

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 Guide

Department of Animal Production

Wasit University - College of Agriculture

2026



Academic Program Description

University Name: Wasit University

Faculty / Institute College of Agriculture

Scientific Department of Animal Production

Academic or Professional Program Name : Animal Production
Department

Final Certificate Name : Bachelor of Sciences in Agriculture – Animal
Production

Academic System Semester

Description Preparation Date : 2/11/2025

File Completion Date : 10/3/2026

Signature : Ghassan Mohammed Hassan

Signature: Wisan Thamer Al-Mayah

Head of Department Name

Scientific Associate Name

Date : 10/3/2026

Date : 10/3/2026

The file is checked by : Hebatallah A. Husain

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance
Department

Signature

Date : 10/3/2026

Dr. Hakeem S. Abed

Approval of the Dean : Hakeem S. Abed

Signature

Date: / /

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 TM3/2906 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

1. Program Vision

The Department of Animal Production aspires to achieve regional and international leadership in animal production sciences by leveraging smart infrastructure and advanced biological technologies to serve Iraqi society and humanity. We strive to create an innovative university environment that contributes to the advancement of the academic community and leads the transition toward sustainable animal production (table eggs, poultry, dairy, and red meat) by integrating applied scientific research with administrative artificial intelligence, to ensure national food security and enhance the resilience of the local economy.

2. Program Mission

To prepare highly skilled and academically distinguished professionals capable of leadership and innovation in the animal production sector. We are committed to providing an education that combines academic rigor with practical experience, while equipping graduates with modern technological tools so they can serve as a driving force for development in a competitive and ever-changing job market.

3. Program Objectives

In light of our vision and mission, the department has defined its strategic objectives in alignment with the Sustainable Development Goals 2030:

1. Globalization in Education: Implementing advanced educational systems and curricula that comply with international academic accreditation standards to ensure globally competitive educational outcomes.
2. Innovative Scientific Research: Elevating graduate studies to transform research into practical solutions that address the challenges of climate change, resource scarcity, and biosecurity.
3. Educational Digital Transformation: Adopting blended learning and virtual reality technologies in practical training to enhance the quality of learning.
4. Leadership Development: Implementing educational programs focused on “21st-century skills,” including critical thinking, self-confidence, and entrepreneurship.
5. Social Responsibility and Student Service: Activating extracurricular activities that foster a spirit of initiative, professional ethics, and volunteer work that serves the environment and society.
6. Lifelong Learning: Strengthening the role of continuing education units to enhance the competence of employees in the public and private sectors and build lasting bridges with the job market.
7. Rigorous Scientific Publication: Developing the department’s scientific journal and supporting

its inclusion in global databases (Scopus/Clarivate) to serve as a reference platform for researchers.

8. Strategic Partnerships: Activating protocols for scientific cooperation and knowledge exchange with prestigious universities, research centers, and industrial companies inside and outside Iraq.

9. Smart Governance and Management: Modernizing administrative structures by adopting integrated e-management systems, ensuring transparency and flexibility in supporting the college's academic mission.

4. Program Accreditation

Agricultural Sector Committee – Ministry of Higher Education and Scientific Research

5. Other external influences

Decisions issued by the Ministry of Higher Education and Scientific Research and the College of Agricultural Engineering – University of Baghdad

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements	۷	۱۲	6.76	Basic
College Requirements	۲۰	۵۷.5	32.39	Basic
Department Requirements	۳۴	108	60.84	Basic
Summer Training	–	Fulfiller	–	Basic
Other	–	–	–	–
Total	61	177.5	100	–

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

7. Program Description

Year / Level	Course Code	Course Name	Credit Hours	
			Theoretical	Practical
Third – Autumn Semester	COMA 203	Computer Applications (4)	–	3
Third – Autumn Semester	ANPH 311	Animal Physiology	2	3
Third – Autumn Semester	HMHA 312	Incubation and Hatchery Management	2	3
Third – Autumn Semester	ANNU 313	Animal Nutrition	2	3
Third – Autumn Semester	APEC 314	Livestock Production Economics	3	–

Third – Autumn Semester	AEBE 315	Animal Environment and Behavior	2	–
Third – Autumn Semester	EXDA 316	Experiment Design and Analysis	2	3
Third – Autumn Semester	MVIN 317	Medical and Veterinary Entomology	2	3
Third – Spring Semester	POPH 318	Poultry Physiology	2	3
Third – Spring Semester	POPT 319	Poultry Products Technology	2	3
Third – Spring Semester	FEFE 320	Feeds and Rations	2	3
Third – Spring Semester	ANDI 321	Animal Diseases	2	3
Third – Spring Semester	ANBR 322	Animal Breeding and Improvement	2	3
Third – Spring Semester	REPH 323	Reproductive Physiology	2	3
Third – Spring Semester	ENGL 301	English Language (3)	2	–
Fourth – Autumn Semester	PONU 411	Poultry Nutrition	2	3
Fourth – Autumn Semester	POBR 412	Poultry Breeding and Improvement	2	3
Fourth – Autumn Semester	DCPR 413	Dairy Cattle Production	2	3
Fourth – Autumn Semester	MEPR 414	Meat Production	2	3
Fourth – Autumn Semester	POMP 415	Poultry Management and Production	2	3
Fourth – Autumn Semester	PAMA 416	Pasture Management	2	3
Fourth – Spring Semester	REPR 417	Graduation Research Project	–	3
Fourth – Spring Semester	PODI 418	Poultry Diseases	2	3
Fourth – Spring Semester	MOMI 419	Molecular Biology	2	3
Fourth – Spring Semester	SGPR 420	Sheep and Goat Production	2	3
Fourth – Spring Semester	MESC 421	Meat Science	2	3
Fourth – Spring Semester	BUPR 422	Buffalo Production	2	–
Fourth – Spring Semester	SEMN 423	Seminar Sessions	1	–
Fourth – Spring Semester	REPR 424	Graduation Research Project	–	3
Fourth – Spring Semester	ENGL 401	English Language (4)	2	–

8. Expected learning outcomes of the program

Knowledge

- 1 .Understanding the Fundamentals of Agricultural Sciences: Understanding the basic concepts in animal production science and project management.
- 2 .Understanding Practical Applications: Understanding how to apply scientific theories to solve complex agricultural problems.
- 3 .Understanding Modern Technologies: Understanding the use of modern technologies in agriculture, such as smart production and agricultural automation.
4. Understanding Economic and Social Aspects: Understanding the impact of agriculture on the local and global economy, and understanding the social role of agriculture in achieving food security.

Skills

- 1 .Analytical Skills: The ability to analyze agricultural data and draw conclusions.
- 2 .Technical Skills: The ability to use modern agricultural equipment and agricultural technologies, and to apply engineering principles in the design of diverse agricultural systems (production and management).
- 3 .Research Skills: The ability to conduct scientific research in the field of agriculture in general and animal production in particular.
4. Administrative Skills: Efficiently manage agricultural resources and plan and organize agricultural projects.

Ethics

- 1 .Commitment to Sustainability: Commitment to using natural resources responsibly and conserving the environment.
- 2 .Professional Ethics: Commitment to ethical principles in scientific research and agricultural practice, and respect for intellectual property rights in the field of agriculture.
- 3 .Community Service: Working to improve the quality of life in rural communities through agricultural development.
4. Cooperation and Teamwork: Fostering team spirit in agricultural and research work and respecting diverse viewpoints in solving agricultural problems.

9. Teaching and Learning Strategies

- 1 .Project-based learning: Implementing practical agricultural projects aimed at solving real-world problems and applying scientific theories in a practical setting.
- 2 .Interactive learning: Using group discussions and workshops to enhance understanding, and interacting with experts in the agricultural field through lectures and seminars.
- 3 .Self-learning: Encouraging students to research and explore agricultural topics on their own, using electronic resources and libraries for continuous learning.
- 4 .Experiential learning: Conducting practical experiments in laboratories and agricultural fields, analyzing practical results, and comparing them with scientific theories.
5. Collaboration with the industrial sector: Organizing field visits to farms and agricultural companies, and collaborating with the private sector to implement research and applied projects.

10.Evaluation methods

- 1 .Continuous assessment through the use of formative assessments to continually measure student progress, as well as provide immediate feedback to improve performance.
- 2 .Student participation in accessing information through the submission of academic reports on a specific topic, ensuring expanded cognitive capacity.
3. Conducting daily quick tests, monthly tests, and practical tests, in addition to final exams for each semester.

11.Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements / Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Professor	Animal Production	Poultry Nutrition			Staff	
Professor	Chemistry	Inorganic Chemistry			Staff	
Assistant Professor	Animal Production	Reproductive Physiology			Staff	
Assistant Professor	Animal Production	Reproductive Physiology			Staff	

Assistant Professor	Genetic Engineering Institute	Genetic Engineering			Staff	
Lecturer	Animal Production	Meat Science and Technology			Staff	
Lecturer	Veterinary Medicine	Public Health			Staff	
Lecturer	Arabic Language	Literature			Staff	
Lecturer	Genetic Engineering Institute	Genetic Engineering			Staff	
Lecturer	Animal Production	Poultry Physiology			Staff	
Assistant Lecturer	Animal Production	Poultry Physiology			Staff	
Assistant Lecturer	Life Sciences	Animal Ecology			Staff	
Assistant Lecturer	Life Sciences	Animal Physiology			Staff	
Assistant Lecturer	Animal Production	Animal Nutrition			Staff	
Assistant Lecturer	Animal Production	Livestock Management			Staff	
Assistant Lecturer	Veterinary Medicine	Public Health			Staff	
Assistant Lecturer	Animal Production	Fish Nutrition			Staff	
Assistant Lecturer	Animal Production	Fish Nutrition			Staff	
Assistant Lecturer	Animal Production	Poultry Nutrition			Staff	
Assistant Lecturer	Animal Production	Breeding and Improvement			Staff	

Professional Development

Mentoring new faculty members

- 1 .Inform them of the laws and regulations pertaining to the educational process, and explain the duties and rights of faculty members.
- 2 .Commitment to ethical principles in scientific research and agricultural practice, and respect for intellectual property rights in the field of agriculture.
3. Promoting team spirit in agricultural and research work and respect for diverse viewpoints in solving agricultural problems.

Professional development of faculty members

- 1 .Developing faculty capabilities through continuous training and participation in conferences and scientific activities.
2. Interacting with experts in the agricultural field through lectures and seminars.
3. Encouraging the building of bridges of knowledge and the exchange of scientific expertise

with educational institutions inside and outside Iraq.

12. Acceptance Criterion

- 1 .Central admission (central planning).**
- 2 .The student's academic level (grade point average obtained in middle school).**
- 3. Personal interview at the college.**

13. The most important sources of information about the program

- 1 .References and textbooks.**
- 2 .Scientific periodicals and journals.**
- 3 .The Internet.**
- 4 .Seminars and training courses.**
- 5 .Instructions issued by the Ministry of Higher Education and Scientific Research.**
- 6. The university, college, and academic department websites.**

14. Program Development Plan

- 1 .By updating curricula and keeping pace with advances in modern scientific agriculture.**
- 2 .Developing curricula to suit the governorate's specificities in terms of animal and agricultural production.**
- 3 .Developing practical courses in animal management and poultry management and nutrition, while developing the animal sector to suit and apply modern animal husbandry methods.**
- 4 .Analyzing and evaluating previous and current academic programs, including curriculum development methods, teaching methods, and educational resources, identifying strengths and weaknesses, practical solutions to challenges, and ways to address them and advance academic reality.**
- 5. Developing a future roadmap to achieve established goals and ways to achieve them.**

[illegible]

[illegible]

	MESC 421	Meat Science	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	BUPR 422	Buffalo Production	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	SEMN 423	Seminar Sessions	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	REPR 424	Graduation Research Project	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	ENGL 401	English Language (4)	Basic	*	*	*	*	*	*	*	*	*	*	*	*

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

Third Stage

Course Description Form

1. Course Name:	
Hatchery and Incubation Management / Theoretical	
2. Course Code:	
HMHA312	
3. Semester / Year:	
first Semester /Fourth/ 2025-2026	
4. Description Preparation Date:	
2025/10/14	
5. Available Attendance Forms:	
Attendance in classrooms	
٦. Number of Credit Hours (Total) / Number of Units (Total)	
2 hours (2 hours theoretical 3 hours practical) Number of Units (3.5)	
٧. Course Administrator's Name (Mention All, If More Than One Name)	
Name: mohammed ali makki Email: _momaki@uowasit.edu.iq	
8. Course Objectives	
Course Objectives	• To educate students on the scientific principles and fundamentals of artificial incubation in poultry. • To provide students with engineering knowledge related to the modern scientific design of hatcheries. • To familiarize students with the essential principles of hatchery management and operational planning. • To introduce students to the basic concepts of selecting appropriate breeder poultry lines for hatching egg production. • To teach students the fundamental characteristics and quality criteria of hatchable eggs. • To train students in the proper methods of handling and managing newly hatched chicks.
9. Teaching and Learning Strategies	

Strategy	• Theoretical lectures in classrooms. • Presentations and video materials. • Group discussions. • Problem-based learning, inquiry and brainstorming. • Report and project-based learning.				
10. Course Structure					
Week	Hours	Required learning	Unit or Subject Name	Learning Method	Evaluation Method
First	2 hours	Introduce students to general information about hatching history.	Artificial incubation history	Lectures Theoretical + Presentation methods •+ Dialogue and discussion	Daily, monthly, final tests and daily reports
Second	2 hours	Introduce students to how sperm are formed and the hormones involved in the process.	Male reproductive system	Lectures Theoretical + Presentation methods •+ Dialogue and discussion	Daily, monthly, final tests and daily reports
Third	2 hours	Explain and explain how eggs are formed.	Female reproductive system	Lectures Theoretical + Presentation methods •+ Dialogue and discussion	Daily, monthly, final tests and daily reports
Fourth	2 hours	Introduce students to methods for collecting and caring for eggs and selecting the best ones for hatching.	Hatching egg handling	Lectures Theoretical + Presentation methods •+ Dialogue and discussion	Daily, monthly, final tests and daily reports
Fifth	2 hours	None	First Monthly Exam	None	None
Sixth	2 hours	Introduce students to the environmental conditions required for hatching.	Incubation Requirements	Lectures Theoretical + Presentation methods •+ Dialogue and discussion	Cage Design Project
Seventh	2 hours	Introduce students to embryonic development inside the egg during incubation.	Embryonic Development	None	None
Eighth	2 hours	Explain to students how to monitor the stages of embryonic development and the extent of embryo growth inside the egg.	Biological Monitoring During Incubation	Lectures Theoretical + Presentation methods •+ Dialogue and discussion	Oral Discussion and Questions
Ninth	2 hours	Detailed explanation of the types of incubators.	Incubation Methods and Incubator Types	Lectures Theoretical + Presentation methods •+ Dialogue and discussion	Oral Discussion and Questions
Tenth	2 hours	None	second Monthly Exam	None	None

Eleventh	2 hours	Introduction to hatcheries, their construction methods, components, and management.	Hatcheries	Lectures Theoretical + Presentation methods •+ Dialogue and discussion	Discussion and oral questions
Twelfth	2 hours	Explanation and clarification of the feed materials and nutritional components required for chickens producing hatching eggs.	Nutrition and its Relationship to Hatching	Lectures Theoretical + Presentation methods •+ Dialogue and discussion	Discussion and oral questions
Thirteenth	2 hours	Students' knowledge of the types of hatched chicks and their suitability for rearing.	Identifying and Assessing Chick Quality and Distribution	Lectures Theoretical + Presentation methods •+ Dialogue and discussion	Discussion and oral questions
Fourteenth	2 hours	Students will be able to learn about hatcheries and their working mechanisms in the field.	Field visit to one of the governorate's hatcheries	Lectures Theoretical + Presentation methods •+ Dialogue and discussion	Discussion and oral questions
Fifteenth	2 hours	Students will be able to learn the practical methods of operating and managing incubators	Practical training on incubator operation	Lectures Theoretical + Presentation methods •+ Dialogue and discussion	Submission of a report on what the student has learned during the previous period

11. Course Evaluation

Distribution of 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.

5 marks for attendance, participation and answering oral questions

5 marks for reports and projects

10 marks for the first monthly exam

10 marks for the second monthly exam

30 marks for the final exam

Total 60 marks

40 marks for the practical part

12. Learning and Teaching Sources

Required Textbooks (Curricular Books, If Any)	الكتب المنهجية: تفقيس وإدارة المفاسد – د. سعد عبد الحسين ناجي ٢٠٢١
Main References (Sources)	التفريخ في الدواجن – د. طارق أمين عبيد – ٢٠١٠
Recommended Books and References (Scientific Journals, Reports...)	مجلات، دوريات، مواقع انترنتالخ
Electronic References, Websites	https://www.noor-book.com/book/review/926609

Course Description Form

1. Course Name:	
Hatchery and Incubation Management / Practical	
2. Course Code:	
HMHA 312	
3. Semester / Year:	
first Semester / 2025-2026	
4. Description Preparation Date:	
2025/10/14	
5. Available Attendance Forms:	
Attendance in classrooms	
٦. Number of Credit Hours (Total) / Number of Units (Total)	
3 hours practical Number of Units (3.5)	
٧. Course Administrator's Name (Mention All, If More Than One Name)	
Name: Maytham Saad Saleh	Email:
8. Course Objectives	
Course Objectives	• To educate students on the scientific principles and fundamentals of artificial incubation in poultry. • To provide students with engineering knowledge related to the modern scientific design of hatcheries. • To familiarize students with the essential principles of hatchery management and operational planning. • To introduce students to the basic concepts of selecting appropriate breeder poultry lines for hatching egg production. • To teach students the fundamental characteristics and quality criteria of hatchable eggs. • To train students in the proper methods of handling and managing newly hatched chicks.
9. Teaching and Learning Strategies	

Strategy	• Theoretical lectures in classrooms. • Presentations and video materials. • Group discussions. • Problem-based learning, inquiry and brainstorming. • Report and project-based learning.				
10. Course Structure					
Week	Hours	Required learning	Unit or Subject Name	Learning Method	Evaluation Method
First	3hours	Introduce students to general information about hatching history.	Artificial incubation history	Lectures Theoretical and practical + Presentation methods •+ Dialogue and discussion	Daily, monthly, final tests and daily reports
Second	3 hours	Introduce students to how sperm are formed and the hormones involved in the process.	Male reproductive system	Lectures Theoretical and practical + Presentation methods •+ Dialogue and	Daily, monthly, final tests and daily reports
Third	3 hours	Explain and explain how eggs are formed.	Female reproductive system	Lectures Theoretical and practical + Presentation methods •+ Dialogue and discussion	Daily, monthly, final tests and daily reports
Fourth	3 hours	Introduce students to methods for collecting and caring for eggs and selecting the best ones for hatching.	Hatching egg handling	Lectures Theoretical and practical + Presentation methods •+ Dialogue and discussion	Daily, monthly, final tests and daily reports
Fifth	3 hours	None	First Monthly Exam	None	None
Sixth	3 hours	Introduce students to the environmental conditions required for hatching.	Incubation Requirements	Lectures Theoretical and practical + Presentation methods •+ Dialogue and	Cage Design Project
Seventh	3 hours	Introduce students to embryonic development inside the egg during incubation.	Embryonic Development	None	None
Eighth	3 hours	Explain to students how to monitor the stages of embryonic development and the extent of embryo growth inside the egg.	Biological Monitoring During Incubation	Lectures Theoretical and practical + Presentation methods •+ Dialogue and	Oral Discussion and Questions
Ninth	3 hours	Detailed explanation of the types of incubators.	Incubation Methods and Incubator Types	Lectures Theoretical and practical + Presentation methods •+ Dialogue and	Oral Discussion and Questions
Tenth	3 hours	None	second Monthly Exam	None	None

Eleventh	3 hours	Introduction to hatcheries, their construction methods, components, and management.	Hatcheries	Lectures Theoretical and practical + Presentation methods •+ Dialogue and discussion	Discussion and oral questions
Twelfth	3 hours	Explanation and clarification of the feed materials and nutritional components required for chickens producing hatching eggs.	Nutrition and its Relationship to Hatching	Lectures Theoretical and practical + Presentation methods •+ Dialogue and discussion	Discussion and oral questions
Thirteenth	3 hours	Students' knowledge of the types of hatched chicks and their suitability for rearing.	Identifying and Assessing Chick Quality and Distribution	Lectures Theoretical and practical + Presentation methods •+ Dialogue and discussion	Discussion and oral questions
Fourteenth	3 hours	Students will be able to learn about hatcheries and their working mechanisms in the field.	Field visit to one of the governorate's hatcheries	Lectures Theoretical and practical + Presentation methods •+ Dialogue and discussion	Discussion and oral questions
Fifteenth	3 hours	Students will be able to learn the practical methods of operating and managing incubators	Practical training on incubator operation	Lectures Theoretical and practical + Presentation methods •+ Dialogue and discussion	Submission of a report on what the student has learned during the previous period

11. Learning and Teaching Sources

Required Textbooks (Curricular Books, If Any)	الكتب المنهجية: تقييس وإدارة المفاقر - د. سعد عبد الحسين ناجي ٢٠٢١
Main References (Sources)	التفريخ في الدواجن - د. طارق امين عبيد - ٢٠١٠
Recommended Books and References (Scientific Journals, Reports...)	مجلات، دوريات، مواقع انترنت الخ
Electronic References, Websites	https://www.noor-book.com/book/review/926609

Course Description Form

1. Course Name:	
Animal Nutrition (Theoretical)	
2. Course Code:	
ANNU313	
3. Semester / Year:	
Third Stage / Fall Semester	
4. Description Preparation Date:	
2025/10/14	
5. Available Attendance Forms:	
In-person	
6. Number of Credit Hours (Total) / Number of Units (Total)	
2 theoretical hours per week	
7. Course administrator's name (mention all, if more than one name)	
Name: Assi. Pro. Dr Mohammed Abdulameer Rasheed Email: iq.edu.uowasit@mohabd	
8. Course Objectives	
Course Objectives	To introduce the student to animal • Nutritional components: • Carbohydrate • Vitamins • Minerals
9. Teaching and Learning Strategies	
Strategy	The course adopts a set of modern strategies, including: • Interactive Lecture Presentation of scientific material with student participation through questions and discussion • Problem-Based Learning Presenting real-life cases (such as feeding problems in farm) and analyzing them • Brainstorming

	Stimulating students to generate ideas to improve feeding efficiency •Cooperative Learning Dividing students into groups to discuss topics such as feed composition •Use of Modern Teaching Aids (Board, Data Show projector, educational videos) •Discussion-Based Learning Discussing topics such as digestion in ruminants and its effect on production
--	--

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Recognizing the concept of animal nutrition and its importance	Food / composition of animal body and composition of plant	Interactive lecture	Quiz
2	2	Understanding the role of water in the animal body	Water: its properties and functions	Lecture	Oral test
3	2	Explaining the mechanism of digestion	Digestive system and digestion processes	Video Lecture	Quiz
4	2	Analyzing the role of enzymes in digestion	Enzymes and microbial digestion	Problem-based learning	Written test
5	2	Explaining the function of saliva in digestion	Saliva: its production and functions	Lecture Brainstorming	Class participation
6	2	Identifying factors affecting digestion	Factors affecting digestion	Cooperative learning	Quiz
7	2	Reviewing the basic concepts of digestion	General review	Interactive discussion	Monthly examination
8	2	Deepening	Completion	Lecture	Quiz

		understanding digestion processes	digestion and influencing factors		
9	2	Classifying proteins and understanding their structure	Proteins and amino acids	Interactive lecture	Written test
10	2	Explaining protein digestion in the rumen	Protein digestion	Problem-based learning	Quiz
11	2	Recognizing fats and their functions	Fats (Lipids)	Lecture Video	Oral test
12	2	Distinguishing types of minerals	Minerals	Lecture Discussion	Quiz
13	2	Understanding the role of vitamins	Vitamins	Cooperative learning	Written test
14	2	Recognizing methods of feed analysis	Methods of nutrient estimation	Interactive lecture	Quiz
15	2	Evaluating protein requirements	Protein requirements and biological value	Discussion Review	Final exam

11. Course Evaluation

The total mark (60) is distributed according to the tasks assigned to the student as follows:

- 30 marks for monthly exams, including:
- Daily quizzes
- Attendance and class participation
- Monthly written exams
- 30 marks for the final exam (end of year)

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Animal Nutrition Book – Dr. Shal Abdulameer Al-Attar
Main references (sources)	Scientific books in the field of animal nutrition
Recommended books and references (scientific journals, reports...)	(Scientific journals, reports, etc.)
Electronic References, Websites	Specialized scientific websites in animal nutrition

Course Description Form

1. Course Name:	
Animal Nutrition (Practical)	
2. Course Code:	
ANNU 313	
3. Semester / Year:	
First Semester / Third Stage	
4. Description Preparation Date:	
2025/10/14	
5. Available Attendance Forms:	
Attendance (Practical Laboratories) + Classroom Discussions	
6. Number of Credit Hours (Total) / Number of Units (Total)	
3 Practical Hours per Week (45 Semester Hours)	
Number of Credits: 3.5	
7. Course administrator's name (mention all, if more than one name)	
Name: Assistant Lecturer Sami Rashid Saleh	
Email: samialmagsosi@uowasit.edu.iq	
8. Course Objectives	
Course Objectives	•To equip students with skills handling and preparing feed samples for analysis. •To train students in conducting various proximate analyses (moisture, ash, protein, fat, and crude fiber). •To develop students' understanding of evaluating the nutritional value of feeds using conventional and modern methods (Van Soest system). •To enhance students' skills in scientific report writing and laboratory data analysis
9. Teaching and Learning Strategies	
Strategy	•Practical laboratory-based learning. •Hands-on experimental learning.

