeding poultry, their specifications, u and classificatio of feed material	Identify the m important fe materials used feeding poult the specificatio of these materia and how to u them	a lecture + laboratory	Exams, Exams
4	1Theoretical 3 practical	Factors affecti energy nee symptoms energy deficie and excess poultry die energy needs	It is necessary know the facto affecting t energy needs chickens, and increase in t energy has	a lecture + laboratory	Exams, Exams

		broilers a laying hens duri different l stages.	effect, and a la of energy also h an effect, so the must be a balar between ener and protein.		
5	1Theoretical 3 practical	Poultry needs protein and essential amino acids Practicalexampl , poultry ener needs a calculating r basic ener calculating nutritional protein needs f broilers a laying he applied examp for calculati chickens' da protein needs	The Knowing wh protein is, wh protein is made whattheprotein needs of poult as well as t energy needs laying hens a broilers calculating t daily energy a protein needs poultry	a lecture + laboratory	Exams, exams
6	1Theoretical 3 practical	Symptoms protein deficien and excess poultry die factors affecti the protein nee of poultry	Knowing t importance protein, t symptoms excess feed and effect, in additi to prote deficiency and effect on poult and what are t factors affecti the need of prote in poultry.	a lecture + laboratory	Exams, exams
7	1Theoretical 3 practical	Calculations the digestive ra of protein, t	Learn about t importance protein,	a lecture + laboratory	Exams, exams

		biological value protein, the r value of prot and t relationship between them a the digestive rat	digestibility ra and its net value		
8	1Theoretical 3 practical	Nutritional requirements f vitamins a inorganic elements, facto affecting the and nutritio and non-fo additives poultry diets.	It is necessary recognize t importance of t nutrients includ in the compone of the fe provided to bir and to know t essential eleme from the no essential ones.	a lecture + laboratory	Exams, exams
9	1Theoretical 3 practical	Ostrich nutriti and diets a different feedi methods	Learn abo ostriches and t different metho of raising a feeding them	a lecture + laboratory	Exams, exams
10	1Theoretical 3 practical	The relationsh of nutrition to t quality of the eg the quality of t shell, the qual of the egg whi the nutritio value of the eg the quality a color of the yo nutrition, size a production eggs.	Eggs are of ve great importan and due to t importance, it necessaryknow t relationship nutrition to t quality of the e produced by t chickens that e these diets, a also the effect the diet on the s and production eggs.	a lecture + laboratory	Exams, exams
11	1Theoretical 3 practical	Food rationing f poultry, metho	Knowledge of fo rationing, metho	a lecture + laboratory	Exams, exams

		used in fe rationing, for of feed provid to poultry	of using it, t forms of fe provided, and t effect of feed fo on the palatabil of the feed.		
12	1Theoretical 3 practical	Feeding and feeding of turke chickens, nutritional requirements during the breeding period Calculating t feed needs poultry	Identifying t turkey bird, what it is called Turkish, and wh types of diets a used during rearing period calculating t fodder needs of t poultry	a lecture + laboratory	Exams, exams
13	1Theoretical 3 practical	Traditional fodder used poultry diets (fe alternatives).	Knowing the fe used for poult its preferred typ for poultry, a the degree of acceptance a palatability. It necessary to fi alternatives to fe that are cheap a available in t area where t poultry is raised.	a lecture + laboratory	Exams, exams
14	1Theoretical 3 practical	Practical examples calculating t cost of feed f birds	Knowing t methods calculating the cost feed for kinds raised bir whether th are chicke ducks, gee turkeys a	a lecture + laboratory	Exams, exams

			other poultry.		
15	1Theoretical 3 practical	Diseases and ba habits resulting from nutritional deficiency Identifying t symptoms nutritional deficiency in bi and how to tr them, evaluati the quality of t feed and freedom fr toxins and fun and means storing it	Knowing the m important disea that spread poultry resulti from nutritio deficiency a treating th through healt nutrition + It necessary to kn the quality of t feed and absence pathogens	a lecture + laboratory	Exams, exams

11.

Course Evaluation

12.Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc.

Learning and Teaching Resources	
Required textbooks (curricular books, if any)	**Poultry nutrition basics** **Author: Ismail Khalil Ibrahim**
Main references (sources)	**Poultry feed** **Author: Ali Mahmoud A Kassar**
Recommended books and references (scient journals, reports...)	**Poultry feed** **Author: Doha Al-Sadiq**
Electronic References, Websites	**anmals of Agricultural scienc AOAS**

Course Description Form :

1. Course Name:
Fish production
2. Course Code:
3. Semester / Year:
Spring semester/2024 - 2025
4. Description Preparation Date:
/ 2 / 2025
5. Available Attendance Forms:
Attendance in classrooms and scientific laboratories in the department
6. Number of Credit Hours (Total) / Number of Units (Total)
60 hours (15 theoretical hours + 45 practical hours) Number of units (total) / 4
7. Course administrator's name (mention all, if more than one name)
Name: Duaa Mohammed Ali Jawad **Email: duaa.jawad.iku@atu.edu.iq**
8. Course Objectives

Course Objectives	**. Introducing students to fish farming and its various sections, types and branches.** **. Introducing students to the types of breeding fish, the characteristics of each, and how to benefit from them.** **. Introducing and familiarizing students with the appropriate environment for growing and raising fish and methods of feeding them.** **. Introducing students to different breeding methods for breeding fish** **. Introducing students to how to benefit from fish wealth and increase its production using the correct scientific methods.** **. Introducing students to design and planning skills for establishing fish farms according to the scientific and practical foundations of this science**
9. Teaching and Learning Strategies	
Strategy	**• Developing students' cognitive skills by understanding information and concepts.** **• Developing students' intellectual skills.** **• Develop personal skills and assume responsibility.** **• Developing skills in dealing with the information network, the Internet and computer** **• Developing students' communication skills with each other on the one hand and with the community and the professor on the other hand**

	• The ability to deal with sources of information by searching for new information in fish science. • . The ability to link theoretical lectures with practical applications. • Identifying scientific terms related to ichthyology using the English language, which gives students new linguistic skills

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
first The	1Theoretical 3 practical	Introduction to productionFish,Flag of fish, fish of interests, features of fish	Study of external appearanceFor the fish,Body parts	A lecture + Laboratory	‹Examinations Quiz
the second	1Theoretical 3 practical	The external appearance of the fish, body shape, body openings, scales, and fins	Study of fins, scales, lateral line, longitudinal line, standard length, type of fin	A lecture + Laboratory	‹Examinations Quiz
the third	1Theoretical 3 practical	Internal structures of fish, respiratory, digestive, reproductive, circulatory, sense organs and urinary system.	Fish anatomy, learning about the digestive system, respiratory system, and reproductive system	A lecture + Laboratory	‹Examinations Quiz
the fourth	1Theoretical 3 practical	Secretion and osmotic regulation of fish, nervous system	Identify laboratory equipment and how it works (PH measuring device, O2	A lecture + Laboratory	‹Examinations Quiz

			measuring device) and others		
Fifth	1Theoretical 3 practical	Classification of fish (length measurements, weight measurements, methods used in classifying fish)	Collecting samples of river and stream water and measuring (dissolved oxygen, PH, salinity, transparency, and degree of salinity)	A lecture + Laboratory	‹Examinations Quiz
sixth	1Theoretical 3 practical	Types of ornamental fish and methods of reproduction	Collecting and examining phytoplankton and animal organisms, examining samples of plankton from different aquatic environments	A lecture + Laboratory	‹Examinations Quiz
Seventh	1Theoretical 3 practical	Methods for estimating age in fish, the relationship between length and weight in fish	Multiplication herbs, their types, and uses	A lecture + Laboratory	‹Examinations Quiz
Eighth	1Theoretical 3 practical	Reproduction - Reproduction strategies - Factors affecting reproduction (internal and external) Reproduction systems Sexual differentiation and sex differences	Examining and measuring fertility (absolute, relative), proportionality function	lecture A + Laboratory	‹Examinations Quiz
ninth	1Theoretical 3 practical	Aquatic environment, physicochemical factors affecting the growth and life of fish	Scientific films about the aquatic environment	A lecture + Laboratory	‹Examinations Quiz
The tenth	1Theoretical 3 practical	Fish migration (breeding migration, feeding migration, wintering migration)	Identifying Iraqi fish and applying some methods used in classifying fish	A lecture + Laboratory	‹Examinations Quiz

Eleventh	1Theoretical 3 practical	Phytoplankton and zooplankton, the food pyramid (production stage, consumption stage, death stage, preparation stage)	Making maps of water bodies in Iraq	A lecture + Laboratory	،Examinations Quiz
Twelveth	1Theoretical 3 practical	Fertility (absolute, relative) is a function of reproduction	Identify the types of fishing methods (nets, traps, rods)	A lecture + Laboratory	،Examinations Quiz
Thirteenth	1Theoretical 3 practical	Pollution, its types, sources, and impact on aquatic organisms	A visit to one of the fish farms, to see its components	A lecture + Laboratory	،Examinations Quiz
Fourteenth	1Theoretical 3 practical	Water resources in Iraq, rivers, lakes, marshes and seas	Visit one of the water bodies and study ways to improve it	A lecture + Laboratory	،Examinations Quiz
Fifteenth	1Theoretical 3 practical	Fish pond production farms, components - management	Study the external appearance of the fish, body parts	A lecture + Laboratory	،Examinations Quiz

11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	1- Basics of Ichthyology - Dar Al-Hekma 2- Fish life 3- Fish farming. Abdel Bari Muhammad Mahmoud 4-Biology of Fish (١٩٨٢). Q. Bone, N.B. Marshall print Edition in the United States America
Main references (sources)	Recent research and studies
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	Google Scholar

Second Stage
Autumn Semester

Course Description Form

1. Course Name:
Animal Anatomy & physiology
2. Course Code:
/
3. Semester / Year:
Autumn Semester (first) / Academic Year 2024 - 2025
4. Description Preparation Date:
20 / 2 / 2025
5. Available Attendance Forms:
Theoretical lectures in the classroom and practical lectures in the laboratory
6. Number of Credit Hours (Total) / Number of Units (Total)
5 hours (2 theoretical + 3 practical) / 5 units **75 hrs. / 5 units**
7. Course administrator's name (mention all, if more than one name)
Name: Shatha Atta Abeed **Email: kin.sht@atu.edu.iq**

