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

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: **2024**

File Completion Date: **29/2/2024**

Signature:
Head of Department Name:
Haki A. Alfatlawe
Date: **29 /2/2024**

Signature:
Scientific Associate Name:
Muhammad Subhi Al–Zubaidi
Date: **29 / 2 /2024**

The file is checked by:
Department of Quality Assurance and University Performance
Director of the Quality Assurance and University Performance Department:
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				

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

7. Program Description

Year/Level	Course Code	Course Name	Credit Hours	
The first/autumn			**theoretical**	**Practical**
		Veterinary Principle	٢	٣
		Dairy Cattle Production	١	٣
		Sheep & Goat Production	١	٣
		Poultry Production	١	٣
		Feed & Feeding	١	٣
		Agriculture Machine & Equipment	١	٢
		Computer App.	١	٢
		Human rights	٢	-
		English language		
The first / spring		Animal Health		
		Meat Cattle Production		
		Fish Production		
		Poultry Nutrition		
		Animal Production Machinery		
		General Chemistry		
		Computer App.		
		Democracy		
		English language		
The second autumn		Animal Physiology		
		Animal Diseases		
		Animal Nutrition		
		Meat maintains & Processing		
		Animal Breeding		
		Computer App. / 2		
		project		

		English language		
The second spring		Poultry Diseases		
		Hatching Technology		
		Dairy product		
		Fish Breeding		
		Reproductive Physiology & artificial insemination		
		Forage Crops		
		Animal production Economics		
		Computer App. / 2		
		project		

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 Production	**Basic**	*					*					*	*
		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.**

Course Description Form

1. Course Name:
Reproduction Physiology and Artificial Insemination
2. Course Code:
3. Semester / Year:
Fall semester
4. Description Preparation Date:
29/2/2024
5. Available Attendance Forms:
Attendance in classrooms and scientific laboratories in the department
6. Number of Credit Hours (Total) / Number of Units (Total)
75 hours (30 theoretical hours + 45 practical hours) Number of units (total) / 5
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 of reproductive scienc farm animals, which include cows, sheep, goats, buffalo, and camels, and the ability to conc reproductive tests, methods of performing them, and high technology in order to reach the most accu results as well. • At the end of the semester, the student learns about the parts and components of the male and fen reproductive system, its anatomy, how it works, the endocrine glands, hormones, the estrus cycle, and h the process of fertilization, pregnancy,milk production takes place. The student's knowledge of the history of reproductive science, the history of artificial insemination, its importance in genetic improvement of farm animals for the purpose of increasing production, and ability to perform artificial insemination technology, as well as other assisted reproduction techniq 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, a how to distinguish between reliable and non-reliable sources. 2 - Using illustrative means during the lecture, such as point power presentation using the projector, a 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 of environmental factors	Puberty and sexual maturity and the factors affecting them (genetic, environmental) + anatomy of the female reproductive system, ovaries, uterus, vagina, external genital opening, cross-section of the ovary	Lecture + laboratory	Exams + Quiz
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	Lecture + laboratory	Exams + Quiz

			of the female reproductive system		
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 methods.	Lecture + laboratory	Exams + Quiz
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	Lecture + laboratory	Exams + Quiz

			advantages.		
Eleventh	2 Theoretical 3 practical	How fertilizati occurs, whetl inside the body outside the bo and the chang after fertilizatio	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 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	Lecture + laboratory	Exams + Quiz
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

13.Course Name:	
Animal Breeding and Management	
14.Course Code:	
15.Semester / Year:	
spring semester	
16.Description Preparation Date:	
29/2/2024	
17.Available Attendance Forms:	
Attendance in classrooms and scientific laboratories in the department	
18.Number of Credit Hours (Total) / Number of Units (Total)	
75 hours (30 theoretical hours + 45 practical hours) Number of units (total) / 5	
19.Course administrator's name (mention all, if more than one name)	
Name: Dr.Safaa Sabbar Atiyah Email: Safaa Sabbar.iku@atu.edu.iq	
20.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, and cam and the ability to conduct genetic tests, breeding, methods of performing them, and h 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 glar 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 the purp of increasing production and the ability to perform artificial insemination technology well as the rest of the reproductive techniques related to genetic improvement.