	•Scientific discussion and analysis of results. •Collaborative learning among students. •Use of modern laboratory equipment.
--	--

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	Familiarization With safety regulations	Laboratory instructions	Practical explanation	Direct observation
2	3	Sample preparation	Collection And preparation samples	Practical application	Performance evaluation
3	3	Mastery of sampling techniques	Methods of sample collection	Practical assessment	Oral examination
4	3	Understanding feed(nutritional) analyses	Proximate analysis	Explanation and practical application	Daily quiz
5	3	Ash calculation	Ash determination	Practical application	Report Writing
6	3	Initial assessment	First examination	Test	Examination
7	3	Protein analysis	Protein determination using the Kjeldahl method	Practical laboratory work	Laboratory report
8	3	Fat analysis	Ether extract determination	Practical laboratory work	Practical assessment
9	3	Fiber analysis	Crude Fiber determination	Practical laboratory work	Test
10	3	Results analysis	Report discussion	Discussion	Evaluation
11	3	Advanced Analysis	Nitrogen-free extract (NFE)	Practical laboratory	Laboratory report

				work	
12	3	Assessment	Second exam	Test	Exam
13	3	Application modern methods	Van Soest system	Explanation practical	Test
14	3	Knowledge of Feeds	Primary feed components	Practical	Assessment
15	3	Applications	Hay and silage production	Practical	Report

11. Course Evaluation

The practical course assessment (40 marks) is distributed as follows:

1. (20 marks for continuous assessment), including monthly tests, reports, attendance, and participation.
2. (20 marks for the final practical examination), which includes performing laboratory experiments, interpreting results, and answering practical questions.

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Animal Nutrition, Dr. Shaker Abdul Amir Al-Attar
Main references (sources)	Books
Recommended books and references (scientific journals, reports...)	•Scientific articles in animal nutrition •Laboratory reports
Electronic References, Websites	Internet sources

Course Description Form

1. Course Name:	
Animal Physiology (Theoretical)	
2. Course Code:	
ANNU313	
3. Semester / Year:	
Third Stage / Fall Semester	
4. Description Preparation Date:	
2025/10/14	
5. Available Attendance Forms:	
In-person	
6. Number of Credit Hours (Total) / Number of Units (Total)	
2 theoretical hours per week	
7. Course administrator's name (mention all, if more than one name)	
Name: Assi. Pro. Dr Mohammed Abdulameer Rasheed	
Email: iq.edu.uowasit@mohabd	
8. Course Objectives	
Course Objectives	- To introduce students to concept of animal physiology and its importance - To understand the functions of body organs and systems - To study the physiology of body systems (circulatory, respiratory, nervous, endocrine, urinary) - To understand biological processes such as metabolism and hormone regulation
9. Teaching and Learning Strategies	
Strategy	The course adopts several strategies, including: - Lecture method - Interactive lecture - Use of teaching aids (board, data show, educational software)

	videos) • Discussion-based learning • Linking theoretical concepts with practical applications
--	---

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Recognize the basic of animal physiology	Introduction, definitions, related sciences	Interactive lecture	Quiz
2	2	Understand cell structure and function	Cell physiology, cell membrane	Lecture	Oral test
3	2	Explain transport across membrane	Transport mechanisms across membrane	Video Lecture	Quiz
4	2	Understand circulatory system	Heart, blood vessels, valves	Problem-based learning	Written test
5	2	Analyze heart regulation	Electrical conduction, blood pressure	Lecture Brainstorming	Class participation
6	2	Identify respiratory system	Structure of respiratory system	Cooperative learning	Quiz
7	2	Understand respiration control	Regulation of respiration	Interactive discussion	Monthly exam
8	2	Recognize nervous system	Nervous system divisions	Lecture	Quiz
9	2	Explain nerve impulse	Neurotransmitters and reflexes	Interactive lecture	Written test
10	2	Identify endocrine system	Hormones and their structure	Problem-based learning	Quiz
11	2	Understand hormone regulation	Hormone secretion and control	Lecture Video	Oral test
12	2	Study urinary system	Kidney and nephron	Lecture Discussion	Quiz
13	2	Understand kidney	Neural control of kidney	Cooperative learning	Written test

		regulation	hormonal regulation	learning	
14	2	Recognize metabolism	Protein metabolism and energy	Interactive lecture	Quiz
15	2	Evaluate metabolic processes	Carbohydrate, and vitamins metabolism	Discussion Review	Final exam

11. Course Evaluation

The total mark (60) is distributed according to the tasks assigned to the student as follows:

- 30 marks for monthly exams, including:
- Daily quizzes
- Attendance and class participation
- Monthly written exams
- 30 marks for the final exam (end of year)

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Animal Physiology – Dr. Daa Hassan Hassani
Main references (sources)	Books of organ physiology
Recommended books and references (scientific journals, reports...)	Scientific articles and specialized reports in animal physiology
Electronic References, Websites	Specialized scientific websites in animal physiology

Course Description Form

1. Course Name:	
Practical Animal Physiology	
2. Course Code:	
ANPH311	
3. Semester / Year:	
Third Year / Fall Semester.	
4. Description Preparation Date:	
2025/10/14	
5. Available Attendance Forms:	
In-person	
6. Number of Credit Hours (Total) / Number of Units (Total)	
Three practical hours per week.	
7. Course administrator's name (mention all, if more than one name)	
Name: Marwah Kareem Qasim Email: marwahkq@uowasit.edu.iq	
8. Course Objectives	
Course Objectives	- Apply physiological concepts practically in the laboratory. - Train students to use laboratory equipment. - Understand body system functions through experiments. - Analyze and interpret physiological results. - Prepare scientific laboratory reports.
9. Teaching and Learning Strategies	
Strategy	The course relies on a set of teaching strategies, including: - Lecture - Interactive lecture - Use of instructional aids (whiteboard, projector, videos) - Experiment-based learning (laboratory practical work) - Linking theoretical concepts with practical application

10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1		Important Laboratory equipment and Instruments	laboratory instruments in the physiology lab	Interactive lecture	Short quiz
2		Cell Physiology	Definitions of the cell and cell organelles	Lecture + discussion	Oral exam
3		Cell Membrane Function	Structure of the cell membrane	Lecture + discussion	Oral exam
4		Transport Across the Cell Membrane	Plasma membrane transport functions	Video presentation + lecture	Short quiz
5		Physiological Solutions and Their Concentrations	Properties of physiological solutions and their effects on cells	Video presentation	Written test
6		Blood	Blood structure and types of blood cells	Lecture + video presentation	Participation
7		Blood Cell Counting	Red and white blood cell counting	Laboratory experiment + video	Short quiz
8		Hemoglobin Measurement	Hemoglobin measurement methods	Laboratory experiment + video	Short quiz
9		Erythrocyte Sedimentation Rate (ESR) Test	ESR (Erythrocyte Sedimentation Rate) test	Interactive discussion	Monthly exam

10		ked Cell Volume (PCV)	ked Cell Volume (PCV) measurement	Laboratory experiment + video	Short quiz
11		Blood Groups	od group testing	Laboratory experiment + video	Written exam
12		etermination of Blood Groups and Rh Factor in Humans	od group testing	Laboratory experiment + video	Written exam
13		Histology	ypes of tissues	Lecture + video presentation	Short quiz
14		Final Exam	Comprehensive evaluation	Final exam	Final exam

11. Course Evaluation

Distribution of Marks (Out of 40) according to student assignments is as follows:

- **20 marks – Monthly assessments**, including:
 - Daily quizzes
 - Class preparation and participation
 - Monthly written exams
- **20 marks – Final exam**, covering the end-of-year assessment.

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	<i>Animal Physiology</i> by Dr. Diaa Hussein Al-Hasani.
Main references (sources)	• Physiology of organ systems textbooks.
Recommended books and references (scientific journals, reports...)	• Recent scientific articles and specialized research reports in animal physiology.
Electronic References, Websites	• Specialized scientific websites in animal physiology.

Course Description Form

1. Course Name:	
Animal Production Economics	
2. Course Code:	
APEC 314	
3. Semester / Year:	
Third Stage / Fall Semester	
4. Description Preparation Date:	
2025/10/14	
5. Available Attendance Forms:	
In-person attendance	
6. Number of Credit Hours (Total) / Number of Units (Total)	
31 hours / 3 units	
7. Course administrator's name (mention all, if more than one name)	
Name: Husian Njem Hameed Email: husain@uowasit.edu.iq	
8. Course Objectives	
Course Objectives	- Introduce students to the basic concepts of economics. - Enable students to understand economics in the field of animal production. - Train students in economic analysis and applications. - Develop students' ability to present and write statistical results in a scientific manner suitable for reports and research. - Link theoretical concepts with practical applications in feed trials, growth studies, milk production, blood characteristics,

			digestion, and reproductive efficiency.		
9. Teaching and Learning Strategies					
Strategy	Deliver theoretical lectures to explain economic concepts. Use interactive lectures and classroom discussions. Apply practical exercises using hypothetical and real data from animal production experiments. Use the whiteboard and data projector in teaching animal production economics. Assign students practical reports on the analysis of data from animal experiments. Connect theoretical knowledge with practical examples such as feed trials, growth studies, milk production, and blood characteristics.				
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	3 Theory	Oral questions + quiz	Quiz	First	3 Theory
Second	3 Theory	Assignment + quiz	Quiz + assignment	Second	3 Theory
Third	3 Theory	Exercise + class questions	Class activity	Third	3 Theory
Fourth	3 Theory	Test + report	Report	Fourth	3 Theory

Fifth	3 Theory	Report	Report	Fifth	3 Theory
Sixth	3 Theory	Theory test + exercise	Test	Sixth	3 Theory
Seventh	3 Theory	Practical report	Report	Seventh	3 Theory
Eighth	3 Theory	Quiz + assignment	Quiz	Eighth	3 Theory
Ninth	3 Theory	Theory test + exercise	Test	Ninth	3 Theory
Tenth	3 Theory	Report	Report	Tenth	3 Theory
Eleventh	3 Theory	Analytical assignment	Assignment	Eleventh	3 Theory
Twelfth	3 Theory	Quiz	Quiz	Twelfth	3 Theory
Thirteenth	3 Theory	Test + report	Report	Thirteenth	3 Theory
Fourteenth	3 Theory	Assignment	Assignment	Fourteenth	3 Theory

Fifteenth	3 Theory	Final report evaluation	Final evaluation	Fifteenth	3 Theory
-----------	-------------	----------------------------	------------------	-----------	----------

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

No.	Evaluation Type	Score
1	Daily Quizzes	10
2	Assignments	10
3	Scientific Reports	10
4	Monthly Theoretical Examination	15
5	Attendance	5
	Total	50

12. Learning and Teaching Resources

Item	Resources
Required Textbook	Required Textbook: Economics of Animal Wealth — Dr. Abdulrahman Abdul Jabbar Main References: Animal Production — Alexandria University or Cairo University publications Recommended References: Economics of Animal and Agricultural Production — Dr. Abdel Fattah Abdel Hamid

Course Description Form

13.	Course Name:		
		Design and Analysis of Experiments	
14.	Course Code:		
		316 EXDA	
15.	Semester / Year:		
		Third Stage / Fall Semester	
16.	Description Preparation Date:		
		2025/10/14	
17.	Available Attendance Forms:		
		In-person attendance	
18.	Number of Credit Hours (Total) / Number of Units (Total)		
		hours per week: / 3.5 units ^Y	
19.	Course administrator's name (mention all, if more than one name)		
		Name: Dr. Murtaza Kaream Ali Al Zrkani Email: malzrkani@uowasit.edu.iq	
20.	Course Objectives		
		Course Objectives	- To introduce students to the basic concepts of experimental design and analysis in animal production research. - To enable students to understand the importance of randomization, replication, and control of experimental error. - To train students to select the appropriate experimental design according to the nature of animal production experiments. - To enable students to organize and statistically analyze data from animal experiments. - To teach students how to perform analysis of variance and interpret ANOVA tables. - To train students to use mean comparison tests such as LSD, Tukey, and Duncan tests. - To develop students' ability to write statistical results in a scientific style

	suitable for reports and research papers. To link theoretical concepts with applications in feed trials, growth experiments, milk production, blood traits, digestibility, and reproductive efficiency.
--	--

21. Teaching and Learning Strategies

Strategy	- Delivering theoretical lectures to explain basic concepts and experimental designs. - Using interactive lectures and classroom discussions. - Solving statistical exercises during lectures and classes. - Applying exercises using hypothetical and real data from animal production experiments. - Training students to construct and interpret analysis of variance tables. - Using the board, data show, and available statistical software. - Assigning students reports on the analysis of animal experiment data. - Linking theoretical content with examples such as feeding trials, growth, milk production, and blood traits.
-----------------	--

22. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2 theoretical	The student should identify the basic concepts of experimental design.	Introduction to experimental design and its importance in animal production research; treatment, experimental unit, replication, randomization, and experimental error	Theoretical lecture + data analysis	Oral questions + short quiz
2	2 theoretical	The student should understand basic statistical concepts	Mean, variance, standard deviation, standard error,	application + discussion	assignment + short quiz

		related to experiment analysis.	statistical hypotheses, and significance level		
3	2 theoretical	The student should interpret the ANOVA table and its components.	Analysis of variance, sources of variation, degrees of freedom, mean squares, F value, and interpretation of ANOVA	Theoretical lecture + application	exercise + classroom questions
4	2 theoretical	The student should apply completely randomized design to animal data.	Completely Randomized Design, CRD, and its applications in animal feeding trials and feed treatments	Data analysis + discussion	test + report
5	2 theoretical	The student should analyze growth and weight-gain data.	Analysis of CRD data using examples from growth, weight gain, and feed conversion ratio experiments	Theoretical lecture + application	Data analysis report
6	2 theoretical	The student should distinguish when to use randomized complete block design.	Randomized Complete Block Design, RCBD, and its applications when differences exist among animals, pens, or initial body weights	Theoretical lecture + applied examples	Theoretical test + exercise
7	2 theoretical	The student should analyze RCBD data.	Analysis of RCBD data and interpretation of	Interactive lecture + data analysis	report

			results in animal production experiments		
8	2 theoretical	The student should identify Latin Square Design and its animal applications.	Latin Square Design and its applications in digestibility experiments, ruminant studies, and period-based experiments	Theoretical lecture + application	Short quiz + assignment
9	2 theoretical	The student should interpret factorial experiments and main effects.	Factorial Experiments and their applications in studying feed type, additive level, sex, or age	Theoretical lecture + exercises	Theoretical test + exercise
10	2 theoretical	The student should interpret interactions among factors in animal experiments.	Interaction among factors and its interpretation in animal production research	Theoretical lecture + application	report
11	2 theoretical	The student should use ANCOVA when a covariate exists.	Analysis of covariance, ANCOVA, and its use with covariates such as initial body weight or age	Theoretical lecture + data analysis	Analytical assignment
12	2 theoretical	The student should interpret statistical hypotheses and significance.	Statistical hypothesis testing, statistical significance, and the difference between statistical	application + discussion	Short quiz

			and scientific significance		
13	2 theoretical	The student should apply mean comparison tests.	Mean comparison tests: LSD, Tukey, and Duncan tests, and conditions for using each test	Theoretical lecture + data analysis	test + report
14	2 theoretical	The student should check ANOVA assumptions.	Assumptions of ANOVA: normality, homogeneity of variance, independence of errors, and methods of checking them	application + discussion	assignment
15	2 theoretical	The student should complete an applied analysis of animal experiment data.	Comprehensive application using data from an animal production experiment, general review, discussion of student reports, and writing results scientifically	Theoretical lecture + application	Final report evaluation

23. 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

No.	Evaluation Type	Score
1	Short daily quizzes	5
2	Assignments and exercises	5
3	Scientific reports and data analysis	10
4	Monthly theoretical exam	15
5	Exam	15
6	Coursework total	50

7	Final exam	50
	Total	100

24. Learning and Teaching Resources

Item	Resources
Required textbooks	Al-Rawi, Khashi Mahmoud, and Khalaf Allah, Abdul Aziz Mohammed. Design and Analysis of Agricultural Experiments.
Main references	Al-Rawi, Khashi Mahmoud. Introduction to Statistics.
Recommended books and references	Gomez, K. A., & Gomez, A. A. Statistical Procedures for Agricultural Research.
Recommended books and references	Montgomery, D. C. Design and Analysis of Experiments.
Recommended books and references	Steel, R. G. D., Torrie, J. H., & Dickey, D. A. Principles and Procedures of Statistics: A Biometrical Approach.
Recommended books and references	Mead, R., Curnow, R. N., & Hasted, A. M. Statistical Methods in Agriculture and Experimental Biology.
Electronic references and websites	Scientific websites and statistical software resources related to experimental data analysis, such as Excel, SPSS, R, and GenStat, according to available facilities.

Course Description Form

25.	Course Name:	Design and Analysis of Experiments (partical)			
26.	Course Code:	316 EXDA			
27.	Semester / Year:	Third Stage / Fall Semester			
28.	Description Preparation Date:	2025/10/14			
29.	Available Attendance Forms:	In-person attendance			
30.	Number of Credit Hours (Total) / Number of Units (Total)	3 practical hours / 3.5 units			
31.	Course administrator's name (mention all, if more than one name)	Name: Husian Njem Hameed Email: husain@uowasit.edu.iq			
32.	Course Objectives	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 40%; text-align: center; vertical-align: top;">Course Objectives</td> <td style="vertical-align: top;"> - To enable students to organize and statistically analyze data from animal experiments. - To teach students how to perform analysis of variance and interpret ANOVA tables. - To train students to use mean comparison tests such as LSD, Tukey, and Duncan tests. - To develop students' ability to write statistical results in a scientific style suitable for reports and research papers. - To link theoretical concepts with practical applications in feed trials, growth experiments, milk production, blood traits, digestibility, and reproductive efficiency. </td> </tr> </table>		Course Objectives	- To enable students to organize and statistically analyze data from animal experiments. - To teach students how to perform analysis of variance and interpret ANOVA tables. - To train students to use mean comparison tests such as LSD, Tukey, and Duncan tests. - To develop students' ability to write statistical results in a scientific style suitable for reports and research papers. - To link theoretical concepts with practical applications in feed trials, growth experiments, milk production, blood traits, digestibility, and reproductive efficiency.
Course Objectives	- To enable students to organize and statistically analyze data from animal experiments. - To teach students how to perform analysis of variance and interpret ANOVA tables. - To train students to use mean comparison tests such as LSD, Tukey, and Duncan tests. - To develop students' ability to write statistical results in a scientific style suitable for reports and research papers. - To link theoretical concepts with practical applications in feed trials, growth experiments, milk production, blood traits, digestibility, and reproductive efficiency.				
33.	Teaching and Learning Strategies	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%; text-align: center; vertical-align: top;">Strategy</td> <td style="vertical-align: top;"> Delivering theoretical lectures to explain basic concepts and experimental designs. </td> </tr> </table>		Strategy	Delivering theoretical lectures to explain basic concepts and experimental designs.
Strategy	Delivering theoretical lectures to explain basic concepts and experimental designs.				

	• Using interactive lectures and classroom discussions. • Solving statistical exercises during lectures and practical classes. • Applying practical exercises using hypothetical and real data from animal production experiments. • Training students to construct and interpret analysis of variance tables. • Using the board, data show, and available statistical software. • Assigning students practical reports on the analysis of animal experiment data. • Linking theoretical content with practical examples such as feeding trials, growth, milk production, and blood traits.
--	---

34. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	practical + 3	The student should identify the basic concepts of experimental design.	Introduction to experimental design and its importance in animal production research; treatment, experimental unit, replication, randomization, and experimental error	Theoretical lecture + data analysis	Oral questions + short quiz
2	practical + 3	The student should understand basic statistical concepts related to experiment analysis.	Mean, variance, standard deviation, standard error, statistical hypotheses, and significance level	Practical application + discussion	Practical assignment + short quiz
3	practical + 3	The student should interpret the ANOVA table and its components.	Analysis of variance, sources of variation, degrees of freedom, mean squares, F value, and interpretation of	Theoretical lecture + practical application	Practical exercise + classroom questions

			ANOVA		
4	practical + 3	The student should apply completely randomized design to animal data.	Completely Randomized Design, CRD, and its applications in animal feeding trials and feed treatments	Data analysis + discussion	Practical test + report
5	practical + 3	The student should analyze growth and weight-gain data.	Analysis of CRD data using examples from growth, weight gain, and feed conversion ratio experiments	Theoretical lecture + practical application	Data analysis report
6	practical + 3	The student should distinguish when to use randomized complete block design.	Randomized Complete Block Design, RCBD, and its applications when differences exist among animals, pens, or initial body weights	Theoretical lecture + applied examples	Theoretical test + practical exercise
7	practical + 3	The student should analyze RCBD data.	Analysis of RCBD data and interpretation of results in animal production experiments	Interactive lecture + data analysis	Practical report
8	practical + 3	The student should identify Latin Square Design and its animal applications.	Latin Square Design and its applications in digestibility experiments, ruminant studies, and period-based experiments	Theoretical lecture + practical application	Short quiz + assignment

9	practical + 3	The student should interpret factorial experiments and main effects.	Factorial Experiments and their applications in studying feed type, additive level, sex, or age	Theoretical lecture + exercises	Theoretical test + exercise
10	practical + 3	The student should interpret interactions among factors in animal experiments.	Interaction among factors and its interpretation in animal production research	Theoretical lecture + practical application	Practical report
11	practical + 3	The student should use ANCOVA when a covariate exists.	Analysis of covariance, ANCOVA, and its use with covariates such as initial body weight or age	Theoretical lecture + data analysis	Analytical assignment
12	practical + 3	The student should interpret statistical hypotheses and significance.	Statistical hypothesis testing, statistical significance, and the difference between statistical and scientific significance	Practical application + discussion	Short quiz
13	practical + 3	The student should apply mean comparison tests.	Mean comparison tests: LSD, Tukey, and Duncan tests, and conditions for using each test	Theoretical lecture + data analysis	Practical test + report
14	practical + 3	The student should check ANOVA assumptions.	Assumptions of ANOVA: normality, homogeneity of variance,	Practical application + discussion	Practical assignment

			independence of errors, and methods of checking them		
15	practical + 3	The student should complete an applied analysis of animal experiment data.	Comprehensive practical application using data from an animal production experiment, general review, discussion of student reports, and writing results scientifically	Theoretical lecture + practical application	Final report evaluation

35. 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

No.	Evaluation Type	Score
1	Short daily quizzes	5
2	Assignments and practical exercises	5
6	Coursework total	5
7	Exam	5
	Total	20

36. Learning and Teaching Resources

Item	Resources
Recommended books and references	Steel, R. G. D., Torrie, J. H., & Dickey, D. A. Principles and Procedures of Statistics: A Biometrical Approach.
Recommended books and references	Mead, R., Curnow, R. N., & Hasted, A. M. Statistical Methods in Agriculture and Experimental Biology.
Electronic references and websites	Scientific websites and statistical software resources related to experimental data analysis, such as Excel, SPSS, R, and GenStat, according to available facilities.