8. Course Objectives

Course Objectives	**After the end of the semester, the student will be able to know:** - **The anatomical structure of the bodies of different farm animals** - **Animal body composition: muscle tissue, connective tissue, adipose tissue, bones** - **Functions of different body systems** - **Endocrine glands, their types, hormonal secretions, and functions in various farm animals** - **Nervous and hormonal control of various animal body activities** - **How to take samples of blood, methods of preserving them, and the treatments that are performed on them before conducting laboratory tests, types of red and white blood cells and the function of each type, along with determining blood type of the animal.** - **Diagnosing diseases through blood tests and identifying blood contamination.**

9. Teaching and Learning Strategies

A- Cognitive objectives:

1. Clarifying the basic concepts of pathogens, disease prevention, and treatment use .
2. Knowledge and understanding of the parts and details of the anatomical structure of the animal's body.
3. Identify the clinical importance of some diseases that affect farm animals

B- Skills objectives of the program:

B1- The ability to think about treating health problems affecting farm animals .
B2- Skills to link the anatomy and physiology of the animal's body to some diseases .
B3- The ability to link the imbalance occurring with some hormones in the body and its relationship to dystocia .
B4- Identifying surgery, types of wounds, and their treatment

❖ Teaching and learning methods

1- Using the method of discussion and eliciting the answer in giving the practical lecture when teaching the theoretical aspect .
2- Use the display or screen to display pictures or scientific films to attract the student's attention to interact with the lecture.
3- Use the blackboard and colored pens to illustrate certain diagrams and terms.
4- Using models and illustrations in practical training.
5- Guiding students on some resources on websites to benefit from them to develop capabilities

❖ Evaluation methods

1- Conducting surprise and quick tests in an attempt to evaluate and evaluate the previous lecture.
2- Demanding the preparation of reports on animal body systems and the diseases that affect them from modern sources and seminars on topics related to the curriculum to encourage scientific research.
3- Conducting oral and practical tests.

C- Thinking skills

C1-The ability to make decisions by identifying different body parts, which contributes to practicing veterinary techniques in a scientific and accurate manner .
C2- Enabling students to think logically about the anatomical and physiological structure of the animal's body and make practical use of it in the practice of veterinary medicine .
C3- Developing the student's ability to dialogue and discuss

❖ Teaching and learning methods

Blackboard, models, demonstrations using the screen or data show, illustrations, seminars .

❖ Evaluation methods

Daily exams, oral exams, semester exams, training on models

D- General and qualifying transferable skills (other skills related to characterization and personal development)

1- Follow up on scientific development by contacting universities via the Internet .
2- Developing the student's ability to deal with information via the Internet .
3- Developing the student's ability to dialogue and discuss

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	Two hours For the Theoretical lesson	Understand the meaning of the term Physiology	Introduction physiology, definition the animal's physiology	Generally performed Next: As for the lesson, Theoretical is: Giving a lecture Theoretical with the use of	As for the lessons, Theory: 1. Daily exams 2. Oral exams monthly exams and quarterly + As for the lessons, Practices: 1- Training is done on Statues 2. Prompt to set up reports & seminars from recent sources related to the curriculum
2nd. + 3rd.	three Hours For the Practical lesson	Identify parts The external body of animals farm Identify the components of the digestive system and circulation with their functions in ruminants	External parts of a body Animal and poultry and their importance Some parts Anatomy of the digestive system and circulation of the ruminants	Discussion style And derive the answer from Students use the offer on the screen to view photos or movies scientific to attract the attention of student to interact with the lecture + As for the, Practical lesson is done: use models and images caption in hands conduct each other practical experiments for the purpose Count white blood cells and red specific animal blood types in the pract laboratory make scientific visits to one Faculties veterinary medicine C veterinary hospital Nearby to components of the animal body and different blood	
Fourth		Identify the components of the Respiratory and urinary tract with their functions in ruminants	Anatomy of respiratory system and urinary system for ruminants		
Fifth		Skeletal anatomy , muscles and nervous system & their functions in ruminants	Anatomy of bones and muscles The nervous system of ruminants		
Sixth		Identify the components of the digestive system and circulation with their functions in poultry	Anatomy of the digestive system And circulation for poultry		

Seven				**tests**	
		Identify the components of the respiratory and urinary tract with their functions in poultry	**Anatomy of respiratory system and urinary system of poultry**		
Eight					
		Skeletal anatomy , muscles and nervous system with their functions in poultry	**Anatomy of bones and muscles and nervous system of poultry**		
Nine					
		Identify different tissues In the animal's body	**Animal body structure: Muscle tissue, tissue association, adipose tissue, Bones**		
Ten					
		Learn about different Types of endocrine glands in ruminant	**Endocrine glands and their types in the ruminants**		
Eleven					
		Learn about different types of hormones and their functions in ruminants	**Endocrine secretions And its types in ruminants**		
Twelve					
		How to control different the body's functions with hormones & nervous system	**Nervous and hormonal control on the activities of the different animal body**		

Thirteen		**Learn about taking blood samples with its preservation and examinations that performed on it**	**How to take blood samples and methods save them and transactions takes place them before conducting laboratory tests , types of blood cells and the function of each type**		
Fourteen		**Identify the types of factions of blood in animals and numbers white and red blood cells**	**Determine the blood type of the animal, Calculating the number of blood cells (red and white)**		
Fifteen		**How are samples used? Blood to diagnose the diseases**	**Diagnosing of the diseases through Blood tests and infection detection Blood + a visit to one Veterinary colleges nearby To view the components of a body animal and blood tests**		

11.Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

12.Learning and Teaching Resources	
Required textbooks (curricular books, if any)	
Main references (sources)	**Anatomy & physiology of domestic animals - 1** **2 - مبادئ تشريح الحيوان** **3– أساسيات علم وظائف الأعضاء /** **Edinburgh, Green**
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

13. Course Development Plan

1- Updating the curricula to suit the development and recent discoveries in the field of specialization.

2- Translating English teaching curricula into Arabic while preserving foreign terms in the translated curricula.

3- Updating lectures annually.

4- Exchange of experience between universities through the idea of the visiting professor exchanged.

Course Description Form

1. Course Name: Animal diseases
2. Course Code:
3. Semester / Year: Autumn semester 2024 - 2025
4. Description Preparation Date: 29 / 2 / 2025
5. Available Attendance Forms: Glass rooms and Laboratories of the department
6. Number of Credit Hours (Total) / Number of Units (Total)
Theory = 15 hours 45 hours practices……total 60 hrs. / 4 unite
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Haki A. Alfatlawe **Email: kin.hkee@atu.edu.iq**
8. Course Objectives

Course Objectives	**At the end of the semester, the student will have mastered the foundations of animal pathology in farm animals, which include cows, sheep, goats, buffalo, and camels, and the ability to conduct examinations , knowledge of diseases that affect animals of different ages.** **At the end of the semester, the student learns about treating sick animals using internationally known scientific and health methods** **The student's knowledge of the history of animal pathology, its development, a early control of diseases.....**

9. Teaching and Learning Strategies	
Strategy	**1 -Teach students how to obtain scientific resources from the library as well as from the Internet Early onset of diseases.** **How to distinguish between reliable and non-reliable sources.** **2 - Using illustrative means during the lecture, such as a power point presentation using a projector, and providing students with mock educational videos, which increases . Their understanding of the topics.** **3 -Asking students questions from time to time for the purpose of their participation in the lesson and opening the door**

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The first The second The third The four The fife The seven The eight The nine	1-theovy 3 practic	The disease defined as how spreads. And cont it. Signs of disease general that app on field animals The most import symptoms animals. Definit of diagnosis a treatment of disea of the digesti respiratory a urinary system Diseases affect calves: Salmonell intestinal poisoni Dysentery Calves Identification a laboratory diagnos Diagnosis a treatment septicemia and h rot. Tongue stiffne Salmonellosis. Intestinal poisonin And its treatment And research sclerosis diseases Tongue, hoof rot a rot Diagnosis a treatment of masti	Understand the concept of disease On the digestive system and identifying the effects diseases How to diagnose and treat diseases of the digestive, respiratory and urinary systems Learn about milk fever a its symptoms and disea resulting from Field diagnosis a identification Accidental anthrax tetan Soft kidney a lecture Identification, diagnosis a treatment On accidental anth	Lecture And Lab . = = = = = = =	

		its causes, sympto control a treatment	tetanus And the soft kidney	=
The ten				
		Field identificat of diseases that ca miscarriage, piriformis, a	diagnosis and treatment the field	=
The eleven		brucellosis. Wh causes miscarriage		=
		Definition tuberculosis	Field and how to treat atax Jones disease	
The Twelve				=
The thirteen				=
				=
The fourteen				=
The fifteen				=

11.Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, dailyoral, monthly, or written exams, reports .... etc

12.Learning and Teaching Resources

Required textbooks (curricular books, if any) farm animals Animal diseases ….	
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name: Animal Nutrition
2. Course Code:
3. Semester / Year: Fall and spring semester/2024 - 2025
4. Description Preparation Date:2025\3\2
5. Available Attendance Forms: Attendance in classrooms and scientific laboratories in the department
6. Number of Credit Hours (Total) / Number of Units (Total) 60 hours (30 theoretical hours + 30 practical hours) Number of units (total) / 4
7. Course administrator's name (mention all, if more than one name)
Name :Batool Abad Albany shaker **Email: batoul.shaker@atu.edu.iq**
8. Course Objectives

Course Objectives	**At the end of the semester, the student will have a complete understanding of animal feed material** **• The student learns about the differences in the digestive system between poultry and ruminants** **• The student's knowledge of the needs that must be met by feeding different types animals** **• The student learns about the nutritional needs during the reproductive and fertilization stages and feeding pregnant animals during pregnancy** **• The student learns about feeding lambs during the fattening stage** **• The student learns about the most important diseases to which animals are exposed through excessive or deficient nutrition and how they are treated**