21.Teaching and Learning Strategies

Strategy	1- Students understand how to obtain scientific sources from the library as well as fr 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 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.

22. 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	Definition of puberty and sexual maturity, the difference between	Puberty and sexual maturity and the factors affecting them (genetic,	Lecture + laboratory	Exams + Quiz

	3 practical	them, and the influence of environmental factors	environmental) + anatomy 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 methods.	Lecture + laboratory	Exams + Quiz

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 fertilizati occurs, whet inside the body outside the bo and the chang after fertilizatio	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 inversion + modern tactics in reproductive physiology, modern ideas in the field of increasing the	Lecture + laboratory	Exams + Quiz

			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					

23.Course Evaluation

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

24.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

Course Description Form

25. Course Name: Animal feeding	
26. Course Code:	
27. Semester / Year: spring semester	
28. Description Preparation Date:2024\3\2	
29.Available Attendance Forms: Attendance in classrooms and scientific laboratories in the department	
30.Number of Credit Hours (Total) / Number of Units (Total) 60 hours (30 theoretical hours + 30 practical hours) Number of units (total) / 4	
31. Course administrator's name (mention all, if more than one name)	
Name :Batool Abad Albany shaker Email: batoul.shaker@atu.edu.iq	
32. Course Objectives	
Course Objectives	**At the end of the semester, the student wil** **have a complete understanding of animal feed material** **• The student learns about the differences the digestive system between poultry and ruminants** **• The student's knowledge of the needs tha must be met by feeding different types of 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 import diseases to which animals are expo through excessive or deficient nutrition how they are treated**

33. 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 poi 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 th 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 ski

34. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2Theoretical 2 practical	The digesti 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 thei functions Anatomy the digestive systems o farm animals	Knowledge of th glands accessory to the digestive system and their importance In additi to dissecti the digesti system animals a introducin students to	a lecture + laboratory	Exams, exams
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 i 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 proce 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	Knowledge of t microorganisms	a lecture + laboratory	Exams, exams

		system of ruminants (type functions) Examinati n materials inside t digestive system, rumen a duodenun	the digesti system ruminants, th functions a importance		
6	2Theoretical 3 practical	The use nitrogenous protein substances feeding ruminar (types, feedi methods, poisoning)	Knowing t importance nitrogenous substances feeding ruminar and the exposu of the animal poisoning and h to deal with it	a lecture + laboratory	Exams, exams
7	2Theoretical 3 practical	Mineral salts a their importar in feedi ruminants (typ functions, sources)	Identify mine salts and th importance feeding ruminar their impact on t animals' production of m and meat, and t sources of the 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	Find out what ar the nutritional	a lecture + laboratory	Exams, exams

		of dairy cows a newborns, composing di and calculati their componen	needs of dairy cows How th relationshi are form and according their componen		
10	2Theoretical 3 practical	Nutrition of b cattle and buff (nutritional nee for differe purposes) a nutritional nee of fatteni animals (types fattening a methods)	Knowing the necessary needs for growth and production To obtain the b results in terms fattening and m production	a lecture + laboratory	Exams, exams
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 purpos (growth, development) Factors affecti growth from	Studying t nutritional nee of animals benefit from t nutrients includ in th composition and	a lecture + laboratory	Exams, exams

		nutritional standpoint	know the facto affecting growth		
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 t nutritional nee necessary to ca out t fertilization a reproduction process and t importance of t process on t economy of t 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

35.