Course Description Form

1. Course Name:	
Poultry Physiology	
2. Course Code:	
POPH318	
3. Semester / Year:	
Autumn semester / Third	
4. Description Preparation Date:	
2025/10/14	
5. Available Attendance Forms:	
Attending	
٦. Number of Credit Hours (Total) / Number of Units (Total)	
5 hours per week 3.5 unit	
٧. Course Administrator's Name (Mention All, If More Than One Name)	
Name: Mohammed ali makki Email: momaki@uowasit.edu.iq	
8. Course Objectives	
Course Objectives	• The student learns about the most important organs of the bird's body . • The student learns about the most important functions of the body systems of domestic birds. • The student learns about the most important differences between the body systems of birds and mammals. • The student learns about the most important factors affecting the functions of the various organs of the bird's body.
9. Teaching and Learning Strategies	

Strategy	Enabling students to think and analyze topics related to the intellectual framework of the subject administration of poultry physiology.
	Enabling students to think and analyze topics related to measuring productivity.
	Enabling students to think and analyze how to provide environmental conditions that affect poultry birds and their relationship to their production and health status.
	Enabling students to think and analyze to identify the best prevailing poultry projects and their relationship to animal production.

10. Course Structure

Week	Hours	Required learning outcomes	Unit or Subject Name	Learning Method	Evaluation Method
1	2	The respiratory system	The respiratory system	Teaching method	the exams Daily and monthly
2	2	The digestive system	The digestive system	Lectures Theoretical + Display methods	the exams Daily and monthly
3	2	Digestive, metabolism and absorption	Digestive, metabolism and absorption	Lectures Theoretical + Display methods	the exams Daily and monthly
4	2	Blood physiology and its importance	Blood physiology and its importance	Lectures Theoretical + Display methods	the exams Daily and monthly
5	2	Description of blood cells and their functions	Description of blood cells and their functions	Lectures Theoretical + Display methods	the exams Daily and monthly
6	2	The male reproductive system	The male reproductive system	Lectures Theoretical + Display methods	the exams Daily and monthly
7	2	Differentiation between male reproductive	Differentiation between male reproductive system of birds and	Lectures Theoretical + Display methods	the exams Daily and monthly
8	2	Chemical composition of bird semen plasma	Chemical composition of bird semen plasma and its	Lectures Theoretical + Display methods	the exams Daily and monthly

9	2	The female reproductive system	The female reproductive system	Lectures Theoretical + Display methods	the exams Daily and monthly
10	2	Hormones related to egg production	Hormones related to egg production	Lectures Theoretical + Display methods	the exams Daily and monthly
11	2	Endocrine – the first part	Endocrine – the first part	Lectures Theoretical + Display methods	the exams Daily and monthly
12	2	Endocrine - the second part	Endocrine - the second part	Lectures Theoretical + Display methods	the exams Daily and monthly
13	2	Endocrine – the third part	Endocrine – the third part	Lectures Theoretical + Display methods	the exams Daily and monthly
14	2	The urinary system	The urinary system	Lectures Theoretical + Display methods	the exams Daily and monthly

11. Course Evaluation

- Daily exams with multiple-choice questions that require scientific skills.
- Daily exams with scientific questions.
- Participation grades for competition questions for academic subjects.
- Marking homework and reports
- - Grades for the student's activity during the lecture and the extent of his commitment to regular attendance and absence.

12. Learning and Teaching Sources

Required Textbooks (Curricular Books, If Any)	Al-Hyssani, D. (2000). POULTRY PHYSIOLOGY. BOOK
Recommended Books and References (Scientific Journals, Reports...)	Various classification research and university theses domestic birds
Electronic References, Websites	https://shop.elsevier.com/books/sturkies-avian-physiology/scanes/978-0-12-819770-7

Course Description Form

1. Course Name:
poultry physiology/ Practical
2. Course Code:
POPH318
3. Semester / Year:
Second semester / Third
4. Description Preparation Date:
2025/10/14
5. Available Attendance Forms:
Attending
٦. Number of Credit Hours (Total) / Number of Units (Total)
٦ hours per week 3.5 Unit
٧. Course Administrator's Name (Mention All, If More Than One Name)
Name: Lecturer. Dr. Rasool Hassn Khalati Email: rahassan@uowasit.edu.iq
8. Course Objectives

Course Objectives		Graduating capable studentson me: • Understand the nutritional needs of different types To understand the anatomy and physiology of the poultry digestive system and how it affects the digestion and absorption of nutrients. • To learn about the nutrient requirements of different poultry species, breeds, and production stages, and how to formulate balanced and cost-effective diets. • To evaluate the nutritional quality, safety, and availability of various feedstuffs and feed additives for poultry, and how to use them efficiently and responsibly. • To explore the interactions between nutrition and other factors such as genetics, environment, health, welfare, and product quality, and how to optimize them for sustainable poultry production.			
9. Teaching and Learning Strategies					
Strategy		1. To investigate the effects of different environmental factors, such as temperature, humidity, lighting, and stress, on the physiological responses and welfare of poultry 2. To examine the mechanisms and regulation of various physiological processes, such as growth, reproduction, immunity, and metabolism, in poultry, and how they are influenced by genetic and nutritional factors. 3. To develop and apply new technologies and methods, such as molecular biology, biotechnology, and bioinformatics, to enhance the understanding and improvement of poultry physiology. 4. To integrate the knowledge of poultry physiology with other disciplines, such as poultry nutrition, health, behavior, and production, to optimize the performance and quality of poultry			
10. Course Structure					
Week	Hours	Required learning outcomes	Unit or Subject Name	Learning Method	Evaluation Method
1	3	Introducing students to general information about the physiology of poultry	general introduction to the physiology of poultry birds	Lectures Theoretical and	the exams Daily and monthly

2	3	clarification for students How to use the light microscope	light microscope	Lectures Theoretical and	the exams Daily and monthly
3	3	Explanation and clarification of the digestion process in	Types of digestion in poultry	Lectures Theoretical and	the exams Daily and monthly
4	3	Clarifying the using of light microscope	light microscope	Lectures Theoretical and	the exams Daily and monthly
5	3	Clarifying the Description of bird blood cells	Description of bird blood cells.	Lectures Theoretical and	the exams Daily and monthly
6	3	Introducing students to how to recognize kinds of White blood cells	White blood cells	Lectures Theoretical and	the exams Daily and monthly
7	3	Clarifying the Differences between bird and mammal blood	Differences between bird and mammal blood	Lectures Theoretical and	the exams Daily and monthly
8	3	Introducing students The process of drawing blood from birds	The process of drawing blood from birds	Lectures Theoretical and	the exams Daily and monthly
9	3	Clarifying the structure of the digestive system of birds	The structure of the digestive system of birds	Lectures Theoretical and	the exams Daily and monthly
10	3	Introducing students Poultry respiratory system	Poultry respiratory system	Lectures Theoretical and	the exams Daily and monthly
11	3	An explanation of the Male reproductive system	Male reproductive system	Lectures Theoretical and	the exams Daily and monthly
12	3	An explanation of female reproductive system.	female reproductive system	Lectures Theoretical and	the exams Daily and monthly
13	3	Explaining to students Urinary system in poultry poultry projects	Urinary system in poultry	Lectures Theoretical and	the exams Daily and monthly

14	3	explanation about Endocrine glands	Endocrine glands	Lectures Theoretical and	the exams Daily and monthly
15	3		Exame		
11. Course Evaluation					
12. Learning and Teaching Sources					
Required textbooks) methodology, if any(				Al-Hassani, Diaa Hassan (2000). Chicken	
Main references) sources(				Al-Daraji, Hazem Jabbar (2008). Poultry blood physiology. Baghdad University	
Recommended supporting books and references (scientific journals, reports(...				Taxonomic research and various university theses on the	

Course Description Form

1. Course Name	Poultry Products Technology / Theoretical
2. Course Code	Popt319
3. Semester / Year	Second Semester / Third Year
4. Date of Preparation	2026/3/3
5. Available Attendance Modes	Weekly
6. Total Study Hours / Credit Units	30 Theoretical Hours + 45 Practical Hours / 3.5 Units
7. Course Coordinator(s)	Name: Prof. Dr. Mohammed Ali Makki Email: momaki@uowasit.edu.iq

8. Course Objectives

Course Objectives	• Learn how to produce eggs, poultry meat, and biofuel from poultry waste. • Learn about the chemical composition and nutritional value of poultry products. • Learn about the factors affecting poultry products. • Learn how to market poultry products and deliver them to the consumer. • Learn how to preserve and store poultry products.
-------------------	---

9. Teaching and Learning Strategies

Strategy	• Explanation and clarification • Lecture method • Student groups • Scientific field trips to follow up on poultry farming projects in the governorate
----------	---

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or Topic Name	Learning Method	Assessment Method
First	2 Theory	The student familiarizes with the poultry industry in Iraq and the state's role in achieving food security	Poultry Products Technology	Explanation, model presentation, and lecture	Daily quizzes, monthly exams, and scientific reports

Second	2 Theory	The student familiarizes with the nutritional value of eggs	Poultry Products Technology	Explanation, model presentation, and lecture	Daily quizzes, monthly exams, and scientific reports
Third	2 Theory	The student familiarizes with the qualitative measurements of eggs	Poultry Products Technology	Explanation, model presentation, and lecture	Daily quizzes, monthly exams, and scientific reports
Fourth	2 Theory	The student familiarizes with the chemistry of eggs and its products	Poultry Products Technology	Explanation, model presentation, and lecture	Daily quizzes, monthly exams, and scientific reports
Fifth	2 Theory	The student familiarizes with egg microbiology	Poultry Products Technology	Explanation, model presentation, and lecture	Daily quizzes, monthly exams, and scientific reports
Sixth	2 Theory	The student familiarizes with egg storage and marketing	Poultry Products Technology	Explanation, model presentation, and lecture	Daily quizzes, monthly exams, and scientific reports
Seventh	2 Theory	The student familiarizes with the functional properties of eggs	Poultry Products Technology	Explanation, model presentation, and lecture	Daily quizzes, monthly exams, and scientific reports
Eighth	2 Theory	The student familiarizes with the chemical and nutritional properties of poultry meat	Poultry Products Technology	Explanation, model presentation, and lecture	Daily quizzes, monthly exams, and scientific reports
Ninth	2 Theory	The student familiarizes with the processes of preparing poultry meat for consumption	Poultry Products Technology	Explanation, model presentation, and lecture	Daily quizzes, monthly exams, and scientific reports
Tenth	2 Theory	The student familiarizes with... [Incomplete in Source]	Poultry Products Technology	Explanation, model presentation, and lecture	Daily quizzes, monthly exams, and scientific reports
Eleventh	2 Theory	The student familiarizes with the quality of poultry meat and methods of its preservation	Poultry Products Technology	Explanation, model presentation, and lecture	Daily quizzes, monthly exams, and scientific reports
Twelfth	2 Theory	The student familiarizes with the storage of poultry meat	Poultry Products Technology	Explanation, model presentation, and lecture	Daily quizzes, monthly exams, and scientific reports

Thirteenth	2 Theory	The student familiarizes with poultry meat microbiology	Poultry Products Technology	Explanation, model presentation, and lecture	Daily quizzes, monthly exams, and scientific reports
Fourteenth	2 Theory	The student familiarizes with cooking methods, flavor, and tenderness of poultry meat	Poultry Products Technology	Explanation, model presentation, and lecture	Daily quizzes, monthly exams, and scientific reports
Fifteenth	2 Theory	The student familiarizes with modern methods to benefit from poultry project wastes	Poultry Products Technology	Explanation, model presentation, and lecture	Daily quizzes, monthly exams, and scientific reports

11. Course Evaluation

Monthly Exams	Practical Exams	Daily Quizzes	Project or Report	Final Exam
30%	10%	5%	5%	50%

12. Learning and Teaching Resources

Required Textbooks (Methodology, if any)	Poultry Products Technology – Hamdi Abdul-Aziz Al-Fayadh and Saad Abdul-Hussein Naji 1989
Main References (Sources)	• Technology of Egg Production and its Products - Hamdi Abdul-Aziz Al-Fayadh, Saad Abdul-Hussein Naji, and Nadia Abdul-Aziz Al-Hajo 2010 • Poultry Meat Technology - Hamdi Abdul-Aziz Al-Fayadh, Saad Abdul-Hussein Naji, and Nadia Abdul-Aziz Al-Hajo 2010
Recommended Supportive Books and References	Iraqi Academic Scientific Journals Poultry Science
Electronic References, Internet Websites	-

Course Description Form

1. Course Name:	
Poultry Products Technology/ Practical	
2. Course Code:	
POPT319	
3. Semester / Year:	
Year: Second Semester / Third Year (2025/2026)	
4. Description Preparation Date:	
2026/3/3	
5. Available Attendance Forms:	
In-person (Theoretical and Practical)	
6. Number of Credit Hours (Total) / Number of Units (Total)	
45 Hours / 15 Units	
7. Course administrator's name (mention all, if more than one name)	
Name: Name: Mohamed Saad Akal Email: mohamedalzirgani@uowasit.edu.iq	
8. Course Objectives	
Course Objectives	* Introduce students to the poultry industry in Iraq and its vital role in food security. * Study the chemical, physical, and quality characteristics of table eggs and poultry meat. * Equip students with practical skills in egg grading, quality inspection, preservation, and marketing methods. * Understand processing operations, slaughterhouse technology, and waste management.
9. Teaching and Learning Strategies	
Strategy	Theoretical Lectures: Supported by scientific educational films. Practical Laboratory Training: Measuring egg characteristics and conducting chemical experiments. Field Visits: To poultry farms and slaughterhouses.

	Sensory Evaluation: Training students' senses through tasting, tenderness, and flavor assessments.
--	--

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	Understanding the industry's role	The poultry industry in Iraq and the state's role in food security	Theoretical Lecture	Daily Participation
2	3	Knowing nutritional value	Nutritional value of eggs and egg quality measurements	Lecture + Lab	Laboratory Report
3	3	Studying egg chemistry	Chemistry of eggs and their products & Egg microbiology	Theoretical Lecture	Quizzes
4	3	Preservation techniques	Egg storage, marketing, and functional properties	Lecture + Application	Discussion
5	3	Meat analysis	Chemical and nutritional properties of poultry meat	Theoretical Lecture	Monthly Exam
6	3	Processing operations	Preparing poultry meat for consumption	Practical Demonstration	Performance Evaluation
7	-	-	EXAMINATION	-	-
8	3	Meat quality	Poultry meat quality, preservation methods, and storage	Theoretical Lecture	Participation
9	3	Microbiology	Poultry meat microbiology, cooking methods, and flavor	Lab + Theory	Report
10	3	Waste management	Modern methods for utilizing poultry project waste	Lecture	Brainstorming
11	3	Field reality	Introduction to poultry farms, equipment, and egg quality traits	Field Visit	Field Report
12	3	Practical grading	Egg grading, trait measurement, immune and reproductive systems	Lab	Practical Exam

13	3	Programmed production	Programmed eggs and production methods + Vaccination & vaccines	Lecture	Homework
14	3	Slaughterhouse technology	Poultry slaughterhouses: design, slaughter operations, and grading	Slaughterhouse Visit	Technical Report
15	3	Chemical tests	Conducting experiments (PV, FFA, TBA) and sensory evaluation of meat	Practical Lab	Final Exam

11. Course Evaluation

Monthly Exams: 10%
 Reports, Lab & Practical Work: 5%
 Daily Activities (Participation, Oral, Quizzes): 5%
 Final Exam: 20%

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Poultry Products Technology (Ministerially approved curriculum)
Main references (sources)	Egg Biochemistry & Meat Technology
Recommended books and references (scientific journals, reports...)	Scientific journals in poultry science, and FAO (Food and Agriculture Organization) reports.
Electronic References, Websites	World's Poultry Science Association (WPSA) websites

Course Description Form

1. Course Name:	
Feeds and Rations (Theoretical)	
2. Course Code:	
FEFE 320	
3. Semester / Year:	
Third Stage / Spring Semester	
4. Description Preparation Date:	
2026/3/3	
5. Available Attendance Forms:	
In-person	
6. Number of Credit Hours (Total) / Number of Units (Total)	
- Theoretical hours: 2 hours per week - Total units: 3.5	
7. Course administrator's name (mention all, if more than one name)	
Name: Assist. Prof. Dr.Mohammed Abdulameer Rasheed	
Email: iq.edu.uowasit@mohabd	
8. Course Objectives	
Course Objectives	- To introduce students to the concept of animal feeds. - To identify roughages and concentrate feeds. - To understand ration formulation and evaluation of digestibility and nutritional value
9. Teaching and Learning Strategies	
Strategy	The course adopts several strategies, including: - Lecture method - Interactive lecture - Use of teaching aids (board, data show, educational videos) - Discussion-based learning - Linking theoretical concepts with practical applications

10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Understanding rations	Ration concepts, types, specifications	Interactive lecture	Quiz
2	2	Ration formulation	Steps of ration formulation	Lecture	Oral test
3	2	Nutritional evaluation	Affecting Feed nutritional value	Video Lecture	Quiz
4	2	Improving feed quality	Improving feed quality materials	Problem-based learning	Written test
5	2	Student evaluation	First exam	Lecture Brainstorming	Class participation
6	2	Feed classification	Concentrates and roughages	Cooperative learning	Quiz
7	2	Feed additives	Feed additives	Interactive discussion	Monthly exam
8	2	Feed processing	Feed manufacturing: silage, hay	Lecture	Quiz
9	2	Feed evaluation	Evaluation of feed materials	Interactive lecture	Written test
10	2	Student evaluation	Second exam	Problem-based learning	Quiz
11	2	Nutritional requirements	Protein requirements	Lecture Video	Oral test
12	2	Energy & minerals	Energy, minerals and vitamin requirements	Lecture Discussion	Quiz
13	2	Cattle nutrition	Dairy and beef cattle requirements	Cooperative learning	Written test
14	2	Small ruminants	Sheep and goats requirements	Interactive lecture	Quiz
15	2	Advanced topics	Work and production requirements	Discussion Review	Final exam

11. Course Evaluation

The total mark (60) is distributed according to the tasks assigned to the student as follows:

- 30 marks for monthly exams, including:
- Daily quizzes
- Attendance and class participation
- Monthly written exams
- 30 marks for the final exam (end of year)

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Feeds and Rations – Dr. Mohamm Riyadh
Main references (sources)	Animal Nutrition Books
Recommended books and references (scientific journals, reports...)	Scientific journals and reports
Electronic References, Websites	Internet websites

Course Description Form

1. Course Name:					
Animal disease / Theoretical					
2. Course Code:					
ANDI 321					
3. Semester / Year:					
Third Stage – Spring Semester					
4. Description Preparation Date:					
2026/3/3					
5. Available Attendance Forms:					
In-person attendance					
6. Number of Credit Hours (Total) / Number of Units (Total)					
2 Theoretical + 3 Practical = 5 Hours/Week					
7. Course administrator's name (mention all, if more than one name)					
Name: Ahmed Sadiq Shaeel Email: ahmed_almosoy@uowasit.edu.iq					
8. Course Objectives					
Course Objectives			To provide students with comprehensive knowledge of the major diseases affecting Animals, their clinical manifestations, etiology, diagnosis, treatment, and preventive measures.		
9. Teaching and Learning Strategies					
Strategy		• Delivery of theoretical lectures using whiteboard presentations, multimedia projectors, interactive discussions, and educational videos. • Practical training through laboratory exercises, field observations, and case studies.			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2 Hours Theoretical	Define animal diseases, explain their classification, and describe the major	Introduction to Animal Diseases and General	Theoretical lecture	Theoretical & practical

		factors influencing disease occurrence in farm animals.	Concepts of Disease	Practical lecture laboratory experiments	exams, laboratory exercises, scientific reports
2	2 Hours Theoretical	response and identify the natural and mechanisms against infectious diseases.	Body Defense Mechanisms and Immunity Against Infectious Diseases	Theoretical lecture Practical lecture laboratory experiments	Theoretical & practical exams, laboratory exercises, scientific reports
3	2 Hours Theoretical	Describe the interaction between host and pathogen and explain the stages of disease pathogenesis.	Host-Pathogen Interaction and Pathogenesis of Infectious Diseases	Theoretical lecture Practical lecture laboratory experiments	Theoretical & practical exams, laboratory exercises, scientific reports
4	2 Hours Theoretical	Identify the etiology, epidemiology, transmission routes, and pathogenesis of Rinderpest in cattle.	Bovine Diseases: Rinderpest (Etiology, Transmission and Pathogenesis)	Theoretical lecture Practical lecture laboratory experiments	Theoretical & practical exams, laboratory exercises, scientific reports
5	2 Hours Theoretical	Recognize the clinical signs, lesions, diagnosis, prevention, and control measures of Rinderpest.	Bovine Diseases: Rinderpest (Clinical Signs, Diagnosis, Prevention and Control)	Theoretical lecture Practical lecture laboratory experiments	Theoretical & practical exams, laboratory exercises, scientific reports
6	2 Hours Theoretical	Explain the etiology, transmission, pathogenesis, and epidemiology of	Foot-and-Mouth Disease (Etiology, Transmission and	Theoretical lecture	Theoretical & practical exams,