9. Teaching and Learning Strategies	
Strategy	1 - Students understand how to obtain scientific sources from the library as well as from the Internet, and how to distinguish between reliable and non-reliable sources. 2 - Using illustrative means during the lecture, such as point power presentation using the projector, and providing students with mock educational videos to increase their understanding of the topics. 3 - Asking students questions from time to time for the purpose of their participatio in the lesson and opening the door to discussion. 4 - Giving students homework for the current topic and asking them to research the topic of the next lecture For the purpose of developing their scientific research skills.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2Theoretical 2 practical	The digest system ruminants (par functions, development the system)	Identify the digestive system ruminants, in addition to knowing its parts and functions	a lecture + laboratory	Exams, exams
2	2Theoretical 2 practical	Glands accessor to the digestive system and their functions Anatomy the digesti systems of farm	Knowledge of th glands accessory the digestive system and their importance In additi to dissecti the digest system	a lecture + laboratory	Exams, exams

		animals	animals a introducin students to		
3	2Theoretical 2 practical	Digestion and absorption of nutritional compounds of th feed material (simple and complex carbohydrates, proteins, lipids) and substances resulting from metabolic processes	Learn how food digested and absorbed And knowing t nature of t substances resulting fr metabolic processes	a lecture + laboratory	Exams, exams
4	2Theoretical 2 practical	Conduct experiment digestion a opening of t rumen a duodenum	Knowing how t digestion proc takes place ruminants, wh performing t rumen a duodenal openi for ruminants	a lecture + laboratory	Exams, exams
5	2Theoretical 2 practical	Microorganisms in the digestive system of ruminants (type functions) Examinat n materials inside t digestive system, rumen a duodenum	Knowledge of t microorganisms the digest system ruminants, th functions a importance	a lecture + laboratory	Exams, exams
6	2Theoretical 3 practical	The use nitrogenous protein substan	Knowing t importance nitrogenous	a lecture + laboratory	Exams, exams

		in feedi ruminants (typ feeding metho poisoning)	substances feeding ruminar and the exposu of the animal poisoning and h to deal with it		
7	2Theoretical 3 practical	Mineral salts a their importar in feedi ruminants (typ functions, sourc	Identify mine salts and th importance feeding ruminar their impact on t animals' production of m and meat, and t sources of th mineral salts animals to obt the best results.	a lecture + laboratory	Exams, exams
8	2Theoretical 3 practical	Reproduction a fertility in m animals	Knowing wh reproduction a fertility are a what factors aff them in fa animals	a lecture + laboratory	Exams, exams
9	2Theoretical 3 practical	Calculating t nutritional nee of dairy cows a newborns, composing di and calculati their componen	Find out what ar the nutritional needs of dairy cows How th relationshi are form and according their componen	a lecture + laboratory	Exams, exams
10	2Theoretical 3 practical	Nutrition of b cattle and buff (nutritional nee for differe purposes) a	Knowing the necessary needs for growth and production To obtain the b	a lecture + laboratory	Exams, exams

		nutritional nee of fatteni animals (types fattening a methods)	results in terms fattening and m production		
11	2Theoretical 3 practical	Nutrition of she and go (nutritional nee for differe purposes, stag of fem nutrition, stag of nutrition newborns, m nutrition)	Knowing the importance of nutrition for she and goats to perform various vital processes In addition paying attenti and calculating t nutritional nee of pregnant fem sheep and go and feeding th young	a lecture + laboratory	Exams, exams
12	2Theoretical 3 practical	Nutritional nee of animals growth purpo (growth, development) Factors affecti growth from nutritional standpoint	Studying nutritional nee of animals benefit from nutrients includ in th composition and know the facte affecting growth	a lecture + laboratory	Exams, exams
13	2Theoretical 2 practical	Nutritional nee of breedi animals, the eff of nutritio needs reproduction a fertilization animals (ener protein, fa mineral salts a vitamins)	Knowing nutritional nee necessary to ca out the fertilizati and reproducti process and importance of t process on economy of producing count	a lecture + laboratory	Exams, exams

14	2Theoretical 2 practical	Water and importance nutrition	Know t importance water and impact on t animal kingdom	a lecture + laboratory	Exams, exams
15	2Theoretical 2 practical	Some metabo and nutritio diseases th affect rumina animals (bloati bloating, m fever, eclamps mineral s deficiency, vitamin deficien	Knowing t most common diseases th affect ruminants, how to d with the and findi solutions reduce the	a lecture + laboratory	Exams, exams

11.

Course Evaluation

12.Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Farm animal nutrition and feed indust Author: Muhammad Ali Makki A Rubaie
Main references (sources)	Animal nutrition Author: Dr. Abdel Hamid Moham Abdel Hamid
Recommended books and references (scient journals, reports...)	Animal nutrition Author: Dr. Abdel Hamid Moham Abdel Hamid
Electronic References, Websites	animals of Agricultural sciences, AOA

Course Description Form

1. Course Name:	
Meat maintains & processing	
2. Course Code:	
3. Semester / Year:	
Autumn semester /2024 -2025	
4. Description Preparation Date:	
/ 2 / 2025	
5. Available Attendance Forms:	
Attendance in classrooms and scientific laboratories in the department	
6. Number of Credit Hours (Total) / Number of Units (Total)	
60 hours (15 theoretical hours + 45 practical hours) Number of units (total) / 4	
7. Course administrator's name (mention all, if more than one name)	
Name: Duaa Mohammed Ali Jawad **Email: duaa.jawad.iku@atu.edu.iq**	
8. Course Objectives	
Course Objectives	**1- Students gain knowledge of the nature of meat from an academic and professional perspective** **2-Understanding the nature of the work of food factories and slaughterhouses from a technological and health perspective at the global and local levels** **3-Learn the types and methods of preservation and manufacturing of some meat products** **4- Developing their awareness regarding food industries, their importance, types and stages of examination** **-5-Knowledge of manufacturing, food preservation, balanced nutrition and their relationship to humans.** **6-Identifier of the chemical composition of meat** **7- Knowledge of food spoilage and spoilage** **8-The student knows how to benefit from manufacturing secondary products** **9-Distinguish between meat processing methods and preservation methods** **10-Knowledge of modern technology for slaughterhouses**
9. Teaching and Learning Strategies	
Strategy	**1 - Teach students how to obtain scientific resources from the library as well as from t Internet.** **2 - Using illustrative means during the lecture, such as point power presentation using the projector, and providing students with mock educational videos to increase their understanding of the topics.** **3 - Asking students questions from time to time for the purpose of their participation i the lesson and opening the door to discussion.** **4 - Giving students homework for the current topic and asking them to research the topic of the next lecture** **For the purpose of developing their scientific research skills.**

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The first	1Theoretical 3 practical	the importance economic of Meat	Solutions and concentration measurement	A lecture + Laboratory	‹Examinations Quiz
the second	1Theoretical 3 practical	the parts Animal body and chemical compositions of meat	Analysis of the main components of meat	A lecture + Laboratory	‹Examinations Quiz
the third	1Theoretical 3 practical	Preparation before slaughter and its importance, different methods of slaughter	The effect of different chemicals on the color of meat	A lecture + Laboratory	‹Examinations Quiz
the fourth	1Theoretical 3 practical	Meat palatability factors: percentage of marinade in meat	Preserving meat by salting, preparing solutions and tools, and performing the meat preservation process	A lecture + Laboratory	‹Examinations Quiz
Fifth	1Theoretical 3 practical	Methods of preserving meat	Preservation by smoking: Smoking a sample of meat	A lecture + Laboratory	‹Examinations Quiz
sixth	1Theoretical 3 practical	Meat cutting (minced meat, sausage and hamburger making)	Preserving meat by canning. Samples of meat suitable for canning	lecture A + Laboratory	‹Examinations Quiz
Seventh	1Theoretical 3 practical	Methods cook of meat (dry, wet). The importance of the meat cooking process	Preserving meat by drying	A lecture + Laboratory	‹Examinations Quiz
Eighth	1Theoretical 3 practical	Spoilage and spoilage of meat	Preserving meat by freezing	A lecture + Laboratory	‹Examinations Quiz
ninth	1Theoretical 3 practical	Massacres: their importance: their design	Microbial examination of meat and	lecture A + Laboratory	‹Examinations Quiz

			methods for isolating bacteria from meat		
The tenth	1Theoretical 3 practical	Manufacturing of meat by-products and ways to benefit from them	The effect of pH on the actual water-holding capacity of meat	A lecture + Laboratory	،Examinations Quiz
Eleventh	1Theoretical 3 practical	Fish evaluation. Nutritional value of fish, ways to preserve fish	Sausage and hamburger industry	A lecture + Laboratory	،Examinations Quiz
Twelveth	1Theoretical 3 practical	Chemical composition of fish, checking freshness, decomposition and arsenication, percentages of protein content in fish according to its types. Fat, water, spoilage and spoilage of fish meat and how to control them	Methods of cooking meat	A lecture + Laboratory	،Examinations Quiz
Thirteenth	1Theoretical 3 practical	Study of the chemical composition of broiler chickens, turkeys, quail, laying hens, and eggs	Fishmeal industry	A lecture + Laboratory	،Examinations Quiz
Fourteenth	1Theoretical 3 practical	Modern and new technology for poultry slaughterhouses, preparing turkeys, and quail. Meat chickens and how to market them	Sensory and chemical tests to enhance meat quality	A lecture + Laboratory	،Examinations Quiz
Fifteenth	1Theoretical 3 practical	Meat contamination during various stages of production	A scientific visit to a meat slaughterhouse	A lecture + Laboratory	،Examinations Quiz

11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	**Comprehensive practical guide book on mea processing and preservation, 2012** **Meat Chemistry 2012** **Book: Meat and Fish Technology, 1992**
Main references (sources)	**Meat inspection and health, 1990** **Meat production and preservation, 1985**
Recommended books and references (scientific journals, reports...)	**Recent research and studies**
Electronic References, Websites	**Google Scholar**

