Course Description Form

1. Course Name:
Hatching and hatchery management
2. Course Code:
HAHM324
3. Semester / Year:
First Semester
4. Description Preparation Date:
1/9/2023
5. Available Attendance Forms:
Built-in
6. Number of Credit Hours (Total) / Number of Units (Total)
75 hours (2 theoretical + 3 practical) * 15 weeks / 3.5 unit
7. Course administrator's name (mention all, if more than one name)
Name: Faiyz Sami Saaduldeen Yasser Ghanem Kesab Email: dr_faiyz@uomosul.edu.iq yaserkesab75@uomosul.edu.iq

8. Course Objectives

Course Objectives	• **Deliver an introduction on each topic in a simple manner and from the reality of public life.** • **Explanation at length of all aspects of the subject, giving live examples to explain its nature and benefit.** • **Presenting questions about the topic to demonstrate students' understanding through their answers.** • **Conducting surprise exams and preparing practical reports.**

9. Teaching and Learning Strategies

Strategy	**Audio methods (teaching explanation of the topic)** **Style of writing on the blackboard** **The method of direct dialogue between the teacher and the student, with the student's evaluation in class participation** **In addition to blended learning, the theoretical part of the subject is given electronically a on the Class Room platform, and the practical part of the subject is given in person.**

10. Course Structure

Week	Hours	Required	Unit or	Learning method	Evaluati

		Learning Outcomes	subject name		on method
first week	2 Theoretic 3practical	A-The female reproductive system B- Egg formation and controlling hormones coz exam out of 10 Genetics and its branches. Introduction to animal cell structure - a comparison between primitive and advanced cells. Natural and artificial hatching. Directing the student to prepare a report on a topic related to the subject.	The development of genetics and its theories, and the definition of genetics and its branches. Introduction to animal cell structure - a comparison between primitive and advanced cells.	A3:Audio and visual methods (teaching explanation of the topic) Style of writing on the blackboard The method of direct dialogue between the teacher and the student, with the student's evaluation in class a13:participation In addition to blended learning, the theoretical part of the subject is given electronically and on the Class Room platform The practical part of the subject is given in person	Exams, reports, discussions quizzes
second week	2 Theoretic 3practical	A- The male reproductive system. Factors affecting fertility. Conditions that must be met in the specifications and location of the hatchery. coz exam out of 10	Mendel's laws and their modifications: Mendel's experiments - the first law of isolation - phenotypic type and genotype - homogeneous genotype (purebred) -	a2:Audio and visual methods (teaching explanation of the topic) Style of writing on the blackboard The method of direct dialogue between the teacher and the student, with the student's evaluation in class a14:participation In addition to blended learning, the theoretical part of the subject is given electronically and on the Class Room platform The practical part of the	Exams, reports, discussions quizzes

			heterogeneous genotype (mixture) - pure strain - hybrid - symbol for genes. A simple summary of genes and chromosomes - shapes of chromosomes.	subject is given in person	
third week	2 Theoretic 3practical	Hatching eggs A- Factors that affect the quality of hatching eggs before they are laid by the hen. Conditions that must be met by fertilized eggs received for the hatchery. Scientific visit	Test pollination - cross-pollination - modifications of Mendelian ratios 1:3 - complete dominance - incomplete dominance - co-dominance and over-dominance Cell cycle and cell divisions.	A3:Audio and visual methods (teaching explanation of the topic) Style of writing on the blackboard The method of direct dialogue between the teacher and the student, with the student's evaluation in class a15:participation In addition to blended learning, the theoretical part of the subject is given electronically and on the Class Room platform The practical part of the subject is given in person	Exams, reports, discussions quizzes

fourth week	2 Theoretic 3practical	Treatment of eggs before hatching (collection, transportation, selection). Vital care during the hatching process. coz exam out of 10.	Lethal factors: color trait in mice - crawling trait in chickens - similar genetic structure in humans and dominant lethal genetic factors. Introduction to Mendel's laws and definitions of mating types - exercises on the inheritance of one pair of genes.	A4:Audio and visual methods (teaching explanation of the topic) Style of writing on the blackboard The method of direct dialogue between the teacher and the student, with the student's evaluation in class b2participation In addition to blended learning, the theoretical part of the subject is given electronically and on the Class Room platform The practical part of the subject is given in person	Exams, reports, discussions quizzes
fifth	2 Theoretic 3practical	A- Conditions that must be met in hatching eggs B- Physicochemical characteristics of the whole egg and its components. Factors affecting % fertility and hatching.	The law of free distribution (Mendel's second law) - test hybrid multiplication - methods for solving genetic crosses - the Point Square method - the bifurcation method - the triple hybrid - hypotheses of Mendel's second law	A5:Audio and visual methods (teaching explanation of the topic) Style of writing on the blackboard The method of direct dialogue between the teacher and the student, with the student's evaluation in class a16:participation In addition to blended learning, the theoretical part of the subject is given electronically and on the Class Room platform The practical part of the subject is given in person	Exams, reports, discussions quizzes