Course Evaluation	
36. 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 fee industry Author: Muhammad Ali Mal Al-Rubaie

Main references (sources)	Animal nutrition Author: Dr. Abdel Han Mohamed Abdel Hamid
Recommended books and references (scien journals, reports…)	Animal nutrition Author: Dr. Abdel Han Mohamed Abdel Hamid
Electronic References, Websites	animals of Agricultural scienc AOAS

Course Description Form

37. Course Name: Poultry feed	
38. Course Code:	
39. Semester / Year: /Fall semester	
40. Description Preparation Date:2024\3\2	
41. Available Attendance Forms: Attendance in classrooms and scientific laboratories in the department	
42. Number of Credit Hours (Total) / Number of Units (Total)\ 60 hours (30 theoretical hours + 30 practical hours) Number of units (total) / 4	
43. Course administrator's name (mention all, if more than one name)	
Name :Batool Abad Albany shaker Email: batoul.shaker@atu.edu.iq	
44. Course Objectives	
Course Objectives	**• At the end of the semester, the student w**

	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, an others.** **• The student's knowledge of the energy a protein needs of poultry and how to balanc them to carry out all vital activities.** **• The student's knowledge of nutritio deficiency diseases in poultry and how t are treated by balancing the nutrie included in the composition of the diet**

45. 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 poi 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 th 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 ski

46. 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 birds need to car out 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 broilers a laying hens duri different l stages.	It is necessary know the facto affecting t energy needs chickens, and increase in t energy has effect, and a lack energy also has effect, so the must be a balar	a lecture + laboratory	Exams, Exams

			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 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 of t digestive ratio protein, t biological value protein, the r value of prote and t	Learn about t importance protein, digestibility ra and its net value	a lecture + laboratory	Exams, exams

		relationship between them a the digestive rat			
8	1Theoretical 3 practical	Nutritional requirements 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 nc essential ones.	a lecture + laboratory	Exams, exams
9	1Theoretical 3 practical	Ostrich nutriti and diets a different feedi methods	Learn abc 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 e the quality of t shell, the qual of the egg whi the nutritio value of the e 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 poultry, metho used in fe rationing, forms feed provided poultry	Knowledge of fo rationing, metho of using it, t forms of fe provided, and t effect of feed fo	a lecture + laboratory	Exams, exams

			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 fodc used in poult 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 birds	Knowing t methods calculating the cost feed for kinds raised bir whether they a chickens, ducks, gee turkeys a other poultry.	a lecture + laboratory	Exams, exams
15	1Theoretical	Diseases and ba	Knowing the m	a lecture +	Exams,

	3 practical	habits resulting from nutritional deficiency Identifying t symptoms nutritional deficiency in bir and how to tre them, evaluati the quality of t feed and freedom fro toxins and fun and means storing it	important diseas that spread poultry resulti from nutritio deficiency a treating the through healt nutrition + It necessary to kn the quality of t feed and absence pathogens	laboratory	exams

47.

Course Evaluation

48. 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 Al-Kassa
Recommended books and references (scien journals, reports…)	Poultry feed Author: Doha Al-Sadiq
Electronic References, Websites	anmals of Agricultural scienc AOAS

Course Description Form

49. Course Name: Hatchery techniques	
50. Course Code:	
51. Semester / Year: Fall	
52. Description Preparation Date:2024\3\2	
53.Available Attendance Forms: Attendance in classrooms and scientific laboratories in the department	
54.Number of Credit Hours (Total) / Number of Units (Total) 60 hours (15 theoretical hours + 45 practical hours) Number of units (total) / 4	
55. Course administrator's name (mention all, if more than one name)	
Name :Batool Abad Albany shaker Email: batoul.shaker@atu.edu.iq	
56. Course Objectives	
Course Objectives	**• At the end of the semester, the student w have mastered the subject of hatchery techniques** **• The student learns about hatcheries, thei 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**

	the egg and the changes that occur to it during the process of embryo formation inside it **• Knowing the developments that occur in 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**

57. 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 poi 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 th 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 ski

58. 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 the hatching industry in the world and the methods used fo hatching	a lecture + laboratory	Exams, exams
2	1Theoretical 3 practical	Conditions that must be met in eggs prepared fo hatching, treatment of egg in the mothers' fields and durin transportation Natural and artificial hatchir methods	Knowing t conditions for eg prepared hatching and h to deal with eg prepared hatching knowing t differences between natu and artifici hatching method	a lecture + laboratory	Exams, exams
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 machir and t specifications these machines	a lecture + laboratory	Exams, exams
4	1Theoretical	The basic	Knowing what a	a lecture +	Exams,