		Foot-and-Mouth Disease (FMD).	Pathogenesis	Practical lecture laboratory experiments	laboratory exercises, scientific reports
7	2 Hours Theoretical	Differentiate the clinical signs of FMD, discuss diagnostic methods, and evaluate prevention and vaccination strategies.	Foot-and-Mouth Disease (Clinical Signs, Diagnosis, Prevention and Vaccination)	Theoretical lecture Practical lecture laboratory experiments	Theoretical & practical exams, laboratory exercises, scientific reports
8	2 Hours Theoretical	Describe the causes, clinical manifestations, diagnosis, and treatment of stomatitis in farm animals.	Diseases of the Digestive System: Stomatitis	Theoretical lecture Practical lecture laboratory experiments	Theoretical & practical exams, laboratory exercises, scientific reports
9	2 Hours Theoretical	Explain the etiology, clinical findings, diagnosis, and management of pharyngitis in cattle and buffaloes.	Diseases of the Digestive System: Pharyngitis	Theoretical lecture Practical lecture laboratory experiments	Theoretical & practical exams, laboratory exercises, scientific reports
10	2 Hours Theoretical	Identify the common respiratory diseases of farm animals and explain their diagnosis and preventive measures.	Diseases of the Respiratory System in Farm Animals	Theoretical lecture Practical lecture laboratory experiments	Theoretical & practical exams, laboratory exercises, scientific reports
11	2 Hours Theoretical	Describe the major gastrointestinal diseases affecting farm animals and discuss their diagnosis and control.	Diseases of the Gastrointestinal Tract in Farm Animals	Theoretical lecture Practical	Theoretical & practical exams,

				lecture laboratory experiments	laboratory exercises, scientific reports
12	2 Hours Theoretical	Apply appropriate diagnostic approaches and differentiate between common infectious diseases of farm animals.	Principles of Diagnosis and Differential Diagnosis and Disease Control	Theoretical lecture Practical lecture laboratory experiments	Theoretical & practical exams, laboratory exercises, scientific reports
13	2 Hours Theoretical	Evaluate disease prevention programs, biosecurity measures, and vaccination protocols used in farm animal health management.	Prevention, Biosecurity and Vaccination Programs in Farm Animals	Theoretical lecture Practical lecture laboratory experiments	Theoretical & practical exams, laboratory exercises, scientific reports
14	2 Hours Theoretical	Analyze clinical cases, integrate theoretical knowledge, and present scientific discussions on animal diseases.	Seminar, Case Studies and Revision of Major Animal Diseases	Theoretical lecture Practical lecture laboratory experiments	Theoretical & practical exams, laboratory exercises, scientific reports
15	2 Hours Theoretical	Demonstrate comprehensive understanding of the course through review, integration of knowledge, and preparation for the final assessment.	Comprehensive Review and Final Evaluation	Theoretical lecture Practical lecture laboratory experiments	Theoretical & practical exams, laboratory exercises, scientific reports

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)	Veterinary Medicine Disease Textbooks	
Main references (sources)	Radostits, O. M., Gay, C. C., Hinchcliff, K. W., & Constable, P. D. (2007). Veterinary Medicine: A Textbook of the Diseases of Cattle, Horses, Sheep, Pigs and Goats (10th ed.)	
Recommended books and references (scientific journals, reports...)	Iraqi Academic Scientific Journals International Journals Indexed in Scopus	
Electronic References, Websites	World Organisation for Animal Health (WOAH)	

Course Description Form

37.	Course Name:	Animal Diseases Practical			
38.	Course Code:	ANDI 321			
39.	Semester / Year:	Third Year / Spring Semester			
40.	Description Preparation Date:	2026/3/3			
41.	Available Attendance Forms:	In-person			
42.	Number of Credit Hours (Total) / Number of Units (Total)	Three practical hours per week.			
43.	Course administrator's name (mention all, if more than one name)	Name: safa jabbar mudheher Email: sajabbar@uowasit.edu.iq			
44.	Course Objectives	Course Objectives The course is based on a variety of teaching and learning strategies, including: - Practical lectures. - Interactive lectures. - The use of instructional aids and educational technologies (whiteboard, projector, and videos). - Discussion-based learning.			
45.	Teaching and Learning Strategies	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%; text-align: center;">Strategy</td> <td> - To understand the concept of animal diseases and the importance in animal health and livestock production. - To gain practical skills in examining animals and diagnosing disease conditions. - To identify the clinical signs of various diseases and learn how to treat them. </td> </tr> </table>		Strategy	- To understand the concept of animal diseases and the importance in animal health and livestock production. - To gain practical skills in examining animals and diagnosing disease conditions. - To identify the clinical signs of various diseases and learn how to treat them.
Strategy	- To understand the concept of animal diseases and the importance in animal health and livestock production. - To gain practical skills in examining animals and diagnosing disease conditions. - To identify the clinical signs of various diseases and learn how to treat them.				

	to record and interpret them. • To study the gross and anatomical pathological changes affected organs and tissues. • To learn how to collect and preserve pathological samples and send them for laboratory testing. • To train in the use of laboratory equipment and instruments diagnosing animal diseases. • To understand the basic principles of prevention and control of infectious and non-infectious diseases.
--	---

46. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	Understanding the details of disease causes, disease classification, and the factors affecting them.	Causes of diseases	Practical lecture	• Quiz
2	3	Understanding disease details and determining whether they are caused by bacteria, viruses, or worms.	Classification of diseases Environmental factors Mechanisms of disease caused by bacteria, viruses, and worms (helminths)	Practical lecture + discussion	• Oral Exam
3	3	Understanding how the animal body responds to disease.	The animal body's response to disease or infection	Practical lecture + video presentation	• Scientific Reports
4	3	Understanding the mechanisms of resistance and immunity in the animal body.	Resistance, immunity, and vaccination	Practical lecture + discussion	• Quiz

5	3	Understanding the details of veterinary drugs, including their action, sources, and forms.	Veterinary drugs: sources and forms	Practical lecture	• Quiz
6	3	Understanding the effects of treatment and the sites where drugs act.	Therapeutic effects of drugs and sites of drug action	Practical lecture + Scientific reports	• Practical Exam
7	3	Understanding how to estimate therapeutic dosage.	Estimation of therapeutic dosage	interactive discussion	• Practical Exam
8	3	Understanding how antibiotics work, their classification, and how to combine them.	Antibiotics: classification, combinations, and mechanisms of action	Practical lecture	• Oral Questions
9	3	Understanding how to collect blood samples from chickens.	Methods of blood collection from chickens	Interactive lecture	• Practical Exam
		Understanding the methods of drug administration and how they are carried out.	Different methods of drug administration		
10	3	Understanding the methods of drug application.	Methods of drug application	Practical lecture + video	

11	3	Understanding how to deal with mastitis and how it can be controlled.	Mastitis	Practical lecture	• Quiz
12	3	Understanding how to deal with wounds, fractures, bleeding, and burns.	General injuries: wounds, bleeding, burns, fractures	Practical lecture + discussion	• Oral Exam
13	3	Understanding how to manage hoof injuries.	Hoof lesions in cattle	Practical lecture	• Quiz
14	3	Understanding foot-and-mouth disease and interdigital dermatitis.	Foot-and-mouth disease and interdigital dermatitis in cattle	interactive lecture + video	• Practical Exam
15	3			Discussion + review	• Practical Exam
47. Course Evaluation					
20 marks for monthly assessments, which include: Daily quizzes Attendance and classroom participation Monthly written exams					

20 marks for the end-of-year exam (final exam)

48. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Animal Diseases Book by Dr. Murtadha Al-Atabi
Main references (sources)	Books on diseases
Recommended books and references (scientific journals, reports...)	Recent scientific articles and specialized scientific reports on animal diseases
Electronic References, Websites	Specialized scientific websites in animal diseases

Course Description Form

1. Course Name:	
Animal Breeding/ theoretical	
2. Course Code:	
ANBR 322	
3. Semester / Year:	
Spring Semester/Third	
4. Description Preparation Date	
2026/3/3	
5. Available Attendance Forms:	
Attendance	
6. Number of Credit Hours (Total) / Number of Units (Total)	
75 h / 3 units	
7. Course administrator's name (mention all, if more than one name)	
Name: Assi. Pro. Dr Ghassan Mohammed Hassan Email: gmhassan@uowasit.edu.iq	
8. Course Objectives	
Course Objectives	• Understanding the genetic basis: Understanding how economic traits (such as milk, meat, wool or egg production) are passed from parents to offspring. • Distinguishing between traits: Differentiating between quantitative traits (which are influenced by the environment, such as milk yield) and qualitative traits (which are not influenced by the environment, such as coat colour). • Understanding mating systems: studying different breeding methods, such as inbreeding to improve genetic purity, or outbreeding to mix breeds and benefit from hybrid vigour. - Skills-based (practical) objectives

	• Selection methods: To acquire the skill of selecting the genetically best animals to serve as parents for future generations, based on their physical appearance, their own production, or the production of their relatives (pedigree). • Use of modern techniques: Understanding how to integrate technology into genetic improvement, such as artificial insemination, embryo transfer, and the use of genetic mapping. • Calculating genetic values: Training students to use mathematical and statistical equations to estimate heritability and predict the extent of expected genetic improvement in the herd. 3. Economic and Production Objectives • Increasing production efficiency: Maximising the return per animal (e.g. producing a cow that yields a higher milk yield for the same amount of feed). • Improving product quality: Focusing not only on quantity, but also on quality (e.g. increasing the fat content of milk, or improving the tenderness of meat). • Disease resistance and adaptability: Selecting breeds with higher natural immunity to disease and greater ability to withstand harsh climatic conditions (such as high temperatures or drought).
--	--

9. Teaching and Learning Strategies

Strategy	In the laboratory: training students to take blood samples, extract DNA, and analyse genetic fingerprints to identify genetic markers associated with production. • In the field (livestock stations): practising the physical assessment of animals and reading pedigree and production records to select the best individuals in the field.
-----------------	--

10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Attendance	Knowledge and	Knowledge and understandi	Quiz1
2			Genetic traits		
3			Quantitative traits		
4			Qualitative traits		
5			Genetic coefficient		Quiz 2
6			Methods of estimating the genetic coefficient		
7			Selection plateau		
8			Selection		
9			Methods of selection		
10			Inbreeding		Quiz 3
11			Outbreeding		
12			Mating methods		
13			Genetic variation		Quiz4
14			Environmental variation		
15			Genetic linkage		
11. Course Evaluation					
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports etc					
12. Learning and Teaching Resources					

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

Course Description Form

1. Course Name:	
Animal Breeding and Improvement (Practical Part)	
2. Course Code:	
ANBR 322	
3. Semester / Year:	
Fourth Stage / spring Semester	
4. Description Preparation Date:	
2026/3/3	
5. Available Attendance Forms:	
In-person attendance	
6. Number of Credit Hours (Total) / Number of Units (Total)	
3 practical hours / 3.5 units	
7. Course administrator's name (mention all, if more than one name)	
Name: Dr. Murtaza Kaream Ali Al Zrkani	
Email: malzrkani@uowasit.edu.iq	
8. Course Objectives	
	To introduce students to the scientific principles of animal breeding and improvement and their practical applications. To develop students' skills in identifying livestock breeds and their productive characteristics. To enable students to distinguish between genetic and environmental effects on productive and reproductive traits. To train students in the study and analysis of qualitative and quantitative traits. To provide students with the skills required to calculate and interpret genetic parameters such as heritability and repeatability. To train students in analyzing livestock production and breeding records. To develop students' ability to evaluate selection and genetic improvement programs in farm animals. To relate theoretical concepts to practical applications used in animal breeding and improvement programs.
9.	
Strategy	Delivering practical lectures to explain the fundamental concepts of animal breeding and improvement. Using interactive discussions to link theoretical concepts with practical

	applications. Presenting photographs, models, and visual materials of livestock breeds and productive traits. Conducting practical applications using production and breeding records. Training students to analyze genetic and productive data from farm animals. Solving practical exercises related to heritability, repeatability, and genetic correlations. Assigning scientific reports on livestock breeding and genetic improvement programs. Using whiteboards, data projectors, and available educational tools to support learning.
--	---

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	3 practical hours	Recognize the principles and importance of animal breeding and improvement.	Introduction to Animal Breeding and Improvement	Practical explanation and discussion	Oral questions
Second	3 practical hours	Explain the historical development of animal breeding science.	Historical Development of Animal Breeding	Presentation and discussion	Short quiz
Third	3 practical hours	Understand the concept and scope of animal breeding.	Concept and Importance of Animal Breeding	Interactive discussion	Practical assignment
Fourth	3 practical hours	Distinguish among livestock breeds.	Breed Definition and Breed Classification	Photographs and breed models	Short report
Fifth	3 practical hours	Differentiate between environmental and genetic effects.	Environment, Heredity, Similarity, Variation, and	Case studies	Oral questions

			Common Environmental Effects		
Sixth	3 practical hours	Identify different sources of variation.	Genetic and Environmental Variance	Practical exercises	Practical quiz
Seventh	3 practical hours	Distinguish between qualitative and quantitative traits.	Qualitative and Quantitative Traits	Problem- solving exercises	Practical assignment
Eighth	3 practical hours	Calculate gene frequency and identify influencing factors.	Gene Frequency and Factors Affecting It	Numerical exercises	Short quiz
Ninth	3 practical hours	Explain components of genetic variance.	Genetic Variance and Its Components	Practical applications	Practical test
Tenth	3 practical hours	Estimate heritability and understand its significance.	Heritability: Concept and Applications	Genetic calculations	Analytical assignment
Eleventh	3 practical hours	Calculate and interpret repeatability.	Repeatability Coefficient and Its Applications	Practical exercises	Short quiz
Twelfth	3 practical hours	Apply methods for estimating genetic parameters.	Estimation of Heritability and Repeatability	Numerical applications	Practical report
Thirteenth	3 practical hours	Explain the role of identical twins in genetic studies.	Identical Twins and Heritability Estimation	Case studies	Practical test
Fourteenth	3 practical hours	Understand the importance of heritability in breeding	Applications of Heritability in Selection Programs	Data analysis and discussion	Analytical assignment

		programs.			
Fifteenth	3 practical hours	Calculate and interpret genetic and phenotypic correlations.	Genetic and Phenotypic Correlations	Review and problem- solving session	Final practical examination and report

11. Course Evaluation

Distributing the score out of 20 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports.

No.	Evaluation Type	Score
1	Attendance and commitment to practical sessions	2
2	Participation and practical performance	3
3	Assignments and genetic exercises	5
4	Practical reports	5
5	Short practical tests	5
6	Practical total within coursework	20

12. Learning and Teaching Resources

Item	Resources
Required Textbook	Salah Jalal & Hassan Karam. Animal Breeding and Improvement
Main References	Textbooks on Animal Genetics, Breeding, and Improvement
Recommended References	References on quantitative genetics, heritability, repeatability, and selection methods
Supporting Scientific Resources	Scientific reports and recent research articles in animal breeding and genetics
Electronic Resources	Scientific databases and educational websites related to animal breeding and genetics
Practical Resources	Production records, breeding records, genetic datasets, practical worksheets, and calculation exercises
Software Resources	Statistical software and educational platforms available for practical training

Course Description Form

1. Course Name:	
Reproductive Physiology (Theoretical)	
2. Course Code:	
REPH323	
3. Semester / Year:	
Third Stage / Spring Semester	
4. Description Preparation Date:	
2026/3/3	
5. Available Attendance Forms:	
In-person	
6. Number of Credit Hours (Total) / Number of Units (Total)	
- Theoretical hours: 2 hours per week - Total units: 3.5	
7. Course administrator's name (mention all, if more than one name)	
Name: Assi. Pro. Dr Mohammed Abdulameer Rasheed	
Email: iq.edu.uowasit@mohabd	
8. Course Objectives	
Course Objectives	- To introduce students to fundamentals of reproductive physiology in farm animals - To understand the structure and functions of male and female reproductive systems - To study the hormones regulating reproduction - To understand puberty and reproductive cycle - To explain fertilization, pregnancy, and parturition processes - To introduce the basics of artificial insemination
9. Teaching and Learning Strategies	

Strategy	The course adopts several strategies, including: • Lecture method • Interactive lecture • Use of teaching aids (board, data show, educational videos) • Discussion-based learning • Linking theoretical concepts with practical applications
-----------------	---

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Identify male reproductive system	Male reproductive system	Interactive lecture	Quiz
2	2	Explain structure and function of male system and spermatogenesis	Structure, function and spermatogenesis	Lecture	Oral test
3	2	Identify female reproductive system	Female reproductive system	Video Lecture	Quiz
4	2	Explain structure and function of female system and oogenesis	Structure, function and oogenesis	Problem-based learning	Written test
5	2	Understand reproductive hormones	Hormonal regulation of reproduction	Lecture Brainstorming	Class participation
6	2	Explain endocrine system role	Endocrine glands (hypothalamus, pituitary, pineal)	Cooperative learning	Quiz
7	2	Explain puberty and sexual maturity	Puberty and sexual maturity	Interactive discussion	Monthly exam
8	2	Understand reproductive cycle	Reproductive cycle	Lecture	Quiz
9	2	Explain gamete production and transport	Gamete production and transport	Interactive lecture	Written test
10	2	Explain fertilization	Fertilization	Problem-	Quiz

		and pregnancy	pregnancy	based learning	
11	2	Explain pregnancy and parturition	Pregnancy and parturition	Lecture Video	Oral test
12	2	Understand artificial insemination basics	Artificial insemination (introduction and techniques)	Lecture Discussion	Quiz
13	2	Reinforce male system knowledge	Review of male system and spermatogenesis	Cooperative learning	Written test
14	2	Reinforce female system knowledge	Review of female system and oogenesis	Interactive lecture	Quiz
15	2	Integrate theoretical knowledge	Artificial insemination pregnancy diagnosis (theoretical)	Discussion Review	Final exam

11. Course Evaluation

The total mark (60) is distributed according to the tasks assigned to the student as follows:

- 30 marks for monthly exams, including:
- Daily quizzes
- Attendance and class participation
- Monthly written exams
- 30 marks for the final exam (end of year)

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Reproductive Physiology and Artificial Insemination – Dr. Mohammed Ali Ishaq
Main references (sources)	• Books on reproductive physiology • Scientific literature
Recommended books and references (scientific journals, reports...)	• Scientific journals • Research reports
Electronic References, Websites	• Academic websites • Online scientific resources

Course Description Form

1. Course Name:					
Reproductive Physiology and Artificial Insemination – Practical Part					
2. Course Code:					
REPH 323					
3. Semester / Year:					
Phase Three – Spring Semester					
4. Description Preparation Date:					
2026/3/3					
5. Available Attendance Forms:					
Presencey					
6. Number of Credit Hours (Total) / Number of Units (Total)					
(3) My working hours per week					
7. Course administrator's name (mention all, if more than one name)					
Name: Mohaimen Abbas Abed Email: moabbas@uowasit.edu.iq					
8. Course Objectives					
Course Objectives		Students will learn about reproduction and related hormones, sexual maturation, sperm and egg transfer fertilization, pregnancy and birth, as well as cloning and gene transfer.			
9. Teaching and Learning Strategies					
Strategy		Practical lectures are delivered to students using the following methods: • (Whiteboard, data projector, interactive lecture, educational video presentation). • Practical lectures are applied through observations and interaction with field applications or laboratory experiments.			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject	Learning method	Evaluation method

			name		
The first	3hour	Provide a detailed description of the anatomical organization of the male reproductive system, including the identification of its constituent structures and an explanation of the physiological function of each component."	Male reproductive system	Practical lectures Presentations Field visits	Daily and monthly tests and discussions
The second	3hour	Reproductive system and the function of each part, in addition to explaining the process of sperm formation and the stages of sperm production within the testicles.	Anatomy of the male reproductive system and the process of sperm formation	Practical lectures Presentations	Daily, monthly, and final tests and monthly reports
The third	3hour	Describe the anatomical structure of the female reproductive system, name its parts, and explain the function of each part.	female reproductive system	Practical lectures Presentations	Daily, monthly, and final tests and monthly reports
The fourth	3hour	This section explains the anatomy of the female reproductive system, detailing its parts and the function of each.	Anatomy of the female reproductive system and explanation of the process of egg formation	Practical lectures on presentation methods: dialogue and discussion	Daily, monthly, and final tests and monthly reports
The fifth	3hour	Explanation of the semen collection process for animals and the tools used for the collection process for sheep and cows.	Explanation and application of the semen collection process	Practical lectures on presentation methods laboratory experiments	Daily, monthly, and final tests and monthly

					reports
The sixth	3hour	This section includes an explanation of the semen analysis process in terms of color, motility, density, and sperm activity.	Explanation and application of semen analysis	Practical lectures on laboratory presentation methods Using electron microscopes	Daily, monthly, and final tests and monthly reports
The Seventh	3hour	Explanation of the mechanism of semen dilution and the additives used in the dilution process.	Explanation of how the diluents used to dilute semen work	Practical lectures Presentation methods Field visits	Daily, monthly, and final tests and monthly reports
The eighth	3hour		Monthly exam		
The ninth	3hour	Introducing students to the process of preserving semen by refrigeration and freezing, the equipment used, and the appropriate temperatures.	Explanation and application of semen preservation by cooling and freezing	Practical lectures Presentation methods Field visits	Daily, monthly, and final tests and monthly reports
The tenth	3hour	Explanation of the artificial insemination process and the methods of pregnancy testing.	Artificial insemination in cows and pregnancy testing	Practical lectures on presentation methods Dialogue and discussions	Daily, monthly, and final tests and monthly reports

The eleventh	3hour	Explanation of the artificial insemination process and the tools used to detect pregnancy, such as ultrasound (sonography).	Artificial insemination in sheep and goats and pregnancy testing	Presentation Methods Lectures Dialogue and Discussion Laboratory Equipment	Daily, monthly, and final tests and monthly reports
The twelfth	3hour	Explanation of how eggs are fertilized by sperm	In vitro fertilization (IVF)	Practical lectures on presentation methods	Daily, monthly, and final tests and monthly reports
The thirteenth	3hour	Introducing students to the mechanism by which a group of living organisms produce an exact copy of the genetic material that occurs naturally.	Biological cloning	Practical lectures on presentation methods: dialogue and discussion	Daily, monthly, and final tests and monthly reports
The Fourteenth	3hour	Introducing students to methods of embryo transfer, whether surgical or by collecting them from the cervix	ET embryo transfer	Practical lectures on presentation methods: dialogue and discussion	Daily, monthly, and final tests and monthly reports
The fifteenth	3hour		Monthly exam		

11. Course Evaluation

Theory exam (30 marks) + Practical exam (20 marks) = (50 marks) coursework + (50 marks) final exam

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	The book "Reproductive Physiology and Artificial Insemination" by Dr. Muhammad Ali Ishaq
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Fourth Stage

Course Description Form

1. Course Name:	
Poultry Nutrition	
2. Course Code:	
PONU411	
3. Semester / Year:	
First semester/ Fourth	
4. Description Preparation Date:	
2025/10/14	
5. Available Attendance Forms:	
Attending	
٦. Number of Credit Hours (Total) / Number of Units (Total)	
5. Hours per week 3.5 unit	
٧. Course Administrator's Name (Mention All, If More Than One Name)	
Name:	Dr. Mohammed Ali makki Email: momaki@uowasit.edu.iq
8. Course Objectives	
Course Objectives	Graduating students capable of ١-Work in poultry farming and production projects and feed factories, to have theoretical and applied knowledge regarding poultry feed material, and to obtain the skills required for the post-graduation plan (postgraduate studies.(2 -The student learns about the components of the raw feed materials commonly used in poultry diets, the percentage of use of each feed ingredient, the percentage of use of each nutritional element in the diet, and their importance in poultry nutrition. 3- Providing students with sufficient information on preparing, composing, and mixing feed ingredients to prepare balanced diets according to scientific and economic principles for various types of poultry birds at different ages, especially broilers and laying hens. 4- Providing students with work skills in scientific and research fields and feed factories and sufficient information about energy sources,
9. Teaching and Learning Strategies	