Course Description Form

1. Course Name:
Animal Breeding and Management
2. Course Code:
3. Semester / Year:
spring semester/2024 - 2025
4. Description Preparation Date:
29/2/2025
5. Available Attendance Forms:
Attendance in classrooms and scientific laboratories in the department
6. Number of Credit Hours (Total) / Number of Units (Total)
60 hours (15 theoretical hours + 45 practical hours) Number of units (total) / 4
7. Course administrator's name (mention all, if more than one name)
Name: Dr.Safaa Sabbar Atiyah **Email: Safaa Sabbar.iku@atu.edu.iq**
8. Course Objectives

Course Objectives	**• At the end of the semester, the student will have mastered the foundations of breed and improvement in farm animals, which include cows, sheep, goats, buffalo, a camels, and the ability to conduct genetic tests, breeding, methods of performing the and high technology in order to reach the most accurate results.** **• At the end of the semester, the student learns about the parts and components of male and female reproductive system, its anatomy, how it works, the endocrine glan hormones, the estrus cycle, and how the process of fertilization, pregnancy, childbi newborn care, and milk production takes place.** **• The student's knowledge of the history of reproductive science, the history of artifi insemination, and its importance in genetic improvement of farm animals for purpose of increasing production and the ability to perform artificial inseminat technology, as well as the rest of the reproductive techniques related to gen improvement.**

9. Teaching and Learning Strategies

Strategy	**1- Students understand how to obtain scientific sources from the library as well as fro the Internet, and how to distinguish reliable sources from non-reliable sources.** **2 - Using illustrative means during the lecture, such as point power presentation using the projector, and providing students with mock educational videos to increase their understanding of the topics.** **3 - Asking students questions from time to time for the purpose of their participation i the lesson and opening the door to discussion.** **4 - Giving students homework for the current topic and asking them to research the topic of the next lecture** **For the purpose of developing their scientific research skills.**

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First week	1 Theoretical 3 practical	The economic importance of artificial insemination in farm animals.And its relationship to genetic improvement	The importance of artificial insemination and its relationship to genetic improvement +Anatomy and physiology of the male reproductive system, cross-section of the testicle	Lecture + laboratory	Exams + Quiz
Second	1 Theoretical 3 practical	The role of hormones and endocrine glands in influencing the initiation and termination of reproduction.	Identifying the endocrine glands related to the reproductive process and the hormones they secrete and defining the reproductive process, the hormone, the endocrine gland + the physiology of the male reproductive system, the work of the testicles, the stages of sperm formation, the work of the epididymis, penis, and scrotum.	Lecture + laboratory	Exams + Quiz
Third	1 Theoretical 3 practical	Definition of puberty and sexual maturity, the difference between them, and the influence of environmental	Puberty and sexual maturity and the factors affecting them (genetic, environmental) + anatomy of the female reproductive	Lecture + laboratory	Exams + Quiz

		factors	**system, ovaries, uterus, vagina, external genital opening, cross-section of the ovary**		
Fourth	**1 Theoretical 3 practical**	**Knowing the function of the female reproductive system and how its different parts work**	**Physiology of the female reproductive system, its anatomy, the work of each of its organs + anatomy of the female reproductive system, ovaries, uterus, vagina, external genital opening, cross-section of the ovary**	**Lecture + laboratory**	**Exams + Quiz**
Fifth	**1 Theoretical 3 practical**	**Definition of the reproductive cycle for different farm animals, the differences between them, and the types of wombs**	**The estrus cycle and its stages, the estrus period, the stages of the estrus cycle and the factors affecting it + the physiology of the female reproductive system, the function of the ovaries, the formation of eggs, the work of the female reproductive system**	**Lecture + laboratory**	**Exams + Quiz**
Sixth	**1 Theoretical 3 practical**	**The process of formation of female gametes, their transmission, and different methods of collecting semen**	**Ovarian function, egg formation, egg transfer, factors affecting them + Semen collection method: The goal of semen collection, treatment of the bull during the collection process, different collection methods, artificial vagina, electrical stimulation**	**Lecture + laboratory**	**Exams + Quiz**
Seventh	**1 Theoretical 3 practical**	**The role of ovarian hormones in causing the estrus cycle, fertilization, and pregnancy**	**Hormonal work of the ovaries, ovarian hormones related to reproduction, chemical composition + semen tests, primary tests, secondary tests.**	**Lecture + laboratory**	**Exams + Quiz**
Eighth	**1 Theoretical 3 practical**	**Identify the function of the male reproductive system, its various parts, and the individual differences between them**	**Physiology of the male reproductive system, parts of the male reproductive system, testicles + dilution and preservation of semen, the most important diluents, preparation methods.**	**Lecture + laboratory**	**Exams + Quiz**

Ninth	**1 Theoretical 3 practical**	**Defining the male reproductive cell, what its parts are, how to produce it, and fertilization. Knowing the methods of preserving gametes and embryos by freezing.**	**The male reproductive cell (sperm), the male sperm, its external appearance, physiological characteristics, its function + freezing and thawing semen, methods of freezing, freezing temperature, goals of freezing, thawing**	**Lecture + laboratory**	**Exams + Quiz**
Tenth	**1 Theoretical 3 practical**	**Defining reproductive efficiency in males and its role in increasing birth production and male fertility. Knowing the different methods of artificial insemination**	**Reproductive efficiency of males and females, reproductive efficiency of cows, reproductive efficiency of bulls, methods of examining organs, fertility, sterility, reproductive diseases + methods of inseminating females, the process of insemination, tools used for insemination, warnings (disadvantages) and advantages.**	**Lecture + laboratory**	**Exams + Quiz**
Eleventh	**1 Theoretical 3 practical**	**How fertilizati occurs, wheth inside the bo or outside t body, and t changes af fertilization**	**Fertilization and pregnancy, the journey of the sperm into the female reproductive system, implantation, pregnancy, changes that occur in the female reproductive system during pregnancy + reproductive efficiency in bulls and cows**	**Lecture + laboratory**	**Exams + Quiz**
Twelfth	**1 Theoretical 3 practical**	**Knowledge of pregnancy hormones, namely progesterone, chorionic hormone, and others, in maintaining and stabilizing pregnancy**	**Pregnancy hormones (mother and fetus), pregnancy diagnosis (idea and benefits) + pregnancy diagnosis and definition, warnings, requirements, scientific idea**	**Lecture + laboratory**	**Exams + Quiz**
Thirteen	**1 Theoretical 3 practical**	**How does childbirth occur naturally or artificially, its various stages, and treatment of placental retention**	**Births and their stages, childbirth, stages of childbirth, natural childbirth, dystocia, retained placenta, uterine inversion + modern tactics**	**Lecture + laboratory**	**Exams + Quiz**

			in reproductive physiology, modern ideas in the field of increasing the number of births, hormones used, embryo culture tactics, external fertilization, producing twins		
Fourteen	1 Theoretical 3 practical	Know the components of the male and female reproductive system of poultry and the function of each part	Anatomy and physiology of the reproductive system of a hen and a rooster. Identifying the reproductive systems of a hen and a rooster	Lecture + laboratory	Exams + Quiz
Fifteen	1 Theoretical 3 practical	How to collect semen from a rooster, treat it, and dilute it for insemination	Collecting semen from roosters and identifying the characteristics of bird semen	Lecture + laboratory	Exams + Quiz

Final semester exam

11.Course Evaluation

Term Tests	Laboratory	Quizzes	Final Exam
As (35%)	As (15%)	As (10%)	(40%)

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	**Animal Breeding and Improvement (2003) written by Dr. Salah Jalal and Hassan Karam**
Main references (sources)	**1- 1- Book of Reproduction in Mammals, Part One: Written by Auset and Short, translated by Ahmed Al-Hamidi/ Faisal Abu Tarbush, King Saud University Press.** **2- External Fertilization Book Translated by: Dr. Ibrahim Barakat / Dr. Saleh Qandil / Dr. Ahmed Al-Humaidi, King Saud University Publishing House**
Recommended books and references (scientific journals, reports...)	**Bourdon, R.Under standing animal Breeding (2000)**
Electronic References, Websites	**Understanding Animal Breeding, 2nd edn (1999). Richard Bourdon. Prentice-Hall, Upper Saddle River, New Jersey** **2) Falconer and MacKey (1996). Introduction to quantitative Genetics, Fourth edition, Longman Group Ltd., Burnt Mill, Harlow, Essex.** **3) Mrode, R. A. (1996). Linear models for the prediction of animal breeding values. CAB International, Wallingfrd, UK.** **Theriogenolog** **Small Ruminant Research**

Second Stage
Spring Semester

Course Description Form

1. Course Name: Poultry diseases

2. Course Code:

3. Semester / Year: spring semester 2024 - 2025

4. Description Preparation Date: 29 / 2/ 2025

5. Available Attendance Forms: Glass rooms and Laboratories of the department

6. Number of Credit Hours (Total) / Number of Units (Total)

Theory = 30 hour 45 h our practices……total 75 hour
5 unites

7. Course administrator's name (mention all, if more than one name)

Name: Zahraa Ryadh Hamza
Email: zahraa.hamza.iku@atu.edu.iq

8. Course Objectives

Course Objectives	**At the end of the semester, the student will have a basic understanding of poultry diseases in farm animals, which include broiler chickens, laying hens, ducks, and various domestic birds, and the ability to condu tests to find out the diseases that affect poultry animals of different ages.** **At the end of the semester, the student learns about treating sick animals using internationally known scientific and health methods** **The student's knowledge of the history and development of poultry pathology, early control of diseases that affect them**

9. Teaching and Learning Strategies

Strategy	**1 -Teach students how to obtain scientific resources from the library as well as from the Internet** **Early onset of diseases.** **How to distinguish between reliable and non-reliable sources.** **2 - Using illustrative means during the lecture, such as a power point presentation using a projector, and providing students with mock educational videos, which increases Their understanding of the topics. –** **3-Asking students questions from time to time for the purpose of their participation in the lesson and opening the door.**