	3 practical	components of t hatching proces The mechanisı of operati of t cooling, humidity, ventilatio and stirri system inside t hatching machines	the necessa elements for t hatching proce such temperature, humidity, stirri and ventilation	laboratory	exams
5	1Theoretical 3 practical	Stages of embry development in eggs Conditions th must be met eggs prepared hatching	Knowing t stages of embr development fr the egg to t hatching stage a what conditio must be met complete t hatching process	a lecture + laboratory	Exams, exams
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	Identifying t most importa characteristics	a lecture + laboratory	Exams, exams

		factors affecting Conditions a direction of layi hatching eggs a the duration storage of eg prepared hatching	fertility in chicke prepared hatching and wh are the factors th affect the hatchi process and wh placing eggs in e dishes. Knowi the appropria direction for t egg prepared hatching and h long is t appropriate peri to complete t hatching process		
8	2Theoretical 3 practical	Reasons for t low hatchabil rate and facto affecting t fertilization ra in eggs prepar for hatching	Knowing t reasons that le to a decrease in t hatchability rate poultry and wh are the facto affecting t percentage hatchlings prepared hatching	a lecture + laboratory	Exams, exams
9	1Theoretical 3 practical	Daily stages embryonic development	Knowing the da embryonic developments th occur in the eg every day of t hatching proce for a period of days for chicke and the peri varies according the type of bir prepared hatching.	a lecture + laboratory	Exams, exams

10	1Theoretical 3 practical	Quail egg production, economic importance, scientific foundations followed In egg productio 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 and h they a treated	a lecture + laboratory	Exams, exams
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 table e production a hatching, functions a symptoms	Knowing the m important commercial bree that produce eg of econon importance to t producing count	a lecture + laboratory	Exams, exams

		nutrient deficiency in t growth embryos.			
13	1Theoretical 3 practical	Non-nutritive fe additives and their effect on e hatching. Reasons the l hatching rate due modern hatching technique	Knowing t importanc of t nutrients included the compositic of the d for the poultry prepared hatching	a lecture + laboratory	Exams, exams
14	1Theoretical 3 practical	Artificial hatchi of poultry, especially turke and ducks Fertilization, factors affecti the rate fertilization eggs prepared hatching	Identify t artificial hatchi of poult including turke and ducks, a what factors aff the fertilizati process	a lecture + laboratory	Exams, exams
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
59.					
Course Evaluation					

60. 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 Agricultu horticulture, forestry, fishe nutrition
Main references (sources)	Hatching and modern poultry management Dr. Muhammad Al-Hajami Dr. Muhammad Al-Jalawi
Recommended books and references (scien journals, reports…)	Hatching in poultry The author is Dr. Tariq An Obaid
Electronic References, Websites	animals of Agricultural scienc AOAS

Course Description Form

61. Course Name: Pullers and agricultural machinery	
62. Course Code:	
63. Semester / Year: Fall semester	
64. Description Preparation Date:2024\3\2	
65.Available Attendance Forms: Attendance in classrooms and scientific laboratories in the department	
66.Number of Credit Hours (Total) / Number of Units (Total)\ 45 hours (15 theoretical hours + 30 practical hours) Number of units (total) / 3	
67. Course administrator's name (mention all, if more than one name)	
Name :Batool Abad Albany shaker Email: batoul.shaker@atu.edu.iq	
68. Course Objectives	
Course Objectives	**• At the end of the semester, the student w have complete knowledge of the subject of tractors and agricultural machinery. • The student learns about the importance tractors and agricultural machinery • The student's knowledge of the types of agricultural tractors and their need • The student learns about the parts and components of agricultural machinery • The student learns about safety procedur when using agricultural tractors • The student's knowledge of the equipmer**

	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.**

69. 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 poi 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 th 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 ski