Strategy	Graduating capable students on me: A- The course aims to develop students' ability to think critically about poultry feeding concepts B- The course aims to enhance students' analytical skills in poultry diet formulation, with a focus on cost-effectiveness and profit maximization. C- The course aims to equip students with knowledge of economically viable feed materials and scientific techniques for preparing, storing, and maintaining feed quality. D- The course aims to develop students' ability to identify and apply the most effective
----------	--

10. Course Structure

Week	Hours	Required learning outcomes	Unit or Subject Name	Learning Method	Evaluation Method
1	2	Students are introduced to general poultry nutrition information,	The relationship between nutrition science and other sciences, nutritional terms, the composition of poultry feed, and the goals of poultry nutrition.	Teaching method	the exams Daily and monthly And final reports Daily
2	2	Introducing students to the concept of nutrients, focusing on energy.	Learn about energy, why birds need it, the energy efficiency of birds, the biological partitioning of energy.	Lectures Theoretical and practical + Display methods +Dialogue and discussion	the exams Daily and monthly And final reports Daily
3	2	Explaining and clarifying the types of energy and their importance for poultry	Symptoms of a deficiency of energy in the diets - Symptoms of an increase in energy in the diets- Sources of energy.	Lectures Theoretical and practical + Display methods +Dialogue and	the exams Daily and monthly And final reports

4	2	Introducing students to the main energy sources in poultry feed - such as Carbohydrates	Carbohydrates - their functions - division of carbohydrates - nutritional and chemical division of carbohydrates - sources of	Lectures Theoretical and practical + Display methods +Dialogue and	the exams Daily and monthly And final reports
5	2	Introducing students to the main energy sources in poultry feed - Fats	Fats as an energy source - fat classification - benefits of fats in poultry diets - harms of using rancid fats - Trans fats	Lectures Theoretical and practical + Display methods +Dialogue and	the exams Daily and monthly And final reports
6	2	Introducing students to the main sources of protein in poultry feed.	Proteins - reasons for not using protein as energy source in bird diets - classification of proteins - Types of proteins.	Lectures Theoretical and practical + Display methods +Dialogue and	the exams Daily and monthly And final reports
7	2	Introducing students to the importance of proteins and evaluating the quality of proteins used in poultry	The importance of proteins in poultry nutrition - Plant proteins - Animal proteins - The biological value of protein.	Lectures Theoretical and practical + Display methods +Dialogue and discussion	the exams Daily and monthly And final reports Daily
8	2	A detailed explanation of the importance of amino acids and the birds' needs for them.	Amino acids - Their importance and benefits in the body - The effect of increasing or decreasing the level of protein or amino acids on the bird -Factors affecting birds' requirements for amino	Lectures Theoretical and practical + Display methods +Dialogue and discussion	the exams Daily and monthly And final reports Daily
9	2	A detailed explanation of the importance of vitamins and the birds' needs for them.	Vitamins - Birds are very sensitive to the level of vitamins in the feed provided to them - Classification of vitamins - The difference between water-soluble vitamins and	Lectures Theoretical and practical + Display methods +Dialogue and discussion	the exams Daily and monthly And final reports Daily

10	2	A detailed explanation of the importance of vitamins and the birds' needs for them.	Factors affecting the requirement of poultry birds for vitamins - natural sources of vitamins - industrial vitamins - symptoms of vitamin deficiency and excess.	Lectures Theoretical and practical + Display methods + Dialogue and discussion	the exams Daily and monthly And final reports Daily
11	2	A detailed explanation of the importance of inorganic elements and the birds' requirements for them.	Inorganic elements (minerals) - Main mineral elements - Trace mineral elements - Functions of inorganic elements in the bird's body.	Lectures Theoretical and practical + Display methods + Dialogue and discussion	the exams Daily and monthly And final reports Daily
12	2	A detailed explanation of the importance of inorganic elements and the birds' requirements for them, and a discussion of the mineral elements affecting the growth	Reasons that lead to a deficiency of nutrients in bird diets - calcium and phosphorus - functions of calcium in the body - sources of calcium - functions of phosphorus - sources of phosphorus - symptoms of calcium and	Lectures Theoretical and practical + Display methods + Dialogue and discussion	the exams Daily and monthly And final reports Daily
13	2	Introducing students to the digestive system of poultry birds, the functions of the parts, and the role of each part in the digestive process	The digestive system of poultry birds - the oral cavity - the salivary glands - the functions of the parts of the esophagus - the crop - the gizzard - the small and large intestines - the rectum - factors affecting feed	Lectures Theoretical and practical + Display methods + Dialogue and discussion	the exams Daily and monthly And final reports Daily
14	2	Introducing students to digestive enzymes and the role of each enzyme in the digestive	Identifying digestive enzymes, their secretory part, and endocrine secretions that are related to the digestive process.	Lectures Theoretical and practical + Display methods + Dialogue and	the exams Daily and monthly And final reports
15	2	Exame			

11. Course Evaluation

- Daily exams with multiple-choice questions that require scientific skills.
 - Daily exams with scientific questions.
- Participation grades for competition questions for academic subjects.
 - Marking homework and reports
- - Grades for the student's activity during the lecture and the extent of his commitment to regular attendance and absence.

12. Learning and Teaching Sources

Required Textbooks (Curricular Books, If Any)	Al-Yassin, Ali Abdul Khaleq, and Abdul Abbas, Muhammad Hassan (2010), Nutrition of Poultry, University of Baghdad, College of Agriculture, 328
Main References (Sources)	Ibrahim, Ismail Khalil (2013). Basics of poultry nutrition, Dar Al-Kutub Al-Ilmiyya - Beirut, first edition, 400 pages. Al-Kassar, Ali Mahmoud and Jawad, Ammar Hussein and Al-Kassar, Ali Saif. (2021). Poultry feed and its chemical analysis - University of Kufa - Various classification research and university
Recommended Books and References (Scientific Journals, Reports...)	Theses for poultry nutrition. - Relevant information available on the Internet. - Information available in local, Arab, and International periodicals that are relevant to the article
Electronic References, Websites	https://www.mdpi.com/books/reprint/3284-poultry-nutrition https://vetbooks.ir/handbook-of-poultry-nutrition/

Course Description Form

1. Course Name:	
Poultry Nutrition /practical	
2. Course Code:	
PONU411	
3. Semester / Year:	
First semester / Fourth	
4. Description Preparation Date:	
2025/10/14	
5. Available Attendance Forms:	
Attending	
٦. Number of Credit Hours (Total) / Number of Units (Total)	
5 hours per week for 3.5 unit	
٧. Course Administrator's Name (Mention All, If More Than One Name)	
Name: Lecturer. Dr. Rasool Hassn Khalati Email: rahassan@uowasit.edu.iq	
8. Course Objectives	
Course Objectives	Graduating capable studentson me: Understand the nutritional needs of different types of poultry and how they vary depending on age, .stage of production, and environmental factors To learn how to select, formulate and mix t are beneficial to appropriate feed ingredients tha .the growth, health and productivity of poultry To evaluate the quality and availability of different feed resources and how to reduce feed waste and .cost Apply feeding and management practices that duct quality improve performance, welfare and pro of poultry.
9. Teaching and Learning Strategies	

Strategy	5. Explains the importance of poultry nutrition and how it affects the being and productivity of birds-health, well. 6. their Use examples and pictures to illustrate different types of poultry nutritional requirements, and common feed ingredients used in poultry diets. 7. Conduct a demonstration or practical activity where students can observe, measure and compare feed intake, weight gain and egg different diets production of different groups of poultry fed.
-----------------	---

10. Course Structure

Week	Hours	Required learning	Unit or Subject Name	Learning Method	Evaluation Method
1	3	Introducing students to general information about poultry nutrition	General introduction to poultry nutrition	Practical lectures + Presentation methods + Discussion and dialogue	the exams Daily and monthly And final reports daily
2	3	Explaining feed components to students	Feed sources and components	Practical lectures + Presentation methods + Discussion and dialogue	the exams Daily and monthly And final reports daily
3	3	Explaining grains and their types	Grains, their types and by-products	Practical lectures + Presentation methods + Discussion and dialogue	the exams Daily and monthly And final reports daily

4	3	Explaining protein requirements	Protein concentrates and their specifications	Practical lectures + Presentation methods + Discussion and dialogue	the exams Daily and monthly And final reports
5	3	Explaining energy requirements in laying hens	Distillery by-products and their sources	Practical lectures + Presentation methods + Discussion and dialogue	the exams Daily and monthly And final reports
6	3	Introducing students to how to calculate energy requirements in poultry	Mineral sources	Practical lectures + Presentation methods + Discussion and dialogue	the exams Daily and monthly And final reports daily
7	3	Explaining the use of antibiotics and growth promoters	Antibiotics and growth promoters	Practical lectures + Presentation methods + Discussion and dialogue	the exams Daily and monthly And final reports
8	3	Explaining protein requirements in laying hens	Feed additives and stimulants	Practical lectures + Presentation methods + Discussion and dialogue	the exams Daily and monthly And final reports
9	3	Introducing students to feed mills and poultry nutrition systems	Feed mills (location and layout)	Practical lectures + Presentation methods + Discussion and dialogue	the exams Daily and monthly And final reports daily

10	3	Explaining feed conversion efficiency in poultry	Feed mill construction and its sections	Practical lectures + Presentation methods + Discussion and dialogue	the exams Daily and monthly And final reports daily
11	3	Explaining feed mill establishment for poultry	Feed silos and production sections	Practical lectures + Presentation methods + Discussion and dialogue	the exams Daily and monthly And final
12	3	Explaining processing and management	Processing and management sections	Practical lectures + Presentation methods + Discussion and dialogue	the exams Daily and monthly And final
13	3	Introducing technical and training sections	Technical and training section	Practical lectures + Presentation methods + Discussion and dialogue	the exams Daily and monthly And final reports daily
14	3	Introducing quality control concepts	Quality control	Practical lectures + Presentation methods + Discussion and dialogue	the exams Daily and monthly And final reports daily
15		Exame			

11. Course Evaluation

- Daily exams with multiple-choice questions that require scientific skills.
- Daily exams with scientific questions.
- Participation grades for competition questions for academic subjects.
- Marking homework and reports
- - Grades for the student's activity during the lecture and the extent of his commitment to regular attendance and absence.

12. Learning and Teaching Sources	
Required textbooks (methodology, if (any	Yassin , Ali Abdel Khaleq, Mohamed Hassan Feeding poultry birds . .(٢٠١٠)Abdel Abbas S
(Main references (sources	.(٢٠٢٠Rubaie , Muhammad Ali Makki (-Al .Breeder's guide to feeding poultry birds
books and Recommended supporting (...references (scientific journals, reports	Taxonomic research and various university theses on the nutrition of poultry birds
Electronic references, websites	https://www.almerja.com/reading.php?idm=45401 https://mail.almerja.com/more.php?idm=172779

Course Description Form

1. Course Name:	
Poultry Breeding/ theoretical	
2. Course Code:	
POBR 412	
3. Semester / Year:	
Autumn Semester/Fourth	
4. Description Preparation Date	
2025/10/14	
5. Available Attendance Forms:	
Attendance	
6. Number of Credit Hours (Total) / Number of Units (Total)	
75 h / 3 units	
7. Course administrator's name (mention all, if more than one name)	
Name: Assi. Pro. Dr Ghassan Mohammed Hassan Email: gmhassan@uowasit.edu.iq	
8. Course Objectives	
Course Objectives	- Understanding the genetic structure of the poultry industry: grasping the system of breed improvement (grandparent, parent, commercial lines or crosses) and how to maintain pure sire lines. - Study of the inheritance of egg and meat traits: understanding the genetic principles governing egg production traits (such as number, weight, shell quality and shell strength) and meat traits (such as body weight, growth rate and feed conversion efficiency). - Understanding the phenomenon of hybrid vigour (Heterosis): understanding how to

	utilise the crossbreeding of different lines to produce commercial birds with productivity that exceeds that of both parents.
--	---

9. Teaching and Learning Strategies

Strategy	Project-Based Learning: Guiding students (individually or in groups) to design a ‘genetic breeding plan’ to produce a new commercial line (for either meat or egg production). The project begins with the selection of purebred parent lines and extends to predicting the performance of the resulting offspring. • Computer Simulation and Genetic Improvement Software: Use of specialised quantitative genetics software to simulate selection processes in poultry. This strategy allows students to apply selection across several generations (first, second, third, etc.) within minutes, and to see how genetic compositions and production rates change. • Data-Driven Lectures: Presenting real data tables taken from the flocks of the poultry’s mothers or grandmothers, and training students to read them and interpret egg production curves and their relationship to genetic makeup and the environment.
-----------------	--

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Attendance	Knowledge and	Knowledge	
2			Birds and the Theory	and	Quiz1
3			of the Origin of	derstanding	
4			Species		
5			The Vast Diversity of		
6			Birds		
7			The Origin of		Month 1
			Chickens and the		Exam
			History of		

8			Domestication		
9			Wild Species		Quiz 2
10			Hypotheses of		
11			Domestication		
12			Bird Species and		
			Lineages		
13			Breed Formation		Quiz 3
14			Chromosomes and		
15			the Phenotypic		
			Expression of Genes		
			Colour Inheritance in		Quiz4
			Chickens		
			Comb Shape		
			Inheritance		
			Skin Inheritance		
			Lethal Genes		
			Breeding		
			Programmes for		
			Meat Production		
Month 1					
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)	
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name:	
Poultry Breeding and Improvement / Practical Part	
2. Course Code:	
POBR 412	
3. Semester / Year:	
Fourth Stage / Fall Semester	
4. Description Preparation Date:	
2025/10/14	
5. Available Attendance Forms:	
In-person attendance	
6. Number of Credit Hours (Total) / Number of Units (Total)	
3 practical hours / 3.5 units	
7. Course administrator's name (mention all, if more than one name)	
Name: Dr. Murtaza Kaream Ali Al Zrkani Email: malzrkani@uowasit.edu.iq	
8. Course Objectives	
	- Training students to practically distinguish poultry breeds, production types, and morphological traits. - Introducing students to the origin and classification of chickens and wild species related to domestic chickens. - Training students to apply Mendelian genetics principles in interpreting trait inheritance in poultry. - Enabling students to analyze practical examples of sex-linked traits such as feathering rate and plumage color. - Training students to identify genetic morphological traits such as skin color, feather color, egg color, comb shape, and spurs. - Introducing students to lethal genes and their effects on breeding and improvement programs. - Training students to calculate gene frequency and some genetic parameters such as heritability and genetic, phenotypic, and environmental correlations.

	• Enabling students to understand the practical applications of selection, mating systems, and inbreeding in poultry flock improvement.
--	---

9.

Strategy	• Providing a practical explanation before each session to clarify the scientific objective and application steps. • Using images, models, and field samples when available to identify poultry breeds and genetic traits. • Conducting applied genetic exercises related to dominance, gene interaction, sex-linked traits, and lethal genes. • Training students to solve calculation problems in population genetics and genetic parameter estimation. • Applying field or laboratory observations to identify morphological and productive traits in poultry. • Using practical lectures, discussion, genetic tables, and applied exercises. • Assigning students to prepare practical reports on poultry breeds and breeding improvement programs. • Discussing common errors in interpreting genetic traits and methods for correcting them.
-----------------	---

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	3 practical hours	The student should practically identify poultry classes and the importance of breeding and improvement.	Development of poultry breeding and improvement, breed formation, origin and classification of poultry using images and models.	Practical explanation + images and models	Oral questions + short report
Second	3 practical hours	The student should distinguish between wild species and divisions of domestic chickens.	The genus Gallus, wild species, theories of the origin of domestic chickens, and classification of	Models + applied discussion	Short quiz

			chickens according to production purpose.		
Third	3 practical hours	The student should apply Mendelian genetics principles to poultry traits.	Practical exercises on dominance, gene interaction, and modifications of Mendelian ratios for one and two pairs of genes.	Genetic exercises + problem solving	Practical assignment
Fourth	3 practical hours	The student should interpret the inheritance of sex-linked traits in poultry.	Practical applications on sex-linked traits such as barred plumage, slow feathering, silver and gold plumage, dwarfism, and albino traits.	Applied examples + mating tables	Short practical test
Fifth	3 practical hours	The student should identify lethal genes and their effect on genetic ratios.	Practical examples of lethal genes, their classification according to degree of lethality, and their effects on breeding programs.	Case discussion + exercises	Oral questions
Sixth	3 practical hours	The student should explain methods of detecting lethal genes and reducing their frequency.	Practical applications on eliminating or reducing lethal gene frequency in the flock.	Problem solving + applied discussion	Practical report
Seventh	3 practical hours	The student should practically distinguish	Observation and analysis of skin color, feather color,	Images and models + discussion	Practical test

		inheritance of skin color, feather color, and egg color.	egg color, color distribution on the bird body and feather, and feather abnormalities.		
Eighth	3 practical hours	The student should interpret the inheritance of important morphological traits in poultry.	Applications on the inheritance of comb shape, deformed legs, and spurs.	Model observation + genetic exercises	Practical assignment
Ninth	3 practical hours	The student should calculate gene frequency and interpret population variation.	Practical exercises in population genetics, gene frequency, mean, variance, and genetic value of genotype.	Calculation exercises	Short practical test
Tenth	3 practical hours	The student should identify the importance of genetic parameters in poultry improvement.	Practical applications on estimating genetic parameters in the population and their importance in improvement programs.	Applied exercises + discussion	Analytical assignment
Eleventh	3 practical hours	The student should estimate heritability and interpret its results.	Exercises on calculating heritability, its importance, uses, and methods of estimation in poultry traits.	Problem solving + result analysis	Short quiz
Twelfth	3 practical	The student should distinguish among	Calculation applications on	Practical exercises +	Analytical assignment

	hours	genetic, environmental, and phenotypic correlations.	genetic, environmental, and phenotypic correlations and their estimation methods.	discussion	
Thirteenth	3 practical hours	The student should apply selection principles in improving poultry traits.	Exercises on selection for one trait and multiple traits and factors affecting selection efficiency.	Case studies + exercises	Practical report
Fourteenth	3 practical hours	The student should identify mating systems and their practical applications.	Practical applications of mating systems in poultry and their importance in breeding and improvement programs.	Applied discussion + mating tables	Short quiz
Fifteenth	3 practical hours	The student should interpret inbreeding and its effect on the flock.	Exercises on calculating coefficient of relationship, inbreeding coefficient, types of inbreeding, disadvantages, and uses.	Practical review + problem solving	Practical exam + final report

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

No.	Evaluation Type	Score
1	Attendance and commitment to practical sessions	2
2	Participation and practical performance	3

3	Assignments and genetic exercises	5
4	Practical reports	5
5	Short practical tests	5
6	Practical total within coursework	20

12. Learning and Teaching Resources

Item	Resources
Required textbooks	Nahel Mohammed Ali. <i>Poultry Breeding and Improvement</i> .
Main references	Books on genetics, animal breeding, and poultry improvement.
Recommended books and references	Practical references in poultry genetics, population genetics, and genetic selection.
Recommended books and references	Applied scientific reports and research papers in poultry breeding and improvement.
Electronic references and websites	Scientific and educational websites related to poultry breeding, poultry genetics, and genetic improvement programs.
Practical resources	Images of poultry breeds, models of genetic traits, mating tables, genetic problems, and practical report templates.
Electronic references and websites	Scientific websites and available software resources according to laboratory facilities.

Course Description Form

49. Course Name:					
Cattle production/Theory					
50. Course Code:					
DCPR 413					
51. Semester / Year:					
The autumn semester - Fourth year - Academic year 2025-2026					
52. Description Preparation Date:					
2025/10/14					
53. Available Attendance Forms:					
Presence					
54. Number of Credit Hours (Total) / Number of Units (Total)					
(2) hours theoretical per week / Number of Units (3)					
55. Course administrator's name (mention all, if more than one name)					
Name: Dr. Ali Ayad Hussein Email: aliayaad@uowasit.edu.iq					
56. Course Objectives					
Course Objectives		✓ The course aims to prepare agricultural and veterinary professionals capable of professionally managing dairy cattle farms, focusing on providing students with scientific and practical knowledge to maximize milk production and enhance herd efficiency. ✓ Familiarizing students with the importance of livestock, its breeds, and types of housing, as well as understanding all essential farm operations, automated milking processes, and the anatomy of the mammary gland.			
57. Teaching and Learning Strategies					
Strategy		✓ Delivering theoretical lectures to convey information to students through the following methods: (blackboard, data projector, interactive lecture, and screening of educational videos). ✓ Scientifics report.			
58. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

1	2	Understanding the economic importance of dairy cattle rearing.	The economic importance of animal products	Theoretical lectures Presentation	Theoretical quiz Scientific Reports
2	2	Understanding the nutritional and economic importance of dairy cattle products.	The importance of cattle breeding	Theoretical lectures Presentation	Theoretical quiz Scientific Reports
3	2	Keeping pace with rapid developments and modern technologies in cattle farming.	The modern development of livestock in the world	Theoretical lectures Presentation	Theoretical quiz Scientific Reports
4	2	Identifying the factors affecting the rearing and production of dairy cattle.	Factors that led to the decline in livestock production in Iraq	Theoretical lectures Presentation	Theoretical quiz Scientific Reports
5	2	Methods for selecting cows based on their production purpose.	Evaluation of dairy cows	Theoretical lectures Presentation	Theoretical quiz Scientific Reports
6	2	Understanding farm facilities and infrastructure.	The spread of the milk production farm	Theoretical lectures Presentation	Theoretical quiz Scientific Reports
7	2	Managing reproduction and production processes within the herd.	Reproduction in cattle	Theoretical lectures Presentation	Theoretical quiz Scientific Reports
8	2	Methods for selecting superior males and females and their impact on herd production.	Genetic factors affecting milk production	Theoretical lectures Presentation	Theoretical quiz Scientific Reports
9	2	Environmental conditions, including temperature, humidity, and solar radiation, and their effects on dairy cattle.	Environmental factors affecting milk production	Theoretical lectures Presentation	Theoretical quiz Scientific Reports
10	2	Stages of mammary gland development and the factors influencing it.	The development of the mammary gland in cattle	Theoretical lectures Presentation	Theoretical quiz Scientific Reports

11	2	The role of hormones in the production cycle.	Hormonal control of the development of the mammary gland	Theoretical lectures Presentation	Theoretical quiz Scientific Reports
12	2	Understanding the mechanisms of milk synthesis and secretion.	The process of milk formation	Theoretical lectures Presentation	Theoretical quiz Scientific Reports
13	2	Identifying the key hormones involved.	Hormonal control of milk production	Theoretical lectures Presentation	Theoretical quiz Scientific Reports
14	2	Understanding daily, weekly, and annual farm operations.	Field operations conducted in the fields of dairy cattle	Theoretical lectures Presentation	Theoretical quiz Scientific Reports
15	2	Identifying the types and breeds of global and local dairy cattle.	Breeds of milk cattle	Theoretical lectures Presentation	Theoretical quiz Scientific Reports

59. Course Evaluation

The overall theoretical evaluation score for the course (60) , divided by (30) for student's continuous assessment grade, and (30) for the final exam.

60. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Book: Milk cattle production by Dr. Natiq al-Qudsi, Jalal Elijah
Main references (sources)	Book: Dairy Animal Production book
Recommended books and references (scientific journals, reports...)	https://www.sciencedirect.com/journal/journal-of-dairy-science
Electronic References, Websites	https://www.delaval.com/en-gb/

Course Description Form

1. Course Name:	
Cattle production – practical	
2. Course Code:	
DCPR 413	
3. Semester / Year:	
Fourth phase – Fall semester of the 2025-2026 academic yea	
4. Description Preparation Date:	
2025/10/14	
5. Available Attendance Forms:	
Presenecy	
6. Number of Credit Hours (Total) / Number of Units (Total)	
(3) My working hours per week	
7. Course administrator's name (mention all, if more than one name)	
Name: Mohaimen abbas abed moabbas@uowasit.edu.iq Email:- Name: Enas Yahya Radi enyehya@uowasit.edu.iq :Email	
8. Course Objectives	
Course Objectives	The course aims to provide students with a comprehensive understanding of the importance of dairy cattle, herd management systems, and the essential requirements for successful animal production. Students will gain knowledge of pregnancy diagnosis, parturition, lactation physiology, and appropriate animal care and management practices to enhance productivity, reproductive efficiency, and animal welfare.

9. Teaching and Learning Strategies

Strategy	Practical lectures are delivered to students through a variety of teaching methods, including whiteboard instruction, multimedia presentations, interactive lectures, and educational videos. Practical learning is enhanced through direct observation and active participation in field and laboratory activities, enabling students to develop both theoretical understanding and practical skills.
-----------------	---

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The first	3 hours	Introducing students to management methods and providing and maintaining small-scale conditions for herds	Field operations that take place in dairy cattle farms	Practical lectures Presentations Field visits	Daily, monthly, and final tests and monthly reports
The second	3 hours	Introducing students to different breeds of dairy cattle	Dairy cattle breeds	Practical lectures Presentations	Daily, monthly, and final tests and monthly reports
The third	3 hours	Introducing students to the stages of pregnancy and calving in cows and methods of farm management	Pregnancy and calving in cows	Practical lectures Presentations	Daily, monthly, and final tests and monthly reports
The fourth	3 hours	Introducing students to methods of evaluating dairy	Evaluation of dairy cows	Practical lectures on presentation	Daily, monthly, and final tests and monthly reports

		cows through animal weight, animal height, and production.		methods: dialogue and discussion	
The fifth	3 hours	Explaining the mechanism of feeding newborns, whether natural or artificial, and determining the amount of milk according to live weight.	Newborn breastfeeding	Practical lectures on presentation methods: dialogue and discussion	Daily, monthly, and final tests and monthly reports
sixth The	3 hours	Explanation of the mechanism of milk secretion in the animal's body	Physiology of milk secretion	Practical lectures on presentation methods: dialogue and discussion	Daily, monthly, and final tests and monthly reports
The Seventh	3 hours	Clarifying the mechanism for providing suitable environmental conditions for animals through housing systems and documenting animal information.	Livestock housing and records	Practical lectures Presentation methods Field visits	Daily, monthly, and final tests and monthly reports

The eighth	3 hours		Monthly exam		
The ninth	3 hours	Introducing students to modern methods of raising newborns and providing suitable conditions for animals	Raising and caring for calves	Practical lectures Presentation methods Field visits	Daily, monthly, and final tests and monthly reports
The tenth	3 hours	Explanation of the mechanism for establishing dairy farms and methods of management	Establishing dairy farms and dairy cows	Practical lectures on presentation methods Dialogue and discussions	Daily, monthly, and final tests and monthly reports
The eleventh	3 hours	Explaining the milking process for animals, whether the milking method is manual or mechanical.	Milking and types of milking machines	Practical lectures on presentation methods Dialogue and discussion Laboratory equipment	Daily, monthly, and final tests and monthly reports
The twelfth	3 hours	To familiarize students with the nutritional needs of animals, whether for production or maintenance.	Milk feeding	Practical lectures on presentation methods	Daily, monthly, and final tests and monthly reports
The thirteenth	3 hours	Explaining the mechanism of	Reproduction in cows	Practical lectures on	Daily, monthly, and final tests and

		animal reproduction, whether through natural methods or the use of artificial insemination		presentation methods: dialogue and discussion	monthly reports
The Fourteenth	3 hours	Introducing students to diseases that affect animals, whether infectious, epidemic, or due to malnutrition	Some common diseases in cows	Practical lectures on presentation methods: dialogue and discussion	Daily, monthly, and final tests and monthly reports
The fifteenth	3 hours		Monthly exam		

11.Course Evaluation

Theory exam (30 marks) + Practical exam (20 marks) = (50 marks) coursework + (50 marks) final exam

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	The book "Dairy Cattle Production" by Professor Dr. Natiq Hamid Al-Qudsi Gael Victor Elias
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

61. Course Name:					
Meat science/Theory					
62. Course Code:					
MEPR 414					
63. Semester / Year:					
spring semester - Fourth year - Academic year 2025-2026					
64. Description Preparation Date:					
2026/3/3					
65. Available Attendance Forms:					
Presence					
66. Number of Credit Hours (Total) / Number of Units (Total)					
(2) hours theoretical per week / Number of Units (3)					
67. Course administrator's name (mention all, if more than one name)					
Name: Dr. Ali Ayad Hussein Email: aliayaad@uowasit.edu.iq					
68. Course Objectives					
Course Objectives	✓ The course aims to prepare agricultural professionals capable of professionally managing meat livestock farms, focusing on providing students with scientific and practical knowledge to maximize meat production and enhance herd efficiency. ✓ Familiarizing students with the concepts of red meat production and the differences between them, identifying the problems and obstacles facing the red meat production sector, and understanding the growth and development of meat livestock breeds.				
69. Teaching and Learning Strategies					
Strategy	✓ Delivering theoretical lectures to convey information to students through the following methods: (blackboard, data projector, interactive lecture, and screening of educational videos). ✓ Scientific reports.				
70. Course Structure					
Week	Hours	Required Learning	Unit or subject name	Learning	Evaluation

		Outcomes		method	method
1	2	Understanding the concepts of diverse meat production.	The concept of meat production (traditional and modern concept)	Theoretical lectures Presentation	Theoretical quiz Scientific Reports
2	2	Understanding the production chain and its impact on the live animal chain, and subsequently the meat chain.	Biological axes of meat production and how it is expressed	Theoretical lectures Presentation	Theoretical quiz Scientific Reports
3	2	Reviewing official data on global and local meat consumption rates.	The reality of meat production and consumption in Iraq, the Arab world and the world	Theoretical lectures Presentation	Theoretical quiz Scientific Reports
4	2	Identifying the factors affecting the rearing and production of beef cattle.	Challenges and constraints facing the red meat production sector	Theoretical lectures Presentation	Theoretical quiz Scientific Reports
5	2	Understanding rearing systems and methods for their development.	Methods of animal husbandry for the production of red meat	Theoretical lectures Presentation	Theoretical quiz Scientific Reports
6	2	Identifying the growth stages from the fertilized egg to the mature animal.	Growth and development of meat animals and changes in the shape and structure of the body from the embryonic year to maturity	Theoretical lectures Presentation	Theoretical quiz Scientific Reports
7	2	Identifying the most important meat animal breeds.	Types of meat cattle breeds	Theoretical lectures Presentation	Theoretical quiz Scientific Reports
8	2	Methods for selecting superior males and females and their impact on herd production.	Factors affecting growth	Theoretical lectures Presentation	Theoretical quiz Scientific Reports

9	2	Identifying the optimal stage for slaughtering and marketing meat animals.	Optimal investment for the efficiency of red meat production	Theoretical lectures Presentation	Theoretical quiz Scientific Reports
10	2	Understanding carcass composition in terms of meat, bone, and fat, and their respective proportions.	The composition of carcasses, the percentage of purification and factors affecting them	Theoretical lectures Presentation	Theoretical quiz Scientific Reports
11	2	The role of hormones in the production cycle.	Factors affecting the growth and development of a meat animal	Theoretical lectures Presentation	Theoretical quiz Scientific Reports
12	2	Methods for transporting and marketing meat animals.	Techniques used in the transportation and marketing of animals and carcasses	Theoretical lectures Presentation	Theoretical quiz Scientific Reports
13	2	Global and local marketing classifications.	Marketing category	Theoretical lectures Presentation	Theoretical quiz Scientific Reports
14	2	Understanding the impact of genetic factors and selection, along with their effects.	Genetic variation of traits needed in meat production improvement plans	Theoretical lectures Presentation	Theoretical quiz Scientific Reports
15	2	Understanding the concept of the integrated meat industry.	Meat industry	Theoretical lectures Presentation	Theoretical quiz Scientific Reports

71. Course Evaluation

The overall theoretical evaluation score for the course (60) , divided by (30) for student's continuous assessment grade, and (30) for the final exam.

72. Learning and Teaching Resources

Required textbooks (curricular books, if any)	ook: Meat science by Dr. Mohareb Tahir Abdul Hamid
Main references (sources)	ook: Meat science books by Dr. Majid Bashir al-Aswad
Recommended books and references (scientific journals, reports...)	Book of Meat Science lawries 8edition
Electronic References, Websites	https://www.sciencedirect.com/journal/meat-science

Course Description Form

1. Course Name:					
Meat production – practical part.					
2. Course Code:					
MEPR 414					
3. Semester / Year:					
Autumn semester - Fourth stage - Academic year 2025-2026					
4. Description Preparation Date:					
2025/10/14					
5. Available Attendance Forms:					
Presenecy					
6. Number of Credit Hours (Total) / Number of Units (Total)					
(3) My working hours per week					
7. Course administrator's name (mention all, if more than one name)					
moabbas@uowasit.edu.iq Email:- Name: Mohaimen abbas abed					
8. Course Objectives					
Objectives of the study subject		The course aims to prepare agricultural professionals capable of managing beef cattle farms effectively. It focuses on providing students with the scientific and practical knowledge necessary to maximize meat production and improve herd efficiency. Students will learn about the concepts of red meat production and the differences between them, as well as the problems and obstacles facing the red meat production sector. They will also learn about the growth and development of beef cattle breeds, age estimation, and carcass classification			
9. Teaching and Learning Strategies					
Strategy	Delivering practical lectures to convey information to students through the following means: (whiteboard, data projector, interactive lecture, educational video presentations, and laboratory experiments). • Scientific reports				
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

The first	3 hours	Introducing students to the most important animal breeds and methods of civilization	Types of beef cattle breeds	Practical lectures Presentations	Daily, monthly, and final tests and monthly reports
The second	3 hours	Identifying housing systems for beef cattle	Livestock shelters	Practical lectures Presentations Field visit	Daily, monthly, and final tests and monthly reports
The third	3 hours	Understanding how to estimate age through teeth: their eruption dates and replacement times	Estimating the age of animals	Practical lectures Presentations	Daily, monthly, and final tests and monthly reports
The fourth	3 hours	Understanding the mechanism for judging beef cattle and their specifications with respect to the live animal and the carcass	Beef cattle judging	Practical lectures Presentations	Daily, monthly, and final tests and monthly reports
The fifth	3 hours	Explanation of the methods of slaughtering animals and cutting up the carcass.	Stages of the slaughtering process	Practical lectures Presentations	Daily, monthly, and final tests and monthly reports
The sixth	3 hours	Explaining the mechanism of slaughterhouse operations, the health requirements for slaughterhouse management, and the selection of a slaughterhouse site.	The massacre and its sections	Practical lectures Presentations Field visit	Daily, monthly, and final tests and monthly reports
The Seventh	3 hours		Monthly test		
The eighth	3 hours	Identifying the components of the carcass and	Techniques for evaluating and assessing the	Practical lectures Presentations	Daily, monthly, and final tests and monthly reports

		recognizing the main and secondary parts of the cuts	components of beef cattle carcasses (sheep and cattle)		
The ninth	3 hours	Clarifying the main differences between the weight of the live animal, the weight of the carcass after removal of internal organs, and the net weight of the carcass	The relationship between the weight of the live animal and the weight of the carcass	Practical lectures Presentations	Daily, monthly, and final tests and monthly reports
The tenth	3 hours	Understanding the mechanism for separating and cutting carcasses	Physical separation of carcasses	Practical lectures Presentations	Daily, monthly, and final tests and monthly reports
The eleventh	3 hours	Clarifying the concept of carcass classification within the general framework is that specialized link that defines the relationship between the seller and the buyer, or that relationship that determines the nature of the relationship between the stages of production and consumption.	Grading and classification of beef cattle carcasses and international classification systems	Practical lectures Presentations	Daily, monthly, and final tests and monthly reports
The twelfth	3 hours	Explanation of how to determine animal weights	Prediction equations	Practical lectures Presentations	Daily, monthly, and final tests and monthly reports
The thirteenth	3 hours	Introducing students to the dressing percentage, which represents the weight of the	Net yield ratio and factors affecting it	Practical lectures Presentations	Daily, monthly, and final tests and monthly reports

		carcass relative to the weight of the live animal.			
The Fourteenth	3 hours		Monthly test		
The fifteenth	3 hours		Discussing student reports		

11.Course Evaluation

Theory exam (30 marks) + Practical exam (20 marks) = (50 marks) coursework + (50 marks) final exam

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	The book "Meat Production" by Dr. Majid Bashir Al-Aswad
Main references (sources)	Meat Production, written by Dr. Muharib Taher Abdel Hamid
Recommended books and references (scientific journals, reports...)	https://www.sciencedirect.com/journal/meat-science
Electronic References, Websites	https://www.sciencedirect.com/referencework/9780323851985/en-cyclopedia-of-meat-sciences

Course Description Form

1. Course Name	Management and Production of Poultry/ Theoretical
2. Course Code	POMP415
3. Semester / Year	First Semester / Fourth Year
4. Date of Preparation	2025/10/14
5. Available Attendance Modes	Weekly
6. Total Study Hours / Credit Units	30 Theoretical Hours + 45 Practical Hours / 3.5 Units
7. Course Coordinator(s)	Name: Prof. Dr. Mohammed Ali Makki Jassim Email: momaki@uowasit.edu.iq

8. Course Objectives

Course Objectives	• Poultry science and the concept of poultry project management. • The importance of poultry projects (egg and meat production projects).
--------------------------	--

9. Teaching and Learning Strategies

Strategy	• Explanation and clarification • Lecture method • Student groups • Practical lessons in the poultry field
-----------------	---

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or Topic Name	Learning Method	Assessment Method
First	2 Theory	The student familiarizes with poultry science and the concept of poultry project management.	Management and Production of Poultry	Explanation, model presentation, and lecture	Daily quizzes, Monthly exams, and Scientific Reports
Second	2 Theory	The student familiarizes with the importance of poultry projects (egg and meat production projects).	Management and Production of Poultry	Explanation, model presentation, and lecture	Daily quizzes, Monthly exams, and Scientific Reports

Third	2 Theory	The student familiarizes with the internal organs of the chicken and their functions, and egg components.	Management and Production of Poultry	Explanation, model presentation, and lecture	Daily quizzes, Monthly exams, and Scientific Reports
Fourth	2 Theory	The student familiarizes with the types of poultry housing and rearing requirements.	Management and Production of Poultry	Explanation, model presentation, and lecture	Daily quizzes, Monthly exams, and Scientific Reports
Fifth	2 Theory	The student familiarizes with hatching and hatchery management.	Management and Production of Poultry	Explanation, model presentation, and lecture	Daily quizzes, Monthly exams, and Scientific Reports
Sixth	2 Theory	The student familiarizes with broiler management and production (Part 1).	Management and Production of Poultry	Explanation, model presentation, and lecture	Daily quizzes, Monthly exams, and Scientific Reports
Seventh	2 Theory	The student familiarizes with broiler management and production (Part 2).	Management and Production of Poultry	Explanation, model presentation, and lecture	Daily quizzes, Monthly exams, and Scientific Reports
Eighth	2 Theory	The student familiarizes with layer chicken management and production (Part 1).	Management and Production of Poultry	Explanation, model presentation, and lecture	Daily quizzes, Monthly exams, and Scientific Reports
Ninth	2 Theory	The student familiarizes with layer chicken management and production (Part 2).	Management and Production of Poultry	Explanation, model presentation, and lecture	Daily quizzes, Monthly exams, and Scientific Reports
Tenth	2 Theory	The student familiarizes with forced molting (its methods and benefits).	Management and Production of Poultry	Explanation, model presentation, and lecture	Daily quizzes, Monthly exams, and Scientific Reports
Eleventh	2 Theory	The student familiarizes with breeder flock management (broiler and layer breeders).	Management and Production of Poultry	Explanation, model presentation, and lecture	Daily quizzes, Monthly exams, and Scientific Reports

Twelfth	2 Theory	The student familiarizes with turkey, duck, and goose rearing.	Management and Production of Poultry	Explanation, model presentation, and lecture	Daily quizzes, Monthly exams, and Scientific Reports
Thirteenth	2 Theory	The student familiarizes with poultry farm management in hot weather conditions.	Management and Production of Poultry	Explanation, model presentation, and lecture	Daily quizzes, Monthly exams, and Scientific Reports
Fourteenth	2 Theory	The student familiarizes with feed mill management and feed preparation.	Management and Production of Poultry	Explanation, model presentation, and lecture	Daily quizzes, Monthly exams, and Scientific Reports
Fifteenth	2 Theory	The student familiarizes with poultry diseases, prevention, and treatment methods.	Management and Production of Poultry	Explanation, model presentation, and lecture	Daily quizzes, Monthly exams, and Scientific Reports

11. Course Evaluation

Monthly Exams	Practical Exams	Daily Quizzes	Project or Report	Final Exam
30%	10%	10%	-	50%

12. Learning and Teaching Resources

Required Textbooks (Methodology, if any)	Management and Production of Poultry. 2026, authored by Dr. Mohammed Ali Makki
Main References (Sources)	-
Recommended Supportive Books and References	Iraqi Academic Scientific Journals
Electronic References, Internet Websites	-

Course Description Form

1. Course Name:	
Management and Production of Poultry – Practical	
2. Course Code:	
POMP415	
3. Semester / Year:	
Year: First Semester / Fourth Year (2025/2026)	
4. Description Preparation Date:	
2025/10/14	
5. Available Attendance Forms:	
In-person (Theoretical and Practical)	
6. Number of Credit Hours (Total) / Number of Units (Total)	
45Hours / 15Units	
7. Course administrator's name (mention all, if more than one name)	
Name: Name: Mohammed Saad Akal Email: mohamedalzirgani@uowasit.edu.iq	
8. Course Objectives	
Course Objectives	The main objective of this course is to equip students with the necessary practical skills to manage all types, classifications, and biological characteristics of poultry farms. Introducing students to the internal anatomy of birds (internal systems) and providing a precise understanding of egg components and physiological processes. Training students on how to prepare and sanitize poultry houses, as well as control optimal environmental conditions (ventilation, humidity, temperature, lighting, and litter). Enabling students to skillfully operate and manage hatcheries, calculate fertility and hatchability rates, and perform candling. Providing students with the skills to manage and plan feeders, drinkers, brooders, and coolers, alongside understanding operations within slaughterhouses and preparing meat for human consumption.
9. Teaching and Learning Strategies	
Strategy	Applied laboratory sessions and direct hands-on practical training in the field. Field visits to production projects and slaughterhouses. Interactive discussions, solving field problems, and presenting case studies and technical reports. Sensory evaluation (tasting, tenderness, flavor) to train students' sensory skills.

10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	Understand poultry classification, distinct biological characteristics, and general production lines.	Poultry Birds: Classification, anatomical features, and introduction to broiler vs. layer strains.	Laboratory / Practical	Daily participation & baseline evaluation
2	3	Master avian dissection skills and recognize internal anatomical organs and internal egg structures.	Avian Anatomy & Dissection: Internal organ systems, egg breakout, and identifying internal egg components.	Practical & Experimental Application	Quizzes & laboratory reports
3	3	Differentiate between various engineering designs of poultry housing and their structural suitability.	Types of Poultry Houses: Open vs. environmentally controlled housing systems.	Discussion, visual presentation, and field visit	Practical performance evaluation
4	3	Regulate and manage house environment factors to optimize productivity and ensure bird comfort.	Environmental Climate Control: Ventilation, humidity, temperature, lighting schedules, and litter management.	Applied field study	Participation & field technical reports
5	3	Apply biosecurity cleaning and disinfection protocols to successfully prepare a house for a new flock.	Poultry House Preparation: Litter removal, dry/wet cleaning, terminal disinfection, and pre-heating.	Direct field training	Technical reports & follow-up
6	3	Manage chicks carefully during the critical	Brooding Management: Day-old chick	Field application & hands-on	Manual skill evaluation & commitment

		brooding period to ensure optimal health and high survival rates.	reception, early-stage husbandry, and behavioral monitoring.	practice	
7	3	Manage hatchery operations, monitor incubation parameters, and calculate key production indexes.	Hatchery & Incubation Management: Egg storage, setting, candling, and calculating fertility & hatchability rates.	Laboratory & field experiments	Oral & practical testing
8	3	Evaluate student comprehension, technical retention, and hands-on performance for the first half of the semester.	Midterm Practical Examination	Written & hands-on practical exam	Midterm exam grade recording
9	3	Operate, calibrate, and maintain essential poultry farm equipment and daily automated systems.	Farm Equipment & Automation: Types of drinkers, feeders, brooders, cooling pads, and routine maintenance.	Equipment inspection & technical demonstration	Pop quizzes & active participation
10	3	Formulate basic feeding regimes and compute Feed Conversion Ratio (FCR) accurately.	Nutrition & Feed Management: Feed raw materials, feeding phases, and calculating feed intake and FCR.	Practical calculation & lab analysis	Evaluation of computational reports
11	3	Implement strict farm biosecurity barriers and recognize common poultry diseases.	Biosecurity Protocols: Sanitation barriers, quarantine practices, and recognizing common avian pathogens.	Field tour & biosecurity audit training	Performance & compliance evaluation
12	3	Master manual administration of vaccines and therapeutic treatments using	Vaccination & Therapeutics: Administration via drinking water, spraying, eye-	Direct hands-on clinical practice	Manual dexterity & technical skill assessment

		diverse clinical methods.	drops, and injections.		
13	3	Understand management distinctions specific to commercial table egg production and breeder management.	Layer & Breeder Management: Egg collection systems, grading, storage, and specialized husbandry practices.	Field visit / specialized laboratory	Technical reports & academic discussion
14	3	Comprehend the meat processing value chain, food safety regulations, and sanitary procedures.	Slaughterhouses & Processing: Stunning, slaughter, scalding, plucking, evisceration, chilling, and waste management.	Field trip / slaughterhouse visit	Field trip report & review
15	3	Measure final learning outcomes, operational fluency, and overall student readiness for professional field operations.	Comprehensive Final Practical Examination	Comprehensive hands-on & application exam	Final holistic evaluation

11.

Monthly Exams: 10%
 Reports, Lab & Practical Work: 5%
 Daily Activities (Participation, Oral, Quizzes): 5%
 Final Exam: 20%

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Poultry Management (Approved by the Ministry)
Main references (sources)	Guide to Poultry Management and Nutrition
Recommended books and references (scientific journals, reports...)	Scientific journals in poultry science, and FAO (Food and Agriculture Organization) reports.
Electronic References, Websites	World's Poultry Science Association (WPSA) websites

Course Description Form

1. Course Name:	
Pasture Management – Practical Part	
2. Course Code:	
PAMA 416	
3. Semester / Year:	
Fourth/ Fall Semester	
4. Description Preparation Date:	
2025/10/14	
5. Available Attendance Forms:	
In-person attendance	
6. Number of Credit Hours (Total) / Number of Units (Total)	
3 practical hours / 3.5 units	
7. Course administrator's name (mention all, if more than one name)	
Name: Husian Njem Hameed Email: husain@uowasit.edu.iq Name: Assistant Lecturer Sami Rashid Saleh Email: samialmagsosi@uowasit.edu.iq	
8. Course Objectives	
Course Objectives	• To introduce students to the fundamental concepts of rangeland management. • To enable students to understand animal economics. • To train students in rangeland management experiments. • To develop students' ability to write statistical results in a scientific style suitable for reports and research.