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The first	**2-theovy** **3 practice**	**Classification poultry disea according to t pathogen a addressing the m important nutritional deficiency disea and methods preventing the especially disea that cause vitan deficiency.**	**Identification and fi diagnosis in breeding ha of some diseases th affect poultry, includi diarrhea and cholera** **Bacterial diseases such diarrhea, paratypho and fowl cholera**		**Lecture And Lab .**
The second	**=**				**=**
The third	**=**				**=**
					=

The four	**=**	**Diagnosis a treatment of t following diseas infectious avian f mycoplasma, CR Escherichia c and how to lir their sprea**	**Identifying the disea Mycoplasma, Escherich and infectious col Autopsy of infect poultry**	**=**
The fife	**=**	**Chicken influen disease look Field identificati of poultry infect with viral disea such as chick influenza**	**Field diagnosis of fun diseases and how to tr and control them**	**=**
The seven	**=**	**Historical typ ovirus strains tha cause the disea clinical signs of t disease in poult and humans, t danger of t disease to huma and methods prevention.**	**Fungal diseases, how diagnose them, treat the and control methods**	**=** **=** **=**
The eight	**=**		**Identification a laboratory diagnosis internal parasites th infect poultry and th**	**=**
The nine	**=**	**Identify the m important disea caused by interr parasites and th methods of sprea such as coccidio**	**treatment**	
The ten	**=**	**and tapeworms**	**ts diagnosis is like mi and lice. The m important metabo**	**=**

			diseases and how	
		An introduction	diagnose, treat, and lir	
		the most importa	their spread (go	
		diseases caused	herniated tendon, fa	=
		metabolism with	liver, cage paralysis	
		the body	dentify in the field t	
		chickens, such	most important proble	=
		gout, and how	that result fr	
The eleve	=	treat them	mismanagement, such	
			gout	
			Diseases resulting fr	=
			breeding errors, th	
n		Identify and car	causes, and limiting th	
		out disinfection	spread (predati	
		the field and lea	tendency	=
		how important it		
		in controlli		
		disease		
	=	transmission		
The Twelv		Disinfection a	the types of programs f	
		disinfectants us	using vaccines in the fi	
		in poultry fie	and conduct th	
		and how to choos	practically in the poult	
		disinfectant	field.	
	=			
		Preventive		
		programs used		
		poultry to limit t		
The thirteen		spread of diseas	Identify the medicatio	
		how to adminis	used in treatment a	
		the vaccines us	how to calculate them a	
		and the timing	add them to the diet	
		administering	water.	
	=	medications		
		The most importa		
The fourteen		medications used	Identification and fi	
		poultry, methods	diagnosis of importa	
		administering them	diseases such as vi	

	=	limit the spread diseases, and how to a them	hepatitis, encephalitis, a hemorrhagic enteritis.	
The fifteen	=	Diagnosis, treatment a prevention methods f the following diseas viral hepati encephalitis, hemorrha enteritis. visit to poultry fie outside the institute a field inspection administrative a preventive work	visit to poultry fie outside the institute a field inspection administrative a preventive work	

11.Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, dailyoral, monthly, or written exams, reports .... etc

12.Learning and Teaching Resources

Required textbooks (curricular books, if any) poultry diseases 4 th edition , ….	
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites ; **-- Pubmed(NCBI data base)** **- Science direct** **Google scholar**	

Course Description Form

1. Course Name: Hatchery techniques
2. Course Code:
3. Semester / Year: Fall and spring semester/2024- 2025
4. Description Preparation Date:2025\3\2
5. Available Attendance Forms: Attendance in classrooms and scientific laboratories in the department
6. Number of Credit Hours (Total) / Number of Units (Total) 60 hours (15 theoretical hours + 45 practical hours) Number of units (total) / 4
7. Course administrator's name (mention all, if more than one name)
Name :Batool Abad Albany shaker **Email: batoul.shaker@atu.edu.iq**

8. Course Objectives

Course Objectives	**• At the end of the semester, the student will have mastered the subject of hatchery techniques** **• The student learns about hatcheries, their contents, and their economic importance** **• The student learns about the types of natural and artificial hatching** **• The student learns about the elements of hatching, which are humidity, ventilation, temperature, and stirring, and because of their great importance for hatching.** **• The student's knowledge of the contents of the egg and the changes that occur to it during the process of embryo formation inside it** **• Knowing the developments that occur in the egg every day of hatching** **• Knowing the characteristics of the flock from which the eggs are taken for hatching and its great importance for hatching.** **• Know the specifications of hatching eggs** **• The student learns how to treat hatched chicks**

9. Teaching and Learning Strategies	
Strategy	**1 - Students understand how to obtain scientific sources from the library as well as from the Internet, and how to distinguish between reliable and non-reliable sources.** **2 - Using illustrative means during the lecture, such as point power presentation using the projector, and providing students with mock educational videos to ncrease their understanding of the topics.** **3 - Asking students questions from time to time for the purpose of their participation in the lesson and opening the door to discussion.** **4 - Giving students homework for the current topic and asking them to research the topic of the next lecture or the purpose of developing their scientific research skills.**

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	1Theoretical 3 practical	History of the development of the hatching industry and its methods The hatchi industry and t history of development	Learn about the history and development of t hatching industr in the world and the methods used for hatching	a lecture + laboratory	Exams, exams
2	1Theoretical 3 practical	Conditions that must be met in eggs prepared fo hatching,	Knowing t conditions for eg prepared f hatching and h	a lecture + laboratory	Exams, exams

		treatment of egg in the mothers' fields and durin transportation Natural and artificial hatchi methods	to deal with eg prepared t hatching knowing t differences between natu and artific hatching method		
3	1Theoretical 3 practical	Poultry industry in Iraq Hatching machines and specifications of the typical hatchery	Learn about the latest developments in the poultry industry in Iraq and the world + Learn abo hatching machi and t specifications these machines	a lecture + laboratory	Exams, exams
4	1Theoretical 3 practical	The basic components of t hatching proces The mechanis of operati of t cooling, humidity, ventilatio and stirri system inside t hatching machines	Knowing what a the necessa elements for t hatching proce such temperature, humidity, stirri and ventilation	a lecture + laboratory	Exams, exams
5	1Theoretical 3 practical	Stages of embry development in eggs Conditions th must be met	Knowing t stages of embr development fr the egg to t hatching stage a	a lecture + laboratory	Exams, exams

		eggs prepared f hatching	**what conditio must be met complete t hatching process**		
6	**1Theoretical 3 practical**	**Examination eggs, periods embryo lo hatching mechanics, abnormal conditions of t embryo**	**Knowing t necessary tests be performed eggs before t hatching proce including opti examination, addition knowing t abnormal conditions of t embryo up hatching.**	**a lecture + laboratory**	**Exams, exams**
7	**1Theoretical 3 practical**	**Fertility characteristic of chickens and factors affecting Conditions a direction of layi hatching eggs a the duration storage of eg prepared f hatching**	**Identifying t most importa characteristics fertility in chicke prepared f hatching and wh are the factors th affect the hatchi process and wh placing eggs in e dishes. Knowi the appropri direction for t egg prepared f hatching and h long is t appropriate peri to complete t hatching process**	**a lecture + laboratory**	**Exams, exams**
8	**2Theoretical 3 practical**	**Reasons for t low hatchabil rate and facto affecting t**	**Knowing t reasons that le to a decrease in t hatchability rate**	**a lecture + laboratory**	**Exams, exams**

		fertilization ra in eggs prepar for hatching	poultry and wl are the facte affecting t percentage hatchlings prepared f hatching		
9	1Theoretical 3 practical	Daily stages embryonic development	Knowing the da embryonic developments th occur in the eg every day of t hatching proc for a period of days for chicke and the peri varies according the type of bir prepared f hatching.	a lecture + laboratory	Exams, exams
10	1Theoretical 3 practical	Quail egg production, economic importance, scientific foundations followed In egg productic Daily stages embryonic development	Learn about cr cultivation methods, fe manufacturing methods, a manufacturing conditions that a available in t article	a lecture + laboratory	Exams, exams
11	1Theoretical 3 practical	Hatching and quality control i the poultry industry Embryonic membranes a stages of embr destruction during hatching	Knowing the typ of embryonic membranes of th egg prepared for hatching The stages which embryos a destroyed	a lecture + laboratory	Exams, exams

			and h they a treated		
12	1Theoretical 3 practical	The m important commercial eg producing bree standard ra and schedules feed consumpti during the e production period, w statistics a schedules for tal egg producti and hatchi functions a symptoms nutrient deficiency in t growth embryos.	Knowing the m important commercial bree that produce eg of econon importance to t producing count	a lecture + laboratory	Exams, exams
13	1Theoretical 3 practical	Non-nutritive fe additives and their effect on eg hatching. Reasons f the l hatching rate due modern hatching techniques	Knowing t importanc of t nutrients included the compositio of the d for the poultry prepared f hatching	a lecture + laboratory	Exams, exams
14	1Theoretical 3 practical	Artificial hatchi of poultry, especially turkey and ducks Fertilization,	Identify t artificial hatchi of poult including turke and ducks, a	a lecture + laboratory	Exams, exams

		factors affecti the rate fertilization eggs prepared f hatching	what factors aff the fertilizati process		
15	1Theoretical 3 practical	Treatment of hatched chicks, marketing of chicks Modern techniques in t artificial hatchi process	Knowing how to deal with hatche chicks and providing appropriate conditions for them What are the m important mode technologies in t hatching process	a lecture + laboratory	Exams, exams

11.