70. 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 o various types + See the types of	a lecture + laboratory	Exams, exams

			pullers and learn about their different parts		
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 tractors	a lecture + laboratory	Exams, exams
3	2Theoretical 3 practical	Function of mai tow parts Parts of cooling systems and air systems	The function of t parts of the agricultural pulle and all its components + Identify t parts cooling systems agricultura machinery in additi to systems	a lecture + laboratory	Exams, exams
4	2Theoretical 3 practical	Quaternar and binary thermal cycles Parts of t lubricatio system	Knowledge of thermal cycles of their four- and binary types + Identify t parts of t lubrication system	a lecture + laboratory	Exams, exams
5	2Theoretical 3 practical	Fuel system / diesel, gasoline the engine	Fuel system diesel and gasoli + learning to dr	a lecture + laboratory	Exams, exams

		Tug movemen and t driving device	a tug		
6	2Theoretical 3 practical	Air, exhaust, cooling and lubrication syste Electrica systems t tug parts	Knowledge of the a exhaust, cooling a lubrication system important for the bet functioning of agricultura machinery	a lecture + laboratory	Exams, exams
7	2Theoretical 3 practical	Electrical systen for diesel and gasoline engines The separator, its par and the ge shift devic	Identify t electrical system diesel and gasoli engines	a lecture + laboratory	Exams, exams
8	2Theoretical 3 practical	Hydraulic devic Practical traini on tug driving	Identify the hydraulic device and its types+ How to dri 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 connect it	a lecture + laboratory	Exams, exams
10	2Theoretical 3 practical	Sustaining the tu Identify the pa	Identifying sustainability a its importar	a lecture + laboratory	Exams, exams

		of sustainability	with agricultu tractors a various livesto production machines		
11	2Theoretical 3 practical	Smoothing equipment Types of plo and learni about t equipment used	Learn abo smoothing equipment know t types plows a how to u them	a lecture + laboratory	Exams, exams
12	2Theoretical 3 practical	Planning and canal cutting equipment Types protective equipmen	How the stude gets to know t equipment 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 o equipment and how they operat Modern tactic in working 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 cli to learn how th work agricultural field	a lecture + laboratory	Exams, exams
15	2Theoretical 3 practical	Reaping and harvesting equipment Discussing t practical less	Identifying t types of harvesti and harvesti equipment + scientific discussion	a lecture + laboratory	Exams, exams

		and benefiti from the field specialization	students regardi the curriculu items for t subject of tracto and agricultu machinery.		
71.					
Course Evaluation					
72. 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 Mustafa 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.ag lib.site/2020/07/blog-post_56.html		
Main references (sources)			Comprehensive agricultu library		
Recommended books and references (scien journals, reports…)			Agricultural tractors A.D. Mahmoud Ali Muhammad Mr. Dr. Ibrah Muhammad Omar		
Electronic References, Websites			animals of Agricultural scienc AOAS		

Course Description Form

73. Course Name: Forage cropes	
74. Course Code:	
75. Semester / Year: spring semester	
76. Description Preparation Date:2024\3\2	
77.Available Attendance Forms: Attendance in classrooms and scientific laboratories in the department	
78.Number of Credit Hours (Total) / Number of Units (Total) 45 hours (15 theoretical hours + 30 practical hours) Number of units (total) / 3	
79. Course administrator's name (mention all, if more than one name)	
Name :Batool Abad Albany shaker Email: batoul.shaker@atu.edu.iq	
80. Course Objectives	
Course Objectives	**• At the end of the semester, the student w have complete knowledge of the subject of fodder crops and pastures** **• The student learns about the importance livestock development and its relationship feed production** **• The student's knowledge of the importan of field crops** **• The student learns about the methods of growing fodder crops and their importance** **• The student learns about the most import differences between the grass family and t**

	leguminous family **• The student learns about the importance water resources and their relationship to fe production** **• The student's knowledge of natural pla and their importance in animal nutrition**

81. 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 poi 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 th 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 ski