	• To connect theoretical concepts with practical applications in experiments on feed, growth, milk production, blood characteristics, digestion, and reproductive efficiency.
--	---

9. Teaching and Learning Strategies

Strategy	• Delivering practical lectures to clarify rangeland management concepts. • Utilizing interactive lectures and classroom discussions. • Practical applications using hypothetical and real rangeland data. • Using the whiteboard and data projector for rangeland science demonstrations. • Assigning students practical reports on green spaces in rural areas. Connecting the practical aspects to applied examples such as feed experiments, growth, milk production, and blood profiles.
-----------------	--

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	practical + 3	Exercise + Classroom Questions	Exercise + Classroom Questions	Exercise + Classroom Questions	Exercise + Classroom Questions
2	practical + 3	Exercise + Classroom Questions	Exercise + Classroom Questions	Exercise + Classroom Questions	Exercise + Classroom Questions
3	practical + 3	Exercise + Classroom Questions	Exercise + Classroom Questions	Exercise + Classroom Questions	Exercise + Classroom Questions
4	practical + 3	Exercise + Classroom	Exercise + Classroom	Exercise + Classroom	Exercise + Classroom

		Questions	Questions	Questions	Questions
5	practical + 3	Exercise + Classroom Questions	Exercise + Classroom Questions	Exercise + Classroom Questions	Exercise + Classroom Questions
6	practical + 3	Test + Report	Test + Report	Test + Report	Test + Report
7	practical + 3	Test + Report	Test + Report	Test + Report	Test + Report
8	practical + 3	Test + Report	Test + Report	Test + Report	Test + Report
9	practical + 3	Test + Report	Test + Report	Test + Report	Test + Report
10	practical + 3	Test + Report	Test + Report	Test + Report	Test + Report
11	practical + 3	Test + Report	Test + Report	Test + Report	Test + Report
12	practical + 3	Short test	Short test	Short test	Short test
13	practical + 3	Short test	Short test	Short test	Short test
14	practical + 3	Short test	Short test	Short test	Short test
15	practical + 3	Short test	Short test	Short test	Short test

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

No.	Evaluation Type	Score
1	Short daily quizzes	5
2	Assignments and practical exercises	5
6	Coursework total	5
7	Exam	5
	Total	20

12. Learning and Teaching Resources	
Item	Resources
Recommended books and references	Natural Rangeland Management — Ramadan Ahmed Al-Taif Al-Tikriti, Tawakkul Younis Rizq, Abbas Mahdi Al-Hassan One of the most famous Arabic references in the field, available at Al-Asriya Library (Lebanon) and the Raffi website
Recommended books and references	A Practical Guide to Natural Rangeland Management This applied book explains rangeland management as the key to efficient grazing, focusing on the relationship between livestock productivity and rangeland efficiency. Available in PDF format on the Agricultural Library website.

Course Description Form

1. Course Name:					
Poultry Diseases/ Theoretical					
2. Course Code:					
PODI 418					
3. Semester / Year:					
Fourth Stage – Spring Semester					
4. Description Preparation Date:					
2026/3/3					
5. Available Attendance Forms:					
In-person attendance					
6. Number of Credit Hours (Total) / Number of Units (Total)					
2 Theoretical + 3 Practical = 5 Hours/Week					
7. Course administrator's name (mention all, if more than one name)					
Name: Ahmed Sadiq Shaeel Email: ahmed_almosoy@uowasit.edu.iq					
8. Course Objectives					
Course Objectives			To provide students with comprehensive knowledge of the major diseases affecting poultry, their clinical manifestations, etiology, diagnosis, treatment, and preventive measures.		
9. Teaching and Learning Strategies					
Strategy		- Delivery of theoretical lectures using whiteboard presentations, multimedia projectors, interactive discussions, and educational videos. - Practical training through laboratory exercises, field observations, and case studies.			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

1	2 Hours Theoretical	Understand the concept of disease and infection factors in poultry and identify major clinical signs.	Disease and infection factors; clinical signs	Theoretical lecture Practical lecture Laboratory experiments	Theoretical & practical exams, laboratory exercises, scientific reports
2	2 Hours Theoretical	Recognize infectious diseases affecting chickens and explain their causes and impact.	Infectious diseases of chickens	Theoretical lecture Practical lecture Laboratory experiments	Theoretical & practical exams, laboratory exercises, scientific reports
3	2 Hours Theoretical	Identify Omphalitis and Pullorum disease, including etiology, symptoms, diagnosis, and prevention.	Omphalitis and Pullorum disease	Theoretical lecture Practical lecture Laboratory experiments	Theoretical & practical exams, laboratory exercises, scientific reports
4	2 Hours Theoretical	Explain Fowl typhoid and Paratyphoid diseases and apply diagnostic approaches	Fowl typhoid and paratyphoid	Theoretical lecture Practical lecture Laboratory experiments	Theoretical & practical exams, laboratory exercises, scientific reports
5	2 Hours Theoretical	Describe infectious coryza and fowl cholera and understand methods of control.	Infectious coryza and fowl cholera	Theoretical lecture Practical lecture Laboratory experiments	Theoretical & practical exams, laboratory exercises, scientific reports
6	2 Hours	Understand	Colibacillosis (E. coli	Theoretical	Theoretical

		Theoretical Colibacillosis (E. coli infections), including transmission, diagnosis, and prevention.	infections)	lecture Practical lecture Laboratory experiments	& practical exams, laboratory exercises, scientific reports
7	2 Hours Theoretical	evaluate theoretical knowledge through a midterm examination.	Midterm examination	Theoretical lecture Practical lecture Laboratory experiments	Theoretical & practical exams, laboratory exercises, scientific reports
8	2 Hours Theoretical	Identify coliform granuloma in chickens and understand disease progression	Coliform granuloma in chickens	Theoretical lecture Practical lecture Laboratory experiments	Theoretical & practical exams, laboratory exercises, scientific reports
9	2 Hours Theoretical	explain salpingitis and infectious synovitis and their effects on poultry production.	Salpingitis and infectious synovitis	Theoretical lecture Practical lecture Laboratory experiments	Theoretical & practical exams, laboratory exercises, scientific reports
10	2 Hours Theoretical	Understand avian leukosis and inclusion body hepatitis and distinguish their characteristics.	Avian leukosis and inclusion body hepatitis	Theoretical lecture Practical lecture Laboratory experiments	Theoretical & practical exams, laboratory exercises, scientific reports
11	2 Hours Theoretical	describe Newcastle disease, including	Newcastle disease	Theoretical lecture Practical	Theoretical & practical

		transmission, clinical signs, and prevention.		lecture Laboratory experiments	exams, laboratory exercises, scientific reports
12	2 Hours Theoretical	Understand infectious laryngotracheitis and methods of disease control.	Infectious laryngotracheitis	Theoretical lecture Practical lecture Laboratory experiments	Theoretical & practical exams, laboratory exercises, scientific reports
13	2 Hours Theoretical	Explain Gumboro disease and fowl pox, including diagnosis and prevention measures.	Gumboro disease and fowl pox	Theoretical lecture Practical lecture Laboratory experiments	Theoretical & practical exams, laboratory exercises, scientific reports
14	2 Hours Theoretical	Identify Marek's disease and coccidiosis and evaluate control strategies.	Marek's disease and coccidiosis	Theoretical lecture Practical lecture Laboratory experiments	Theoretical & practical exams, laboratory exercises, scientific reports
15	2 Hours Theoretical	Apply principles of infectious disease control and explain routes of pathogen entry into poultry	Control of infectious diseases and routes of pathogen entry	Theoretical lecture Practical lecture Laboratory experiments	Theoretical & practical exams, laboratory exercises, scientific reports

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)	Veterinary Medicine Disease Textbooks
Main references (sources)	
Recommended books and references (scientific journals, reports...)	Iraqi Academic Scientific Journals International Journals Indexed in Scopus
Electronic References, Websites	

Course Description Form

73.	Course Name:	Poultry Diseases Practical	
74.	Course Code:	PODI 418	
75.	Semester / Year:	Fourth Year / Spring Semester	
76.	Description Preparation Date:	2026/3/3	
77.	Available Attendance Forms:	In-person	
78.	Number of Credit Hours (Total) / Number of Units (Total)	Three practical hours per week.	
79.	Course administrator's name (mention all, if more than one name)	Name: safa jabbar mudheher Email: Sajabbar@uowasit.edu.iq	
80.	Course Objectives		
	Course Objectives	The course is based on a variety of teaching and learning strategies, including: - Practical lectures. - Interactive lectures. - The use of instructional aids and educational technologies (whiteboard, projector, and videos). - Discussion-based learning.	
81.	Teaching and Learning Strategies		
	Strategy	- Identify the major infectious and non-infectious diseases of poultry and understand their impact on bird health and productivity. - Acquire practical skills in poultry examination and disease diagnosis through both field and laboratory methods. - Recognize the clinical signs of various poultry diseases and learn how to record, interpret, and evaluate observations accurately. - Study the gross pathological and post-mortem lesions in affected poultry organs through necropsy examination. - Learn the proper methods for collecting, preserving, transporting, and	

	submitting pathological samples from poultry for laboratory analysis. • Gain hands-on experience in the use of laboratory and diagnosis equipment and tools related to poultry diseases. • Understand the fundamental principles of disease prevention and control in poultry through biosecurity measures and vaccination programs. • Develop the ability to differentiate between diseases with similar clinical and pathological manifestations using various diagnostic techniques. • Acquire skills for the proper handling of diseased poultry and the application of biosecurity and safety procedures during examination and necropsy.
--	--

82. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	• Understanding the detailed anatomy of the skeletal system and comparing it with that of mammals.	• the Skeletal System of Chickens	• Practical Lecture	• Quiz
2	3	• Understanding the detailed anatomy of the digestive system and comparing it with that of mammals.	• The Digestive System in Birds	• Practical Lecture + Discussion	• Oral Exam
3	3	• Understanding the detailed anatomy of the respiratory system and comparing it with that of mammals.	• The Respiratory System in Birds	• Practical Lecture	• Scientific Reports • Quiz

4	3	• Understanding the detailed anatomy of the urinary and reproductive systems and comparing them with those of mammals.	• The Urinary and Reproductive Systems and the Bursa of Fabricius	• Practical Lecture + Discussion	
5	3	• Practical Examination.	• Practical Examination		• Practical Exam
6	3	• Understanding the structure of the skin and its appendages in birds.	• The Skin and Its Appendages in Birds	• Practical Lecture + Scientific Reports	• Practical Exam
7	3	• Understanding laboratory examination procedures and methods of sample collection.	• Laboratory Examinations and Direct Smears	• Interactive Discussion	• Oral Questions
8	3	• Understanding the techniques for collecting swab samples.	• Blood Smears	• Practical Lecture	• Quiz
9	3	• Understanding the methods of blood sample collection from chickens.	• Methods of Blood Collection from Chickens	• Interactive Lecture	• Practical Exam
10	3	• Learning the procedures for collecting and preserving samples for laboratory	• Collection of Samples for Laboratory Testing	• Practical Lecture + Video Presentation	• Quiz

11	3	examination. • Understanding the routes of disease entry into the bird's body and the methods used to control and prevent diseases.	• Control of Infectious Diseases and Routes of Infection Entry into the Bird's Body	• Practical Lecture	• Oral Exam
12	3	• Learning the proper handling, cleaning, and disinfection of hatcheries.	• Cleaning and Disinfection of Hatcheries	• Practical Lecture + Discussion	• Quiz
13	3	• Understanding all aspects of poultry house management and operation.	• Cleaning and Disinfection of Poultry Houses	• Practical Lecture	• Practical Exam
14	3	• Understanding the objectives and methods of biosecurity implementation in poultry houses.	• Biosecurity in Poultry Farms	• Interactive Discussion+ Video Presentation	• Practical Exam
15	3	• Understanding vaccines, their es, methods of ministration, and oper handling procedures	• Vaccines	• Discussion	

83. Course Evaluation

20 marks for monthly assessments, which include:

Daily quizzes

Attendance and classroom participation

Monthly written exams 20 marks for the end-of-year exam (final exam)	
84. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Poultry Diseases Book by Dr. Fouad Al-Sheikhli
Main references (sources)	Books on diseases
Recommended books and references (scientific journals, reports...)	Recent scientific articles and specialized scientific reports on poultry diseases
Electronic References, Websites	Specialized scientific websites in poultry diseases

Course Description Form

1. Course Name:	
Molecular Biology	
2. Course Code:	
MOME419	
3. Semester / Year:	
2 , Spring Semester/Fourth	
4. Description Preparation Date	
2026/3/3	
5. Available Attendance Forms:	
Attendance	
6. Number of Credit Hours (Total) / Number of Units (Total)	
75 h / 5 units	
7. Course administrator's name (mention all, if more than one name)	
Name: Assi. Pro. Dr Ghassan Mohammed Hassan Email: gmhassan@uowasit.edu.iq	
8. Course Objectives	
Course Objectives	- Understanding the flow of genetic information (the Central Dogma) 2. Studying the fine structure of biomolecules 3. Regulation of gene expression 4. Mastering modern laboratory techniques 5. Applications of biotechnology and genetic engineering 6. Linking molecules to diseases
9. Teaching and Learning Strategies	
Strategy	The topics in molecular biology are closely interlinked. Start by creating a mind map centred on the 'Central Dogma': - Link the structure of a gene (promoter, exons, introns) to the maturation of mRNA. - Link genetic mutations to the type of protein produced (is it functional or not?). This link prevents information from becoming scattered.

10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Attendance	Knowledge and understanding	Knowledge and understanding	Month Exam\
2			General Introduction		Quiz1
3			Stages of Molecular Biology		Quiz 2
4			Prokaryotic Genetic Material		Month Exam\
5			Characteristics of DNA and RNA		Quiz 3
6			Molecules Structure of DNA and RNA		Quiz4
7			Acid Sequencing		
8			Structure of the Human Chromosome		
9			Replication		
10			Cloning		
11			Post-Cloning		
12			Translation		
13			Protein synthesis		
14			Mutations and mutagens		
15			The genetic code		
			Genetic fingerprinting		
11. Course Evaluation					
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports etc					

12. Learning and Teaching Resources

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

Course Description Form

1. Course Name:	
Molecular Biology / Practical Part	
2. Course Code:	
MOMI 419	
3. Semester / Year:	
Fourth Stage / spring Semester	
4. Description Preparation Date:	
2026/3/3	
5. Available Attendance Forms:	
In-person attendance	
6. Number of Credit Hours (Total) / Number of Units (Total)	
3 practical hours / 3.5 units	
7. Course administrator's name (mention all, if more than one name)	
Name: Dr. Murtaza Kaream Ali Al Zrkani Email: malzrkani@uowasit.edu.iq	
8. Course Objectives	
	- Training students on laboratory safety rules and proper handling of samples and materials used in the molecular biology laboratory. - Enabling students to practically identify the components of the animal cell and their relationship with genetic material. - Training students to prepare biological samples used in molecular studies. - Introducing students to the practical steps of extracting nucleic acids from animal cells or tissues. - Training students to estimate DNA concentration and purity using available laboratory methods. - Introducing students to the principle of nucleic acid electrophoresis using agarose gel. - Enabling students to understand the practical basis of PCR technology and its applications in animal production. - Developing students' ability to write laboratory reports and interpret molecular results in a scientifically correct

		manner.			
9.					
Strategy	• Providing a practical explanation before each experiment to clarify the scientific objective and work steps. • Presenting a direct practical demonstration by the instructor or laboratory supervisor. • Allowing students to perform experiments individually or in small groups. • Using microscopic slides, educational models, images, and scientific videos. • Training students to use basic laboratory tools in molecular biology. • Training students to read and interpret laboratory results. • Discussing possible laboratory errors and methods for reducing them. • Assigning students to prepare practical reports after laboratory experiments.				
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3 practical hours	The student should become familiar with the molecular biology laboratory and apply laboratory safety instructions.	Introduction to the molecular biology laboratory, laboratory tools, safety rules, and handling of biological samples.	Practical explanation + demonstration of laboratory tools	Oral questions + performance observation
2	3 practical hours	The student should distinguish the components of the animal cell and their	Identification of animal cell components using microscopic slides and microscopic images.	Microscopic observation + practical discussion	Short report

		relationship with genetic material.			
3	3 practical hours	The student should identify the types of samples suitable for molecular tests.	Types of biological samples used in animal molecular studies, such as blood, hair, tissues, and swabs.	Practical explanation + sample models	Short quiz
4	3 practical hours	The student should apply the preliminary preparation steps of samples before extraction.	Preparation of biological samples before DNA extraction.	Laboratory application	Practical performance evaluation
5	3 practical hours	The student should become familiar with the steps of DNA extraction from animal samples.	DNA extraction from animal samples or available educational samples.	Laboratory experiment	Practical report
6	3 practical hours	The student should explain the importance of DNA purification before using it in molecular applications.	DNA purification and removal of protein and organic contaminants.	Practical experiment + discussion	Oral questions
7	3 practical hours	The student should estimate DNA concentration and purity and interpret measurement results.	Estimation of DNA concentration and purity using a spectrophotometer or an available method.	Practical application + result analysis	Analytical assignment

8	3 practical hours	The student should prepare agarose gel and understand the principle of electrophoresis.	Preparation of agarose gel for nucleic acid analysis.	Laboratory experiment	Practical performance follow-up
9	3 practical hours	The student should interpret the results of DNA electrophoresis.	DNA electrophoresis and reading the results.	Practical application + result interpretation	Practical report
10	3 practical hours	The student should identify the components of the PCR reaction and explain the function of each component.	PCR reaction components: DNA template, primers, dNTPs, MgCl ₂ , buffer, and Taq polymerase.	Practical explanation + applied model	Short quiz
11	3 practical hours	The student should accurately apply the steps for preparing a PCR reaction mixture.	Preparation of the PCR reaction mixture for educational or practical purposes according to laboratory availability.	Laboratory application or practical simulation	Practical performance evaluation
12	3 practical hours	The student should explain the stages of DNA amplification inside the PCR machine.	Operation of the PCR machine and identification of reaction stages: denaturation, annealing, and extension.	Practical demonstration + discussion	Oral questions
13	3	The student	Reading PCR	Practical	Practical

	practical hours	should interpret positive and negative PCR results.	products using electrophoresis and analyzing gel images.	application + result analysis	report
14	3 practical hours	The student should link molecular biology techniques with their applications in animal production.	Applications of molecular biology in animal production: genetic diagnosis, disease detection, parentage identification, and genetic improvement.	Practical lecture + case discussion	Short quiz
15	3 practical hours	The student should complete a final practical report and interpret the results of a molecular experiment.	Comprehensive practical review and final evaluation of reports and laboratory skills.	Review + discussion + evaluation	Practical exam + final report

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

No.	Evaluation Type	Score
1	Attendance and commitment to laboratory safety rules	2
2	Participation and practical performance in the laboratory	3
3	Practical reports	5
4	Short practical tests	5
5	Final practical examination	5
6	Total	20

12. Learning and Teaching Resources	
Item	Resources
Required textbooks	<i>Molecular Biology</i> – Dr. Aisha Diwan.
Main references	Practical biotechnology and molecular biology books.
Recommended books and references	Practical references in DNA extraction, PCR, and electrophoresis techniques.
Recommended books and references	Applied scientific reports and research papers in molecular biology and animal production.
Electronic references and websites	Reliable educational websites related to DNA extraction, PCR, and gel electrophoresis techniques.
Practical resources	Laboratory worksheets, gel result images, practical report templates, and educational laboratory videos.
Electronic references and websites	Scientific websites and available software resources according to laboratory facilities.

Course Description Form

1. Course Name:	
Sheep and goat production	
2. Course Code:	
SGPR420	
3. Semester / Year:	
The fourth year – the spring semester	
4. Description Preparation Date:	
2026/3/3	
5. Available Attendance Forms:	
Presence	
6. Number of Credit Hours (Total) / Number of Units (Total)	
(2) hours theoretical hours per week	
7. Course administrator's name (mention all, if more than one name)	
Name: Dr. Mohammed Abdallah Khamees Email: moabdalah@uowasit.edu.iq	
8. Course Objectives	
Course Objectives	The aim is for the student to learn about the economic importance of sheep and goat breeding, breeding in sheep and goats, wool and hair production and the establishment of lamb fattening projects
9. Teaching and Learning Strategies	
Strategy	The purpose of providing theoretical lectures to deliver information to students through the following means: (blackboard, data projector, interactive lecture, educational

	video presentation). The application of practical lectures through observations and interaction with field or laboratory aspects.
--	---

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The first	(2) hours theoretical	Identify the contribution of sheep and goats to the agricultural economy and evaluate the economic returns from their various products.	The economic importance of sheep and goat breeding	Theoretical lectures Power point presentations	Theoretical quiz Scientific Reports
The second	(2) hours theoretical	Classify local and global breeds of sheep and goats according to their productive and environmental characteristics	Classification of sheep and goats	Theoretical lectures Power point presentations	Theoretical quiz Scientific Reports
The third	(2) hours theoretical	Understand the nutritional requirements of sheep and goats and formulate balanced rations that meet these requirements at different physiological stages.	Feeding sheep and goats	Theoretical lectures Power point presentations	Theoretical quiz Scientific Reports

The fourth	(2) hours theoretical	Recognize the physiological processes of reproduction and identify the factors affecting reproductive efficiency in sheep and goats.	Reproduction in sheep and goats (part one)	Theoretical lectures Power point presentations	Theoretical quiz Scientific Reports
The fifth	(2) hours theoretical	Apply feeding management principles and evaluate the efficiency of utilizing available feed resources.	Providing nutritional needs	Theoretical lectures Power point presentations	Theoretical quiz Scientific Reports
The sixth	(2) hours theoretical	Understand the growth stages in sheep and goats and evaluate the factors affecting red meat production and quality.	Growth and production of red meat	Theoretical lectures Power point presentations	Theoretical quiz Scientific Reports
The Seventh	(2) hours theoretical	Compare different meat production systems and determine the most suitable system according to local environmental and economic conditions.	Red meat production patterns	Theoretical lectures Power point presentations	Theoretical quiz Scientific Reports
The eighth	((2) hours theoretical	Understand the characteristics of wool and hair and evaluate product	Wool and hair production	Theoretical lectures Power point presentations	Theoretical quiz Scientific Reports

		quality and methods for improvement.			
The ninth	(2) hours theoretical	Study the factors affecting milk production in sheep and goats and identify ways to improve production efficiency	Milk production	Theoretical lectures Power point presentations	Theoretical quiz Scientific Reports
The tenth	(2) hours theoretical	Understand the advantages and challenges of intensive production systems and evaluate their economic and environmental feasibility.	Intensive production	Theoretical lectures Power point presentations	Theoretical quiz Scientific Reports
The eleventh	(2) hours theoretical	Study the stages of suckling and weaning and identify optimal practices to reduce mortality rates and improve growth.	Feeding and weaning lambs	Theoretical lectures Power point presentations	Theoretical quiz Scientific Reports
The twelfth	((2) hours theoretical	Evaluate the effectiveness of milk replacers and determine their impact on the health and growth of lambs.	The use of milk substitutes in feeding lambs	Theoretical lectures Power point presentations	Theoretical quiz Scientific Reports
The thirteenth	(2) hours theoretical	Develop the ability to design a lamb fattening project and prepare a	Establishment of lamb fattening projects	T Theoretical lectures Power point presentations	Theoretical quiz Scientific Reports

		feasibility study covering technical and economic aspects.			
The Fourteenth	(2) hours theoretical	Apply effective fattening programs and evaluate their outcomes on growth rates and meat quality.	Fattening lambs	Theoretical lectures Power point presentations	Theoretical quiz Scientific Reports
The fifteenth	(2) hours theoretical	Explain the importance of sheep and goat production in different farming systems, and recognize their role in food security and rural development.	Introduction to sheep and goat production	Theoretical lectures Power point presentations	Theoretical quiz Scientific Reports