Course Evaluation

12. Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

Learning and Teaching Resources

Required textbooks (curricular books, if any)	Authors' hatchery techniques book Abdul Hussein Naji Al-Tamimi Yasser Jamal Jameel Jassim Al-Gharawi Qasim Manati Agriculture, horticultu forestry, fishery, nutrition
Main references (sources)	Hatching and modern poultry management Dr. Muhammad Al-Hajami Dr. Muhammad Al-Jalawi
Recommended books and references (scient journals, reports...)	Hatching in poultry The author is Dr. Tariq Amin Obaid
Electronic References, Websites	animals of Agricultural sciences, AOAS

Course Description Form

1. Course Name:	
Diary production	
2. Course Code:	
3. Semester / Year:	
Spring semester/2024 - 2025	
4. Description Preparation Date:	
/ 2 / 2025	
5. Available Attendance Forms:	
Attendance in classrooms and scientific laboratories in the department	
6. Number of Credit Hours (Total) / Number of Units (Total)	
60 hours (15 theoretical hours + 45 practical hours) Number of units (total) / 4	
7. Course administrator's name (mention all, if more than one name)	
Name: Duaa Mohammed Ali Jawad **Email: duaa.jawad.iku@atu.edu.iq**	
8. Course Objectives	
Course Objectives	**. Teaching students the means of using the various main types of cheese and fermented milk manufacturing techniques and the means of applying them in factories to prepare students for management and work in production halls and quality control laboratories in dairy factories and defining cheese and its nutritional and economic value as well as the composition of milk and the factors affecting correct production and the quality of cheese and fermented milk.**
9. Teaching and Learning Strategies	
Strategy	**1 - Teach students how to obtain scientific resources from the library as well as from the Internet.** **2 - Using illustrative means during the lecture, such as point power presentation using the projector, and providing students with mock educational videos to increase their understanding of the topics.** **3 - Asking students questions from time to time for the purpose of their participation in the lesson and opening the door to discussion.** **4 - Giving students homework for the current topic and asking them to research the topic of the next lecture** **For the purpose of developing their scientific research skills**

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The first	1Theoretical 3 practical	Definition of milk and the importance of its production, including the importance of milk as food for humans, the nutritional value of milk, milk production in the world, milk production in the Arab world, milk production in Iraq	Good milk, clean milk, sensory checks	A lecture + Laboratory	‹Examinations Quiz
the second	1Theoretical 3 practical	Milk components include water, fatty substances, and non-fatty substances	Sample/definition, types, milk sample and its differences from other samples	A lecture + Laboratory	‹Examinations Quiz
the third	1Theoretical 3 practical	Milk components include protein, enzymes, salts and minerals	Examination of milk sediments, examination of moisture and solids in milk and its products	A lecture + Laboratory	‹Examinations Quiz
the fourth	1Theoretical 3 practical	Milk components include carbohydrates, lactose, and vitamins	Estimating the percentage of fat using the Babcock and Kerber method and using modern devices	A lecture + Laboratory	‹Examinations Quiz
Fifth	1Theoretical 3 practical	Milk contamination and diseases transmitted through milk to humans	Reductive tests (methylene blue, resazurin)	A lecture + Laboratory	‹Examinations Quiz
sixth	1Theoretical 3 practical	The spoilage of milk and its products, methods of	Estimating acidity in milk / titration methods, pH	A lecture + Laboratory	‹Examinations Quiz

		contamination, and its impact on consumers	**device, boiling, lye leaves**		
Seventh	**1Theoretical 3 practical**	**Milk collection centers, their location, the transactions that take place on milk in the milk collection centers, including sensory checks, filtering, weighing, preserving the milk from changes, and transportation.**	**Estimating milk density, methods of milk adulteration and how to detect it**	**A lecture + Laboratory**	**‹Examinations Quiz**
Eighth	**1Theoretical 3 practical**	**The transactions that take place on milk in factories include receiving the milk, filtering it, taking samples, filtering it, adjusting the fat percentage, pasteurization, and sterilization.**	**Fermented dairy industry/regular dairy**	**A lecture + Laboratory**	**‹Examinations Quiz**
ninth	**1Theoretical 3 practical**	**Manufacture of sterilized milk using various methods, manufacture of grafted milk**	**Fermented dairy industry (therapeutic dairy, grafted dairy)**	**A lecture + Laboratory**	**‹Examinations Quiz**
The tenth	**1Theoretical 3 practical**	**Cheese, its economic importance, nutritional value of cheese, classification of cheese**	**Soft cheese manufacturing**	**A lecture + Laboratory**	**‹Examinations Quiz**
Eleventh	**1Theoretical 3 practical**	**Fermenters, their importance, nutritional value, and microbes used in their manufacture**	**Halloumi cheese industry**	**A lecture + Laboratory**	**‹Examinations Quiz**
Twelveth	**1Theoretical 3 practical**	**Cream/its definition, economic importance, methods of obtaining mechanical (local) cream**	**Manufacture of cooked cheese**	**A lecture + Laboratory**	**‹Examinations Quiz**
Thirteenth	**1Theoretical 3 practical**	**Butter, its definition, economic importance, methods of obtaining (local) mechanical butter (churn)**	**Cream industry, butter industry, free fat industry**	**A lecture + Laboratory**	**‹Examinations Quiz**

Fourteenth	**1Theoretical 3 practical**	**Dairy ice cream, its definition, economic and nutritional importance, ways to obtain milk and non-dairy ice cream, and comparison between them.**	**Manufacture of yogurt and ice cream, types of mixtures**	**A lecture + Laboratory**	**‹Examinations Quiz**
Fifteenth	**1Theoretical 3 practical**	**Washing, cleaning and sterilizing materials used in laboratories and dairy processing plants**	**Preservatives and additives to milk and its products**	**A lecture + Laboratory**	**‹Examinations Quiz**

11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	**Cheese and fermented milk production, Lot Abdel Muttalib 1983** **Principles of Dairy Processing, 1993**
Main references (sources)	**Dairy Chemistry, 1969**
Recommended books and references (scientific journals, reports...)	**Recent research and studies**
Electronic References, Websites	**Google Scholar**

Course Description Form

1. Course Name: Fish Breeding	
2. Course Code:	
3. Semester / Year: Fall and spring semester/2024 - 2025	
4. Description Preparation Date:2025\3\2	
5. Available Attendance Forms: Attendance in classrooms and scientific laboratories in the department	
6. Number of Credit Hours (Total) / Number of Units (Total) 60 hours (15 theoretical hours + 45 practical hours) Number of units (total) / 4	
7. Course administrator's name (mention all, if more than one name)	
Name :Batool Abad Albany shaker **Email: batoul.shaker@atu.edu.iq**	
8. Course Objectives	
Course Objectives	**• At the end of the semester, the student will have knowledge of fish farming** **• The student's knowledge of the importance of fish wealth and its impact on the economy of countries** **• The student learns broad methods of fish farming** **• The student learns about the types of fish that are most widespread in the world and most desired by consumers** **• The student learns about fishing methods and completely avoids overfishing** **• The student learns about fish farming and the specifications of the water available for fish** **• The student learns about the analyzes of the water used for fish, such as the percentage of oxygen, transparency, and others** **• The student learns about maintaining ponds for raising fish.**
9. Teaching and Learning Strategies	

Strategy	**1 - Students understand how to obtain scientific sources from the library as well as from the Internet, and how to distinguish between reliable and non-reliable sources.** **2 - Using illustrative means during the lecture, such as point power presentation using the projector, and providing students with mock educational videos to increase their understanding of the topics.** **3 - Asking students questions from time to time for the purpose of their participat in the lesson and opening the door to discussion.** **4 - Giving students homework for the current topic and asking them to research the topic of the next lecture** **For the purpose of developing their scientific research skills.**

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	1Theoretical 3 practical	Introduction to fish farming, its economic importance and the reasons for i rapid development Fish farms and their various pa	A historical overview of fish farming and its economic importance Fish farms are divided accordin to the types foun in the area	a lecture + laboratory	Exams, exams
2	1Theoretical 3 practical	Types of fish farms, types of breeding, types ponds How to create a fish tank and its various parts	Fish farms are divided according t the type of fish, thei importance, and th ability to reproduce How are fish po created and th specifications	a lecture + laboratory	Exams, exams
3	1Theoretical 3 practical	Types and specifications of farmed fish (car	Identifying t types of fi especially the m	a lecture + laboratory	Exams, exams

		and its types, tilapia) Breeding fish in the world, the Arab world and Iraq	common type the world becau it possesses ma desirable characteristics over other types.		
4	1Theoretical 3 practical	Fish farming water (physicochemica specifications, quantity) Equipment us in the laborato a device f measuring P dissolved O transparency, microscope a how to use examining a po water sample.	Identify water characteristics a their effect on fis How are wa specifications determined through ma tests, includi transparency, O and pH	a lecture + laboratory	Exams, exams
5	1Theoretical 3 practical	Preparing t ponds to receiv new me maintaining t pond par cleaning, maintenance, sterilization, fertilizing, addi water.	Knowing how prepare ponds receive a new m of fish, how maintain f ponds, a sterilization a fertilization procedures.	a lecture + laboratory	Exams, exams
6	1Theoretical 3 practical	Fish hatcheries, parts, brood holding ponds Methods improving cultu water and treati unsuitable specifications culture	Identifying f hatcheries a their various pa + methods improving cultu water suitable fish farming a methods treating them	a lecture + laboratory	Exams, exams