82. 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	a lecture + laboratory	Exams, Exams

			feed materials		
2	1Theoretical 2 practical	Division of field crops according economic importance. Properties of forage crops	Identify the type of field crops + Knowledge of t properties food fodd crops	a lecture + laboratory	Exams, exams
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 the 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, its economic importance, and cultivation season+ 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 mo important	Hay productio the econon importance of fa animals, and t	a lecture + laboratory	Exams, exams

		differences between t leguminous a leguminous families	most importa differences between the cer and leguminc families		
7	1Theoretical 2 practical	Concentrated fe materials, grains and factors affecting them Botanical description yellow corn a field follow-up	Identify concentrated fe materials and th importance feeding fa animals	a lecture + laboratory	Exams, exams
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 clove and using it as green fodder Collect and c 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 the fully	a lecture + laboratory	Exams, exams
13	1Theoretical 2 practical	Natural plant, nutritional valu Seminar discussions students	Knowing the typ of natural plants Iraq in addition the nutritio value of this plan	a lecture + laboratory	Exams, 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
83.					
Course Evaluation					
84. 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 pastu Author: Ramadan Al-Takriti Publishing 1981
Main references (sources)	Journal of Agricultural Science
Recommended books and references (scien journals, reports…)	Forage crops book Author: Abdullah Mahmoud Saleh Agricultural magazines
Electronic References, Websites	https://search.mandumah.con

Course Description Form :

1- Course Name
Veterinary Principle
2- Course Code
/
3- Semester/Year
Autumn Semester (first)
4- Date of preparation of this description
20 / 2 / 2024
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	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 resistance 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- Output 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 + three Hours	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 lessons, Theory: 1. Daily exams 2. Oral exams monthly exams and quarterly + As for the lessons, Practices:
Fourth					
Fifth		Identify the different types of bacteria	Bacteria, their types and characteristics		
Sixth		Identify the different types of anemia and its causes	Types and causes of Anemia		
Seven					
Eight		Identify the different types For immunity against various Infectious	Immunity and resistance		
Nine					
Ten		Identify the different types of diseases and how they are transmitted between	Diseases classification and methods of Its transmission		

Eleven Twelve Thirteen ((Fourteen + Fifteen))	For the Practical lesson	herd members Learn about different methods Which are used for various diagnoses diseases affecting animals farm Identify the different types vet medicines and methods of administering med veterinary and vaccines How to prevent and control infectious diseases Different types of mastitis and its causes Methods of diagnosing parasites Internal and externa field and Laboratory Identify the different types wounds and how to treat them Childbirth: tools used in Child maternal and newborn care	Diagnoses of the diseases Medicine and types of vet medicines Prevention and control of Infectious diseases Mastitis types of inflammation of the udder Animal parasites Surgery, types of wounds Childbirth and types of dystocia	+ 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 Veterinarian for examination purpose signs of health and illness and learn about the roads various medications to adn and vaccines	1- Training is done on statues 2. Prompt to set up reports & seminars from recent sources related to the curriculum

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)	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

85. Course Name:	
Fish production	
86. Course Code:	
87. Semester / Year:	
Spring semester	
88. Description Preparation Date:	
/ 2 / 2024	
89. Available Attendance Forms:	
Attendance in classrooms and scientific laboratories in the department	
90. Number of Credit Hours (Total) / Number of Units (Total)	
60 hours (15 theoretical hours + 45 practical hours) Number of units (total) / 4	
91. Course administrator's name (mention all, if more than one name)	
Name: Duaa Mohammed Ali Jawad Email: dd.ooaa@yahoo.com	
92. 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**

93. 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 computers. • 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

94. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The first	1Theoretical 3 practical	**Introduction to productionFish,Flag of fish, fish of interests, features of fish**	**Study of external appearanceFor the fish,Body parts**	lecture A + 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**	lecture A + 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 measuring device) and others**	A lecture + Laboratory	‹Examinations Quiz
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**	**Examining and**	A lecture +	‹Examinations Quiz

		- Factors affecting reproduction (internal and external) Reproduction systems Sexual differentiation and sex differences	**measuring fertility (absolute, relative), proportionality function**	Laboratory	
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