11. Course Evaluation

Distribution of the (60) marks according to the tasks assigned to the student is as follows:

- 30 marks for monthly assessments, including:
 -
- Daily quizzes
 -
- Preparation and classroom participation
 -
- Monthly written examinations
 -
- 30 marks for the end-of-year (final) examination
 -

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	The required prescribed books are available: sheep and goat production book by Dr. Zuhair Fakhri Al-Jalili
Main references (sources)	sheep and goat breeding books Basra University
Recommended books and references (scientific journals, reports...)	Small Ruminant Welfare, Production and Sustainability
Electronic References, Websites	https://www.sheepandgoat.com/books?utm_source=chatgpt.com

Course Description Form

1. Course Name:	
Practical part -Sheep and goat production	
2. Course Code:	
SGPR 420	
3. Semester / Year:	
The fourth year - the spring semester	
4. Description Preparation Date:	
2026/3/3	
5. Available Attendance Forms:	
Presence	
6. Number of Credit Hours (Total) / Number of Units (Total)	
(3) My working hours per week	
7. Course administrator's name (mention all, if more than one name)	
Name: Mohaimen abbas abed Email: moabbas@uowasit.edu.iq	
8. Course Objectives	
Course Objectives	The student should be able to identify the economic importance of sheep and goat production, apply proper animal handling and management practices, perform wool shearing procedures, establish lamb-fattening projects, and monitor and follow up disease cases associated with sheep and goats.
9. Teaching and Learning Strategies	
Strategy	Delivering practical lectures to convey information to students through the following means: - Blackboard, data projector, interactive lecture, and educational video presentation. - Implementing practical lectures through observations and interaction with field-

	based or laboratory aspects related to the subject matter.
--	--

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The first	3 hours	Understanding the importance of sheep and goats in general	Introduction to Sheep and Goat Production	Practical lectures Presentations	Daily and monthly tests and discussions
The second	3 hours	Classification of sheep and goat meat in terms of color, fat content, and other characteristics	The difference between sheep and goat meat	Practical lectures Presentations	Daily, monthly, and final tests and monthly reports
The third	3 hours	Know the nutritional needs of animals	Provide nutritional needs	Practical lectures Presentations	Daily, monthly, and final tests and monthly reports
The fourth	3 hours	Explanation of the mechanism for cleaning the barns and its purpose	Cleaning sheep pens	Practical lectures on presentation methods: dialogue and discussion	Daily, monthly, and final tests and monthly reports
The fifth	3 hours	Explanation of the mechanism for handling sheep and goats, the tools used, and their purpose.	Animal capture and handling	Practical lectures on presentation methods: dialogue and discussion	Daily, monthly, and final tests and monthly reports

The sixth	3 hours	Teaching students about appropriate grazing times, grazing methods, and the mechanism of milking sheep and goats.	Grazing and milking	Practical lectures on laboratory presentation methods Field visits	Daily, monthly, and final tests and monthly reports
The Seventh	3 hours	Teaching students about the timing of the eruption of primary and permanent teeth and when they are replaced.	Estimating age in animals	Practical lectures Presentation methods Field visits	Daily, monthly, and final tests and monthly reports
The eighth	3 hours		Monthly exam		
The ninth	3 hours	Explanation of the animal numbering and hoof trimming process and methods of using field machinery	Numbering and hoof trimming	Practical lectures Presentation methods Field visits	Daily, monthly, and final tests and monthly reports
The tenth	3 hours	Explanation of the wool shearing and horn cutting process, and methods of using manual and electric tools.	Shearing wool and clipping horns	Practical lectures on presentation methods Dialogue and laboratory discussions	Daily, monthly, and final tests and monthly reports Daily, monthly, and final tests and monthly reports
The eleventh	3 hours	Explanation of the mechanism for	Dipping and periodic	Practical lectures on	Daily, monthly, and final tests and

		cleaning animals, stimulating blood circulation, and periodic vaccinations	vaccinations	presentation methods: dialogue and discussion	monthly reports
The twelfth	3 hours	Methods of castrating male animals and the tools used for the castration process	Castration of male animals	Practical lectures on presentation methods Laboratory equipment	Daily, monthly, and final tests and monthly reports
The thirteenth	3 hours	Monitoring the health status of farm animals	Monitoring sick animals	Practical lectures on presentation methods: dialogue and discussion	Daily, monthly, and final tests and monthly reports
The Fourteenth	3 hours	Feasibility study for establishing sheep and goat fattening projects	Establishing sheep fattening projects	Practical lectures on presentation methods: dialogue and discussion	Daily, monthly, and final tests and monthly reports
The fifteenth	3 hours	Explaining the mechanism for recording animal data in the field and monitoring field animals on a regular basis	For records and their types	Practical lectures on presentation methods: dialogue and discussion	Daily, monthly, and final tests and monthly reports

11.Course Evaluation

Theoretical exam (30 points) + practical exam (20 points) = (50 points) + (50 points) final exam

12.Learning and Teaching Resources	
Required textbooks (curricular books, if any)	The required prescribed books are available: sheep and goat production book by Dr. Zuhair Fakhri Al-Jalili
Main references (sources)	sheep and goat breeding books Basra University
Recommended books and references (scientific journals, reports...)	Small Ruminant Welfare, Production and Sustainability
Electronic References, Websites	https://www.sheepandgoat.com/books?utm_source=chatgpt.com

Course Description Form

13. Course Name:					
Meat science/Theory					
14. Course Code:					
MESC 421					
15. Semester / Year:					
The spring semester - Fourth year - Academic year 2025-2026					
16. Description Preparation Date:					
2026/3/3					
17. Available Attendance Forms:					
Presence					
18. Number of Credit Hours (Total) / Number of Units (Total)					
(2) hours theoretical per week / Number of Units (3)					
19. Course administrator's name (mention all, if more than one name)					
Name: Dr. Ali Ayad Hussein Email: aliayaad@uowasit.edu.iq					
20. Course Objectives					
Course Objectives	✓ The course material aims to familiarize students with the composition and general structure of meat, as well as its physical and chemical properties. ✓ Understanding the phenomena associated with the slaughtering process and the factors influencing meat consumption rates. ✓ Learning about the types and systems of global meat marketing.				
21. Teaching and Learning Strategies					
Strategy	✓ Delivering theoretical lectures to convey information to students through the following methods: (blackboard, data projector, interactive lecture, and screening of educational videos). ✓ Scientific report.				
22. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

1	2	Introduction and understanding of definitions and terminology related to meat.	General definitional terms: meat, meat science, meat industry, meat processing, meat quality	Theoretical lectures Presentation	Theoretical quiz Scientific Reports
2	2	Identifying the types and sources of meat available to consumers.	Types of meat and nutritional value of meat	Theoretical lectures Presentation	Theoretical quiz Scientific Reports
3	2	Understanding the structural composition of meat.	Chemical composition of meat	Theoretical lectures Presentation	Theoretical quiz Scientific Reports
4	2	Identifying the types of muscle proteins and their functions.	The general and exact composition of meat, muscles and their types	Theoretical lectures Presentation	Theoretical quiz Scientific Reports
5	2	Understanding this mechanism and the factors affecting it, as well as the types of energy sources.	Muscle cell proteins. Types of muscle fibers	Theoretical lectures Presentation	Theoretical quiz Scientific Reports
6	2	Identifying the stages of chemical changes that begin at slaughter and conclude with meat processing.	The mechanics of muscle contraction, the processes of contraction and diastole	Theoretical lectures Presentation	Theoretical quiz Scientific Reports
7	2	Understanding the processes of the complete conversion of muscle into meat and the time required for this conversion.	Chemical and biochemical changes in the muscle after death and factors affecting it	Theoretical lectures Presentation	Theoretical quiz Scientific Reports
8	2	Identifying the phenomena accompanying the slaughter process that affect the quality traits of meat.	The process of turning muscle into meat	Theoretical lectures Presentation	Theoretical quiz Scientific Reports
9	2	Identifying the detailed composition and the physical and chemical properties of meat.	Types of throwing stiffness and factors affecting it	Theoretical lectures Presentation	Theoretical quiz Scientific Reports
10	2	Identifying meat preservation and storage	Characteristics of fresh meat: water retention,	Theoretical lectures Presentation	Theoretical quiz Scientific Reports

		methods.	softness, color, texture. Nutritional value		
11	2	Identifying the types and methods of meat packaging, as well as the materials used.	Meat storage methods: cryopreservation and freeze storage	Theoretical lectures Presentation	Theoretical quiz Scientific Reports
12	2	Identifying sources of contamination and the types of hazards associated with slaughterhouse operations.	Thermal manufacturing: drying, irradiation	Theoretical lectures Presentation	Theoretical quiz Scientific Reports
13	2	Identifying the types and breeds of global and local meat-producing livestock.	Packaging and types of used packaging materials	Theoretical lectures Presentation	Theoretical quiz Scientific Reports
14	2	Introduction and understanding of definitions and terminology related to meat.	Contamination of meat and its sources	Theoretical lectures Presentation	Theoretical quiz Scientific Reports
15	2	Identifying the types and sources of meat available to consumers.	Sources of meat types and nutritional value of meat	Theoretical lectures Presentation	Theoretical quiz Scientific Reports

23. Course Evaluation

The overall theoretical evaluation score for the course (60) , divided by (30) for student's continuous assessment grade, and (30) for the final exam.

24. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Book: Meat science by Dr. Mohareb Tahir Abdul Hamid
Main references (sources)	Book: Meat science books by Dr. Majid Bashir al-Aswad
Recommended books and references (scientific journals, reports...)	Book of Meat Science lawries 8edition
Electronic References, Websites	https://www.sciencedirect.com/journal/meat-science

Course Description Form

1. Course Name:	
Meat Science – Practical Component.	
2. Course Code:	
MESC 421	
3. Semester / Year:	
Spring semester - Fourth stage - Academic year 2025-2026	
4. Description Preparation Date:	
2026/3/3	
5. Available Attendance Forms:	
Presenecy	
6. Number of Credit Hours (Total) / Number of Units (Total)	
(3) My working hours per week	
7. Course administrator's name (mention all, if more than one name)	
moabbas@uowasit.edu.iq Email:- Name: Mohaimen abbas abed	
8. Course Objectives	
Course Objectives	The curriculum aims to enable students to learn about the components and general structure of meat (animal skeleton), and its physical and chemical properties. It also aims to familiarize students with the phenomena that accompany the slaughtering process, the factors affecting meat consumption rates, and meat processing. Furthermore, it aims to introduce students to different types of meat processing and preservation methods, such as curing and sausage making.
9. Teaching and Learning Strategies	
Strategy	• Delivering practical lectures to convey information to students through the following methods: (whiteboard, data projector,

	interactive lecture, educational video presentations). • Scientific reports.
--	--

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The first	3 hours	Introducing students to the parts of the skeletal system and the components of bones	The skeletal structure of sheep and goats	Practical lectures Presentations	Daily, monthly, and final tests and monthly reports
The second	3 hours	Explanation of the types of muscles and muscle fibers in animals and their distribution locations	Muscular structure	Practical lectures Presentations	Daily, monthly, and final tests and monthly reports
The third	3 hours	Introducing students to the extraction process, primary and secondary cutting, and primary and secondary bone cutting.	Sheep carcass cutting	Practical lectures Presentations	Daily, monthly, and final tests and monthly reports
The	3 hours	Introducing students	Cutting up cow	Practical	Daily, monthly, and

fourth		to the process of cutting and extracting primary and secondary bone fragments and primary and secondary bones	carcasses	lectures Presentations Laboratory experiments	final tests and monthly reports
The fifth	3 hours	The physical testing process is explained, including determining the percentage of moisture loss in meat, as well as ash content, and calculating the percentage of fat and protein, among other chemical properties.	Physical and chemical tests of meat	Practical lectures Presentations Laboratory experiments	Daily, monthly, and final tests and monthly reports
The sixth	3 hours	Introducing students to the color of the meat, its tenderness, its marbled texture, and its juiciness.	Factors affecting meat palatability	Practical lectures Presentations Laboratory experiments	Daily, monthly, and final tests and monthly reports
The Seventh	3 hours	Introducing students to methods of preserving meat for a specific period	Preserving or salting meat	Practical lectures Presentations Laboratory experiments	Daily, monthly, and final tests and monthly reports

The eighth	3 hours	Informing students about the degree of Minced meat and the conditions that must be followed for meat intended for Minced.	Minced meat	Practical lectures Presentations Laboratory experiments	Daily, monthly, and final tests and monthly reports
The ninth	3 hours	Introducing students to sausage manufacturing methods and the purpose of the manufacturing processes	Sausage industry	Practical lectures Presentations Laboratory experiments	Daily, monthly, and final tests and monthly reports
The tenth	3 hours	Introducing students to an emulsion, which represents two immiscible mixtures, one dispersed and the other continuous and emulsifying agents.	Emulsification	Practical lectures Presentations	Daily, monthly, and final tests and monthly reports
The eleventh	3 hours	Explanation of the mechanism for preserving meat and materials used in the canning process	canning	Practical lectures Presentations	Daily, monthly, and final tests and monthly reports

The twelfth	3 hours	Introducing students to the production of meat similar to pure meat before the addition of other ingredients.	Formulation	Practical lectures Presentations	Daily, monthly, and final tests and monthly reports
The thirteenth	3 hours	Explanation of the process of cooking and preparing meat	Cooking meat	Practical lectures Presentations Laboratory experiments	Daily, monthly, and final tests and monthly reports
The Fourteenth	3 hours	Introducing students to color identification, color gradation, color intensity, and pigments responsible for color.	the color	Practical lectures Presentations Laboratory experiments	Daily, monthly, and final tests and monthly reports
The fifteenth	3 hours	Knowing the purity of meat and the degree of contamination in meat cuts	Quality control tests	Practical lectures Presentations	Daily, monthly, and final tests and monthly reports

11.Course Evaluation

Theory exam (30 marks) + Practical exam (20 marks) = (50 marks) coursework + (50 marks) final exam

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	The Science of Meats by Dr. Muharib Taher Abdel Hamid
--	---

Main references (sources)	Book of Meat Science by Dr. Majed Bashir Al-Aswad 8th Edition
Recommended books and references (scientific journals, reports...)	https://www.sciencedirect.com/journal/meat-science
Electronic References, Websites	https://www.sciencedirect.com/referencework/9780323851985/encyclopedia-of-meat-sciences

Course Description Form

1. Course Name					
Practical Meat Science					
2. Course Code					
MESC 421					
3. Semester / Year					
Second Semester / Fourth Year, 2025/2026					
4. Date of Preparation of this Description					
2026/3/3					
5. Available Attendance Forms					
In-person theoretical and practical attendance					
6. Number of Study Hours (Total) / Number of Units (Total)					
۳.۰ / ۴.۰					
7. Name of the Course Coordinator / Instructor (if more than one, all should be mentioned)					
Name: Enas Yahya Radi Email : enyehya@uowasit.edu.iq					
8. Course Objectives					
Objectives of the Course		To introduce students to the physical, chemical, and sensory properties of meat. To train students to evaluate the quality of meat and meat products practically. To enable students to perform laboratory tests related to meat. To familiarize students with methods for producing selected meat products. To develop students' skills in analysing and interpreting laboratory results.			
9. Teaching and Learning Strategies		First: Teaching Strategies 1. Practical lectures in the Meat Science Laboratory. 2. Learning through observation and direct application. Hands-on training on laboratory equipment. 3. Problem-Based Learning (PBL). Scientific discussions during the conduct of experiments. 4. Use of demonstrations and instructional media. Second: Learning Strategies 1. Self-learning through scientific references. 2. Preparation of laboratory reports. 3. Analysis and interpretation of experimental results. 4. Teamwork within the laboratory. 5. Linking practical results with theoretical concepts.			
10. Course structure					
Week	Hours	Required Learning Outcomes	Unit or Topic Title	Learning Method	Assessment Method
First	3 practical hours	Familiarity with the meat science	Laboratory Orientation and Laboratory	Practical lecture and direct observation	Oral test and performance

		laboratory and laboratory safety procedures	Safety		observation
Second	3 practical hours	Distinguish carcass parts and commercial cuts	Technical Carcass Cutting	Hands-on training and applied observation	Practical test and report
Third	3 practical hours	Evaluate the sensory attributes of meat	Colour, Odour, Texture, and Tenderness	Practical training and discussion	Practical test and report
Fourth	3 practical hours	Measure pH and interpret the results	Meat pH Determination	Laboratory experiment	Practical test and report
Fifth	3 practical hours	Measure water-holding capacity and analyse the results	Water Holding Capacity (WHC)	Laboratory experiment	Practical test and report
Sixth	3 practical hours	Determine cooking loss percentage	Cooking Loss	Laboratory experiment	Practical test and report
Seventh	3 practical hours	Calculate moisture percentage in meat	Moisture Determination	Laboratory experiment	Practical test and report
Eighth	3 practical hours	Determine crude protein percentage	Protein Determination	Laboratory experiment	Practical test and report
Ninth	3 practical hours	Determine crude fat percentage	Fat Determination	Laboratory experiment	Practical test and report
Tenth	3 practical hours	Determine ash percentage and interpret the results	Ash Determination	Laboratory experiment	Practical test and report
Eleventh	3 practical hours	Assess oxidative rancidity in meat	Peroxide Value (PV) and TBA	Laboratory experiment	Practical test and report
Twelfth	3	Measure	Total Volatile	Laboratory	Practical

	practical hours	indicators of meat spoilage	Nitrogen (TVN)	experiment	test and report
Thirteenth	3 practical hours	Acquire skills in meat product manufacture	Minced Meat and Burger Processing	Group practical training	Performance assessment and report
Fourteenth	3 practical hours	Apply the principles of emulsification and sausage manufacture	Sausage Processing and Emulsification	Group practical training	Performance assessment and report
Fifteenth	3 practical hours	Review and apply the skills acquired during the semester	General Review and Final Practical Examination	Comprehensive practical application	Final practical examination

11.Course Assessment

Monthly examinations: 10%

Reports, laboratory, and practical work: 5%

Daily assessment (activity, oral participation, daily quizzes): 5%

Final examination: 20%

12.Learning and Teaching Resources

Required prescribed books (course textbooks, if any)	Meat Production, Dr Majid Bashir Al-Aswad
Main references (sources)	-Lawrie's Meat Science, Lawrie, R.A & . Ledward, D.A. -Principles of Meat Science, Aberle, E.D. et al. -Meat Evaluation Handbook, American Meat Science Association (AMSA)
Recommended supporting books and references (scientific journals, reports, etc.)	-Journal of Food Science -Foods Journal -Food and Agriculture Organization (FAO) reports -Publications of the American Meat Science Association (AMSA)
Electronic references and websites	-FAO: www.fao.org -AMSA: www.meatscience.org -Google Scholar: scholar.google.com -PubMed: pubmed.ncbi.nlm.nih.gov -ScienceDirect: www.sciencedirect.com

Course Description Form

25. Course Name:					
Buffalo Production/Theory					
26. Course Code:					
BUPR 422					
27. Semester / Year:					
The spring semester - Fourth year - Academic year 2025-2026					
28. Description Preparation Date:					
2026/3/3					
29. Available Attendance Forms:					
Presence					
30. Number of Credit Hours (Total) / Number of Units (Total)					
(2) hour of theory per week / Total number of study units (2)					
31. Course administrator's name (mention all, if more than one name)					
Email: aliayaad@uowasit.edu.iq Name: Dr. Ali Ayad Hussein					
32. Course Objectives					
Course Objectives	The main task is for the student to get acquainted with the Buffalo, its breeds, its phenotypic qualities, what are the features of its upbringing, the obstacles it faces, the economic importance of its products, and its housing.				
33. Teaching and Learning Strategies					
Strategy	✓ Delivering theoretical lectures to convey information to students through the following methods: (blackboard, data projector, interactive lecture, and screening of educational videos). ✓ Scientific report.				
34. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Understanding the origin and domestication of the buffalo and its global distribution.	Origin and history of Buffalo	Theoretical lectures	Theoretical quiz Scientific Reports
2	2	Reviewing statistics on the locations and population of Iraqi buffalo and the	Buffalo numbers in Iraq and the world	Theoretical lectures	Theoretical quiz Scientific

		causes of population fluctuations.			Reports
3	2	Understanding the global classification of the buffalo within the animal kingdom.	Classification of buffaloes in the animal kingdom	Theoretical lectures	Theoretical quiz Scientific Reports
4	2	Understanding the genetic differences between Asian and African buffaloes.	Genetic differences between Asian and African buffaloes	Theoretical lectures	Theoretical quiz Scientific Reports
5	2	Introducing students to wild breeds and their natural habitats.	Breeds of wild buffalo	Theoretical lectures	Theoretical quiz Scientific Reports
6	2	Introducing students to various global buffalo breeds.	Breeds of domesticated Buffaloes in the world	Theoretical lectures	Theoretical quiz Scientific Reports
7	2	Managing reproduction and the production process.	Reproduction in Buffalo females	Theoretical lectures	Theoretical quiz Scientific Reports
8	2	Understanding the causes of low reproductive efficiency in buffaloes.	Causes of low reproductive efficiency in Buffaloes	Theoretical lectures	Theoretical quiz Scientific Reports
9	2	Learning about feeding methods and optimal feed types for buffaloes.	Nutrition and diet of Buffalo	Theoretical lectures	Theoretical quiz Scientific Reports
10	2	Understanding the causes of low reproductive efficiency in buffaloes.	Causes of low reproductive efficiency in Buffaloes	Theoretical lectures	Theoretical quiz Scientific Reports
11	2	Learning about pregnancy detection methods in	Methods of checking pregnancy in Buffalo	Theoretical lectures	Theoretical quiz

		buffaloes.			Scientific Reports
12	2	Understanding the mechanisms of milk synthesis and secretion.	Characteristics of the digestive system of Buffalo	Theoretical lectures	Theoretical quiz Scientific Reports
13	2	Identifying rearing locations, population distribution across governorates, and their specific requirements.	Milk production in Buffalo	Theoretical lectures	Theoretical quiz Scientific Reports
14	2	Understanding the differences in milk composition, particularly fat percentage, among different breeds.	Differences in milk components in different breeds	Theoretical lectures	Theoretical quiz Scientific Reports
15	2	Learning about global production volumes and the most prominent meat-producing countries.	Meat production in Buffalo	Theoretical lectures	Theoretical quiz Scientific Reports
35. Course Evaluation					
The overall evaluation score for the course (100) , divided by (50) for student's continuous assessment grade, and (50) for the final exam.					
36. Learning and Teaching Resources					
Required textbooks (curricular books, if any)			Book: Milk cattle production books by Dr. Dr. Natiq al-Qudsi		
Main references (sources)			Book: The Buffalo production book by Dr. Hassan Abdallah		
Recommended books and references (scientific journals, reports...)			BUFFALO LIVESTOCK AND PRODUCTS		
Electronic References, Websites			https://openknowledge.fao.org/items/9bcf6a88-02b0-43fb-a8c4-a3fa8469f691		