7	**1Theoretical 3 practical**	**Fish farming, closed systems and cages (their advantages and objectives) Breeding cag types of cag parts, ca manufacturing, materials used industry, places put the cages**	**Identifying methods of raisi fish and t advantages a disadvantages each method knowing t materials used making fish cag and studying t best places to pla cages**	**a lecture + laboratory**	**Exams, exams**
8	**1Theoretical 3 practical**	**Reproduction in ponds, natural reproduction, artificial reproduction Mothers' specifications, hormones us pituitary gla extraction, hormone injections**	**Identify the process of reproduction in fish ponds, artificial propagation, and characteristics of mothers What is availal for use reproduction a how to inj hormones**	**a lecture + laboratory**	**Exams, exams**
9	**1Theoretical 3 practical**	**Planning for the production of fingerlings Mothers' specifications, hormones us pituitary gla extraction, hormone injections**	**How to plan the production of fingerlings and t specifications of the mothers from which they are taken How to inj mothers increase production**	**a lecture + laboratory**	**Exams, exams**
10	**1Theoretical 3 practical**	**Fish nutrition (requirements o protein, carbohydrates,**	**Identify the most important feed materials that ar important in**	**a lecture + laboratory**	**Exams, exams**

		fats, salts, minerals, and vitamins) Fish food a nutrition, fe storage, place a time of providi feed, amount food, number feeding tim factors affecti the amount food	feeding fish and the need for then The types of fe their stora locations, and t specifications th must be availal in the stora areas		
11	1Theoretical 3 practical	Fish farm planning, intensive farmin Preparing die how to calcul the components complementary foods	Learn how to pla fish farms and intensive farming How to prepa diets for fish needed	a lecture + laboratory	Exams, exams
12	1Theoretical 3 practical	Division of fish farm ponds, broodstock pon hatchery, and incubation Means used catching fish	Knowing how to divide fish ponds including mothe ponds, fingerling ponds, and cavia ponds + And learn abo the differe methods catching fish in t correct ways a stay away fr illegal, overfishi methods	a lecture + laboratory	Exams, exams
13	1Theoretical 3 practical	Fish diseases (definition of the disease and	Identify the m common f diseases in t	a lecture + laboratory	Exams, exams

		factors of its occurrence - sig of the disease in ponds - types of diseases) Examining fish identify inter and exter parasitic infections using microscope	region, treatme methods, and h to deal with th during t treatment period		
14	1Theoretical 3 practical	Parasites, bacterial species viral species, fungal diseases, diseases resultin from infection with parasites. Diagnosing bacterial, fun and viral disea and how to tr and prevent the	Knowing the m important pathogens t cause ma diseases to f wealth a threaten the li of fish	a lecture + laboratory	Exams, exams
15	1Theoretical 3 practical	Methods of fishi methods, preserving their flavour, preserving and marketing live fish Visit to one of t fish farms a learn about t administrative and prevent work	Knowing the mo important metho of fishing and ho to maintain the correct and healthy fish preservation + A field visit to t locations of f ponds and learni about the lat developments fish farming	a lecture + laboratory	Exams, exams

11.

Course Evaluation

12. Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc.

Learning and Teaching Resources

Required textbooks (curricular books, if any)	**A book on the basics of fish breeding and production** **Author: Mahfouz Hussein Muhamm Ali Al-Salman**
Main references (sources)	**Fish farming in ponds and other inlan waters** **Author: William Edward Meehan**
Recommended books and references (scient journals, reports...)	**ps://edumag.uomustansiriyah.edu.iq/i x.php/mjse/article/view/390**
Electronic References, Websites	**animals of Agricultural sciences, AOA**

Course Description Form

1. Course Name:

Reproduction Physiology and Artificial Insemination

2. Course Code:

3. Semester / Year:

spring semester/2024 - 2025

4. Description Preparation Date:

29/2/2025

5. Available Attendance Forms:

Attendance in classrooms and scientific laboratories in the department

6. Number of Credit Hours (Total) / Number of Units (Total)

75 hours (30 theoretical hours + 45 practical hours) Number of units (total)

7. Course administrator's name (mention all, if more than one name)

Name: Dr.Safaa Sbbar Atiyah
Email: Safaa.Sabbar.iku@atu.edu.iq

8. Course Objectives

Course Objectives	**• At the end of the semester, the student will have mastered the foundations reproductive science in farm animals, which include cows, sheep, goats, buffalo, and camels, and the ability to conduct reproductive tests, methods of performing them, and high technology in order to reach the most accurate results as well.** **• At the end of the semester, the student learns about the parts and components of male and female reproductive system, its anatomy, how it works, the endocrine glands, hormones, the estrus cycle, and how the process of fertilization, pregnancy, milk production takes place.** **The student's knowledge of the history of reproductive science, the history of artificial insemination, and its importance in genetic improvement of farm animals for purpose of increasing production, and the ability to perform artificial insemination technology, as well as other assisted reproduction techniques, such as gamete freezing, external fertilization, ICSI, egg collection, and male semen analysis.**

9. Teaching and Learning Strategies

Strategy	**1- Students understand how to obtain scientific sources from the library as well as from the Internet, and how to distinguish between reliable and non-reliable sources.** **2 - Using illustrative means during the lecture, such as point power presentation using the projector, and providing students with mock educational videos to increase their understanding of the topics.** **3 - Asking students questions from time to time for the purpose of their participation in the lesson and opening the door to discussion.** **4 - Giving students homework for the current topic and asking them to research the topic of the next lecture** **For the purpose of developing their scientific research skills.**

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First week	2 Theoretical 3 practical	The economic importance of artificial insemination in farm animals.And its relationship to genetic improvement	The importance of artificial insemination and its relationship to genetic improvement +Anatomy and physiology of the male reproductive system, cross-section of the testicle	Lecture + laboratory	Exams + Quiz
Second	2 Theoretical 3 practical	The role of hormones and endocrine glands in influencing the initiation and termination of reproduction.	Identifying the endocrine glands related to the reproductive process and the hormones they secrete and defining the reproductive process, the hormone, the endocrine gland + the physiology of the male reproductive system, the work of the testicles, the stages of sperm formation, the work of the epididymis, penis, and scrotum.	Lecture + laboratory	Exams + Quiz
Third	2 Theoretical 3 practical	Definition of puberty and sexual maturity, the difference between them, and the influence	Puberty and sexual maturity and the factors affecting them (genetic, environmental) + anatomy	Lecture + laboratory	Exams + Quiz

		of environmental factors	**of the female reproductive system, ovaries, uterus, vagina, external genital opening, cross-section of the ovary**		
Fourth	**2 Theoretical** **3 practical**	**Knowing the function of the female reproductive system and how its different parts work**	**Physiology of the female reproductive system, its anatomy, the work of each of its organs + anatomy of the female reproductive system, ovaries, uterus, vagina, external genital opening, cross-section of the ovary**	**Lecture + laboratory**	**Exams + Quiz**
Fifth	**2 Theoretical** **3 practical**	**Definition of the reproductive cycle for different farm animals, the differences between them, and the types of wombs**	**The estrus cycle and its stages, the estrus period, the stages of the estrus cycle and the factors affecting it + the physiology of the female reproductive system, the function of the ovaries, the formation of eggs, the work of the female reproductive system**	**Lecture + laboratory**	**Exams + Quiz**
Sixth	**2 Theoretical** **3 practical**	**The process of formation of female gametes, their transmission, and different methods of collecting semen**	**Ovarian function, egg formation, egg transfer, factors affecting them + Semen collection method: The goal of semen collection, treatment of the bull during the collection process, different collection methods, artificial vagina, electrical stimulation**	**Lecture + laboratory**	**Exams + Quiz**
Seventh	**2 Theoretical** **3 practical**	**The role of ovarian hormones in causing the estrus cycle, fertilization, and pregnancy**	**Hormonal work of the ovaries, ovarian hormones related to reproduction, chemical composition + semen tests, primary tests, secondary tests.**	**Lecture + laboratory**	**Exams + Quiz**
Eighth	**2 Theoretical** **3 practical**	**Identify the function of the male reproductive system, its various parts, and the individual differences between them**	**Physiology of the male reproductive system, parts of the male reproductive system, testicles + dilution and preservation of semen, the most important diluents, preparation**	**Lecture + laboratory**	**Exams + Quiz**

			methods.		
Ninth	**2 Theoretical 3 practical**	**Defining the male reproductive cell, what its parts are, how to produce it, and fertilization. Knowing the methods of preserving gametes and embryos by freezing.**	**The male reproductive cell (sperm), the male sperm, its external appearance, physiological characteristics, its function + freezing and thawing semen, methods of freezing, freezing temperature, goals of freezing, thawing**	**Lecture + laboratory**	**Exams + Quiz**
Tenth	**2 Theoretical 3 practical**	**Defining reproductive efficiency in males and its role in increasing birth production and male fertility. Knowing the different methods of artificial insemination**	**Reproductive efficiency of males and females, reproductive efficiency of cows, reproductive efficiency of bulls, methods of examining organs, fertility, sterility, reproductive diseases + methods of inseminating females, the process of insemination, tools used for insemination, warnings (disadvantages) and advantages.**	**Lecture + laboratory**	**Exams + Quiz**
Eleventh	**2 Theoretical 3 practical**	**How fertilization occurs, whether inside the body or outside the body, and the changes after fertilization**	**Fertilization and pregnancy, the journey of the sperm into the female reproductive system, implantation, pregnancy, changes that occur in the female reproductive system during pregnancy + reproductive efficiency in bulls and cows**	**Lecture + laboratory**	**Exams + Quiz**
Twelfth	**2 Theoretical 3 practical**	**Knowledge of pregnancy hormones, namely progesterone, chorionic hormone, and others, in maintaining and stabilizing pregnancy**	**Pregnancy hormones (mother and fetus), pregnancy diagnosis (idea and benefits) + pregnancy diagnosis and definition, warnings, requirements, scientific idea**	**Lecture + laboratory**	**Exams + Quiz**
Thirteen	**2 Theoretical 3 practical**	**How does childbirth occur naturally or artificially, its various stages, and treatment of placental retention**	**Births and their stages, childbirth, stages of childbirth, natural childbirth, dystocia, retained placenta, uterine**	**Lecture + laboratory**	**Exams + Quiz**

			inversion + modern tactics in reproductive physiology, modern ideas in the field of increasing the number of births, hormones used, embryo culture tactics, external fertilization, producing twins		
Fourteen	2 Theoretical 3 practical	Know the components of the male and female reproductive system of poultry and the function of each part	Anatomy and physiology of the reproductive system of a hen and a rooster. Identifying the reproductive systems of a hen and a rooster	Lecture + laboratory	Exams + Quiz
Fifteen	2 Theoretical 3 practical	How to collect semen from a rooster, treat it, and dilute it for insemination	Collecting semen from roosters and identifying the characteristics of bird semen	Lecture + laboratory	Exams + Quiz
Final semester exam					