95. 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	
96. 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 of America
Main references (sources)	Recent research and studies
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	Google Scholar

Course Description Form

97. Course Name:	
Sheep & goat production	
98. Course Code:	
99. Semester / Year:	
Spring semester/2024	
100. Description Preparation Date:	
/ 2 / 2024	
101. Available Attendance Forms:	
Attendance in classrooms and scientific laboratories in the department	
102. Number of Credit Hours (Total) / Number of Units (Total)	
60 hours (15 theoretical hours + 45 practical hours) Number of units (total) / 4	
103. Course administrator's name (mention all, if more than one name)	
Name: Humamh hussien ahmed Email: .humamh@atu.edu.iq	
104. 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

105. 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 computers. • 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

106. 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**	lecture A + 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 animal kingdom**	**Field records, types of records**	A lecture + Laboratory	‹Examinations Quiz
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

107. 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

108. 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

109. Course Name:	
Dairy cattle production	
110. Course Code:	
111. Semester / Year:	
Spring semester/2024	
112. Description Preparation Date:	
/ 2 / 2024	
113. Available Attendance Forms:	
Attendance in classrooms and scientific laboratories in the department	
114. Number of Credit Hours (Total) / Number of Units (Total)	
60 hours (15 theoretical hours + 45 practical hours) Number of units (total) / 4	
115. Course administrator's name (mention all, if more than one name)	
Name: Duaa Mohammed Ali Jawad Email: dd.ooaa@yahoo.com	
116. Course Objectives	
Course Objectives	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 anima 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
117. 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 6- Self-learning method

118. 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	A lecture + 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	A lecture + Laboratory	‹Examinations Quiz
Eleventh	1Theoretical 3 practical	Hormones and their effect on milk production	Milk substitutes and the importance of colostrum	lecture A + 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	A lecture + Laboratory	‹Examinations Quiz

			station and the Ministry of Milk Collection Center		

119. 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	
120. 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

121. Course Name:
Diary production
122. Course Code:
123. Semester / Year:
Spring semester/2024
124. Description Preparation Date:
/ 2 / 2024
125. Available Attendance Forms:
Attendance in classrooms and scientific laboratories in the department
126. Number of Credit Hours (Total) / Number of Units (Total)
60 hours (15 theoretical hours + 45 practical hours) Number of units (total) / 4
127. Course administrator's name (mention all, if more than one name)
Name: Duaa Mohammed Ali Jawad Email: dd.ooaa@yahoo.com
128. 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 productio and the quality of cheese and fermented milk.
129. 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.

130. 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	Reductive tests (methylene blue,	A lecture +	‹Examinations Quiz

		through milk to humans	resazurin)	Laboratory	
sixth	1Theoretical 3 practical	The spoilage of milk and its products, methods of contamination, and its impact on consumers	Estimating acidity in milk / titration methods, pH device, boiling, lye leaves	A lecture + Laboratory	‹Examinations Quiz
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

131. 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	
132. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Cheese and fermented milk production, Lotfi 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

133. Course Name:
Meat maintains & processing
134. Course Code:
135. Semester / Year:
Autumn semester /2024
136. Description Preparation Date:
/ 2 / 2024
137. Available Attendance Forms:
Attendance in classrooms and scientific laboratories in the department
138. Number of Credit Hours (Total) / Number of Units (Total)
60 hours (15 theoretical hours + 45 practical hours) Number of units (total) / 4
139. Course administrator's name (mention all, if more than one name)
Name: Duaa Mohammed Ali Jawad Email: dd.ooaa@yahoo.com

140. 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 me products 4- Developing their awareness regarding food industries, their importance, typ and stages of examination -5-Knowledge of manufacturing, food preservation, balanced nutrition and the 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

141. 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.

142. 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	A lecture + 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 methods for isolating bacteria from meat	A lecture + Laboratory	‹Examinations Quiz
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	Methods of cooking meat	A lecture + Laboratory	‹Examinations Quiz

		of protein content in fish according to its types. Fat, water, spoilage and spoilage of fish meat and how to control them			
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

143. 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

144. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Comprehensive practical guide book on meat 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 : Animal Health

9- Course Name
Animal Hygiene OR Animal Health
10-Course Code
/
11-Semester/Year
Spring Semester (Second) / Academic Year 2023 - 2024
12- Date of preparation of this description
20 / 2 / 2024
13- Available Attendance Forms
Theoretical lectures in the classroom and practical lectures in the laboratory and field
14- Number of credit hours (total) / number of units (total)
5 hours (2 theoretical + 3 practical) / 5 units
15- Course administrator's name (if more than one name) with e-mail
Shatha Atta Abeed e. mail : kin.sht@atu.edu.iq
16- 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- Outputs 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 (CO2) 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**

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

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

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

8- 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**

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

4- 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)

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

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

6- 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	Two hours	Recognize the components of air Natural pollutants and pollutants that	Air, health importance For air comp pollutants air inside resid		As for the lessons,

2nd. 3rd. Fourth Fifth Sixth Seven Eight Nine Ten Eleven Twelve Thirteen Fourteen Fifteen	For the Theoretical lesson + three Hours For the Practical lesson	Happening inside residences Animals Health importance For air, su 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 water purification	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 powder and potassium permanganate . Animal pens, location building, construction, ro Thermal insulation .	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	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

		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**	**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)	**1- كتاب صحة الحيوان و الدواجن** **2- .أسس علم صحة الحيوان / د. ماجـد موسى**
Recommended books and references (scientific journals, r	
Electronic References, Websites	

13- Course Development Plan

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

4- 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

145. Course Name:	
Feed and Feeding	
146. Course Code:	
147. Semester / Year:	
Autumn semester /2024	
148. Description Preparation Date:	
/ 2 / 2024	
149. Available Attendance Forms:	
Attendance in classrooms and scientific laboratories in the department	
150. Number of Credit Hours (Total) / Number of Units (Total)	
60 hours (15 theoretical hours + 45 practical hours) Number of units (total) / 4	
151. Course administrator's name (mention all, if more than one name)	
Name: Humamh hussien ahmed Email: .humamh@atu.edu.iq	
152. 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 resu as well. • At the end of the semester, the student learns about the parts and component of the digestive system, its anatomy, how it works, and learns about the gland

	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

153. 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.

154. 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	lecture A + Laboratory	‹Examinations Quiz

155. 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

156. 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 :Animal physiology

157. Course Name:	
Animal Anatomy & physiology	
158. Course Code:	
/	
159. Semester / Year:	
Autumn Semester (first) / Academic Year 2023 - 2024	
160. Description Preparation Date:	
20 / 2 / 2024	
161. Available Attendance Forms:	
Theoretical lectures in the classroom and practical lectures in the laboratory	
162. Number of Credit Hours (Total) / Number of Units (Total)	
5 hours (2 theoretical + 3 practical) / 5 units	
163. Course administrator's name (mention all, if more than one name)	
Name: Shatha Atta Abeed **Email: kin.sht@atu.edu.iq**	
164. 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.

165. 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**

166. 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 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 lessons, Theory: 1. Daily exams 2. Oral exams monthly exams and quarterly + As for the lessons,
2nd.	+	Identify parts The external body of animals farm	External parts of a body Animal and poultry and their importance Some parts		
3rd.	three Hours For the Practical lesson	Identify the components of the digestive system and circulation with their functions in ruminants	Anatomy of the digestive system and circulation of the ruminants		

Fourth		Identify the components of the Respiratory and urinary tract with their functions in ruminants	Anatomy of respiratory system and urinary system for ruminants	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 veterinary hospital Nearby to components of the animal body and different blood tests	Practices: 1- Training is done on Statues 2. Prompt to set up reports & seminars from recent sources related to the curriculum
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		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	Determine the blood type of the animal, Calculating the number of blood cells (red and white)		

Fifteen		red blood cells 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		

167. 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

168. 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	