11.Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	**1- Book on the physiology of reproduction in farm animals, 2011** **2- The book on artificial reproduction (Part One), written by Dr. Hussein Abdul Karim Al-Saadi, Baghdad University Press, 1987 AD.**
Main references (sources)	**1- Book of Reproduction in Mammals, Part One, Gamete Formation and Fertilization: Written by Auset and Short, translated by Ahmed Al-Hamidi/ Faisal Abu Tarbush, King Saud University Press** **2- External Fertilization Book Translated by: Dr. Ibrahim Barakat / Dr. Saleh Qandil / Dr. Ahmed Al-Humaidi, King Saud University Publishing House.** **3- Applied Animal Endocrinology**
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	**Applied Animal Endocrinology** **Theriogenolog** **Small Ruminant Research**

Course Description Form

1. Course Name: Forage crops	
2. Course Code:	
3. Semester / Year: Fall and spring semester/2024 - 2025	
4. Description Preparation Date:2025 \3\2	
5. Available Attendance Forms: Attendance in classrooms and scientific laboratories in the department	
6. Number of Credit Hours (Total) / Number of Units (Total) 45 hours (15 theoretical hours + 30 practical hours) Number of units (total) / 3	
7. Course administrator's name (mention all, if more than one name)	
Name :Batool Abad Albany shaker **Email: batoul.shaker@atu.edu.iq**	
8. Course Objectives	
Course Objectives	**• At the end of the semester, the student will have complete knowledge of the subject of fodder crops and pastures** **• The student learns about the importance of livestock development and its relationship to feed production** **• The student's knowledge of the importance of field crops** **• The student learns about the methods of growing fodder crops and their importance** **• The student learns about the most important differences between the grass family and the leguminous family** **• The student learns about the importance of water resources and their relationship to feed production** **• The student's knowledge of natural plants and their importance in animal nutrition**

9. Teaching and Learning Strategies

Strategy	**1 - Students understand how to obtain scientific sources from the library as well as from the Internet, and how to distinguish between reliable and non-reliable sources.** **2 - Using illustrative means during the lecture, such as point power presentation using the projector, and providing students with mock educational videos to increase their understanding of the topics.** **3 - Asking students questions from time to time for the purpose of their participation in the lesson and opening the door to discussion.** **4 - Giving students homework for the current topic and asking them to research the topic of the next lecture For the purpose of developing their scientific research skills.**

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	1Theoretical 2practical	The importance livestock development an its relationship t fodder producti Nutrients in pla feed materials	Recognizing the importance of livestock development and its relationship t feed production + The importance nutrients in plan feed materials	a lecture + laboratory	Exams, Exams
2	1Theoretical 2 practical	Division of field crops according economic importance. Properties of	Identify the type of field crops + Knowledg of t properties food fodc	a lecture + laboratory	Exams, exams

		forage crops	crops		
3	1Theoretical 2 practical	Methods of growing fodder crops Botanical description of je and clover	Learn about the different method of growing fodde crops Learn about t description cultivation of th fodder crops	a lecture + laboratory	Exams, Exams
4	1Theoretical 2 practical	Production of yellow corn and its exploitation a a fodder crop Cultivation fodder crops (j alfalfa, barl soybeans)	The corn crop, it economic importance, and cultivation seaso Identifying important cro such as jet, alfal and soybeans	a lecture + laboratory	Exams, Exams
5	1Theoretical 2 practical	Cultivation and production of soybeans Silage and manufacturing stages	Methods cultivation a production soybean crops a how to bene from them Kasailig	a lecture + laboratory	Exams, exams
6	1Theoretical 2 practical	Aldrees production The m important differences between t leguminous a leguminous families	Hay productio the econon importance farm animals, a the most importa differences between the cer and legumino families	a lecture + laboratory	Exams, exams
7	1Theoretical 2 practical	Concentrated fe materials, grain and factors affecting them Botanical description	Identify concentrated fe materials and th importance feeding fa animals	a lecture + laboratory	Exams, exams

		yellow corn a field follow-up			
8	1Theoretical 2 practical	Cultivation of je crop Botanical description soybeans	Jet and its economic importance Soybeans and th economic importance	a lecture + laboratory	Exams, exams
9	1Theoretical 2 practical	Cultivating clov and using it as green fodder Collect and d feed samples	The m important fi crops that a important feeding anim and used as gre or dried fodder	a lecture + laboratory	Exams, exams
10	1Theoretical 2 practical	Cultivation of t barley crop a its exploitation green fodder a hay producti center fodder, conditions a manufacturing methods	Learn about cr cultivation methods, fe manufacturing methods, a manufacturing conditions that a available in t article	a lecture + laboratory	Exams, exams
11	1Theoretical 2 practical	Silage productio Crop serv operations	Learn about sila its producti methods, and economic importance	a lecture + laboratory	Exams, exams
12	1Theoretical 2 practical	Pastures in Iraq Seed diagno and phenoty study	How does t student lea about the types pastures in Ir and th importance humans a animals a benefit from th fully	a lecture + laboratory	Exams, exams
13	1Theoretical	Natural plant,	Knowing the ty	a lecture +	Exams,

	2 practical	nutritional valu Seminar discussions students	of natural plants Iraq in addition the nutritio value of this plan	laboratory	exams
14	1Theoretical 2 practical	Views about natural pasture (information network) Watch mode scientific fil about crop far (Information Network)	Identify the typ of pastures fou in the geographi area and wat scientific fil about those plan	a lecture + laboratory	Exams, exams
15	1Theoretical 2 practical	Water resource pasture animal care Watch scientific films abo feed manufactu ng (Informat n Networ	The importance water resources and how to bene from them The importanc of fodd and metho of preservi it	a lecture + laboratory	Exams, exams

11.

Course Evaluation

12.Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

Learning and Teaching Resources

Required textbooks (curricular books, if any)	**Book: Fodder crops and pastures Author: Ramadan Al-Takriti Publishing 1981**
Main references (sources)	**Journal of Agricultural Sciences**
Recommended books and references (scient journals, reports...)	**Forage crops book Author: Abdullah Mahmoud Saleh Agricultural magazines**
Electronic References, Websites	**https://search.mandumah.com**

Course Description Form

1. Course Name:
Economics of animal production
2. Course Code:
3. Semester / Year:
Fall semester/2024 -2025
4. Description Preparation Date:
29/2/2025
5. Available Attendance Forms:
Attendance in classrooms in the department
6. Number of Credit Hours (Total) / Number of Units (Total)
30 hours theoretical only Number of / 2 units
7. Course administrator's name (mention all, if more than one name)
Name: Karrar Kadhim Abdul-Amir **Email: Karrar.Kadhim.iku@atu.edu.iq**
8. Course Objectives

Course Objectives	**1- For the student to become familiar with economics, types of economic systems and laws, types of economics, and economic activities, and linking them to agricultural and animal production.** **2-The student learns the basic principles of agricultural economics, especially animal production, production factors, demand and supply for animal products, factors affecting them, elasticity and its types.** **3- . Proper employment of the factors of production, which are land, capital, labor, organization or management, and the elements of agricultural production** **4- The student should know the economic feasibility study for livestock projects, types of markets, agricultural production functions, and how to achieve the highest ideal levels of production and exploitation of natural human resources.**

9. Teaching and Learning Strategies

Strategy	**1- Students understand how to obtain scientific sources from the library as well as from the Internet, and how to distinguish between reliable and non-reliable sources.** **2 - Using illustrative means during the lecture, such as point power presentation using the projector, and providing students with mock educational videos to increase their understanding of the topics.** **3 - Asking students questions from time to time for the purpose of their participation in the lesson and opening the door to discussion.** **4 - Giving students homework for the current topic and asking them to research the topic of the next lecture** **For the purpose of developing their scientific research skills.**

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First week	2 Theoretical	The economic importance of artificial insemination in farm animals.And its relationship to genetic improvement	The importance of livestock in the Iraqi agricultural economy, the economic importance of animal products, the nutritional importance of animal products	Lecture + laboratory	Exams + Quiz
Second	2 Theoretical	Agricultural economics: general concept, emergence, relationship of agricultural economics to economics	Agricultural economics: general concept, emergence, relationship of agricultural economics to economics	Lecture + laboratory	Exams + Quiz
Third	2 Theoretical	Definition of demand and and the influence of environmental factors	Demand for animal products, demand schedule, factors affecting demand, elasticity of demand for animal products, factors affecting elasticity of demand	Lecture + laboratory	Exams + Quiz
Fourth	2 Theoretical	Knowing the function of supply, Definition, and the influence of environmental factors	Supply of animal products, supply schedule, factors affecting supply, factors affecting elasticity of	Lecture + laboratory	Exams + Quiz

			supply		
Fifth	2 Theoretical	different farm animals, the differences between them, and the types	Agricultural production: the concept of agricultural production, agricultural production factors, production functions, the law of diminishing returns.	Lecture + laboratory	Exams + Quiz
Sixth	2 Theoretical	The principle of the best level of production	The principle of the best level of production	Lecture + laboratory	Exams + Quiz
Seventh	2 Theoretical	The role of substitution or replacement in animal production projects	The principle of substitution or replacement	Lecture + laboratory	Exams + Quiz
Eighth	2 Theoretical	Knowing the function of supply, Definition, and the influence of environmental factors	Production costs	Lecture + laboratory	Exams + Quiz
Ninth	2 Theoretical		Marketing animal products	Lecture + laboratory	Exams + Quiz
Tenth	2 Theoretical	Defining reproductive efficiency in males and its role in increasing birth production and male fertility. Knowing the different methods of artificial insemination	Livestock project management	Lecture + laboratory	Exams + Quiz
Eleventh	2 Theoretical		Production patterns for animal production projects	Lecture + laboratory	Exams + Quiz
Twelfth	2 Theoretical 3 practical	Knowing the function of supply, Definition, and the influence of environmental factors	Agricultural records	Lecture + laboratory	Exams + Quiz
Thirteen	2 Theoretical		Planning animal production projects	Lecture + laboratory	Exams + Quiz
Fourteen	2 Theoretical		Foundations and methods for evaluating livestock projects	Lecture + laboratory	Exams + Quiz

Fifteen	**2 Theoretical**		**Economic indicators and criteria for evaluating livestock production projects**	**Lecture + laboratory**	**Exams + Quiz**
Final semester exam					

11.Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	**1- Principles of Economics book, 2011**
Main references (sources)	
Recommended books and references (scientific journals, reports...)	