			Exercises on the inheritance of two pairs of genes.		
sixth week wee	2 Theoretic 3practical	A- Storage of hatching eggs and factors affecting them. B-Types of hatcheries and hatcheries C- Structure design and hatchery management. coz exam out of 10 Selection of hatching eggs. Assigning the student to solve a question and discuss it orally with the rest of the students in the class	The first semester test - modificatio ns of the Mendelian ratios of dihybrid hybrids. The first semester practical test.	a6:Audio and visual methods (teaching explanation of the topic) Style of writing on the blackboard The method of direct dialogue between the teacher and the student, with the student's evaluation in class a17:participation In addition to blended learning, the theoretical part of the subject is given electronically and on the Class Room platform The practical part of the subject is given in person	Exams, reports, discussions quizzes
seventh week	2 Theoretic 3practical	Hatching components. Internal examination of hatching eggs before introducing them into hatcheries.	Interaction between genes: complemen tary factors - interaction of genes with similar effect - recurrent factors - superiority: recessive superiority - dominant superiority - dominant inhibitory	a7:Audio and visual methods (teaching explanation of the topic) Style of writing on the blackboard The method of direct dialogue between the teacher and the student, with the student's evaluation in class a18:participation In addition to blended learning, the theoretical part of the subject is given electronically and on the Class Room platform The practical part of the subject is given in person	Exams, reports, discussions quizzes, Conducting scientific v for student

			genetic factor. Mendelian ratio mutations of one pair of genes.		
eighth week	2 Theoretic 3practical	The first exam.	Multiple alleles and false alleles: fur color of rabbits - skin color of mice - platinum fur color of foxes. Mendelian ratio mutations of two pairs of genes.	a8:Audio and visual methods (teaching explanation of the topic) Style of writing on the blackboard The method of direct dialogue between the teacher and the student, with the student's evaluation in class c3:participation In addition to blended learning, the theoretical part of the subject is given electronically and on the Class Room platform The practical part of the subject is given in person	Exams, reports, discussions quizzes
ninth week	2 Theoretic 3practical	A- Preparing eggs for hatching and the stages of embryo development B- Critical periods in the life of the fetus. C- The mechanics of hatching and abnormal conditions of the fetus. Measurement of the Hue unit, the height of the air gap, and the suitability of eggs for hatching	Blood groups in humans and animals - ABO group - H antigen - M-N blood group - Histological harmony - Inheritance of Rhesus blood groups in humans - Inheritance of blood groups in animals. Mendelian ratio mutations of two pairs of genes.	A9:Audio and visual methods (teaching explanation of the topic) Style of writing on the blackboard The method of direct dialogue between the teacher and the student, with the student's evaluation in class A19:participation In addition to blended learnir the theoretical part of the subject is given electronically and on the Class Room platfor The practical part of the subje is given in person	Exams, reports, discussions quizzes

tenth week	2 Theoretic 3practical	Sources of hatching eggs and care for maternal flocks. Preparing hatchery machines and cleaning and sterilizing hatcheries	Sex determination and sex-linked inheritance - XX-XO system - XX-XY system - ZZ-ZW system - sexual differentiation. Exercises on sex-linked genetics - sex-influenced - sex-specific.	a10:Audio and visual methods (teaching explanation of the topic) Style of writing on the blackboard The method of direct dialogue between the teacher and the student, with the student's evaluation in class b3:participation In addition to blended learning, the theoretical part of the subject is given electronically and on the Class Room platform The practical part of the subject is given in person	Exams, reports, discussions quizzes
eleventh week	2 Theoretic 3practical	Identifying and evaluating the quality of hatched chicks. Steam the hatching eggs and store them A surprise exam out of 10	Linkage and crossing over - linked genes - complete linkage - incomplete linkage - crossing over and chiasma formation - linkage groups. Exercises on multiple alleles.	a11:Audio and visual methods (teaching explanation of the topic) Style of writing on the blackboard The method of direct dialogue between the teacher and the student, with the student's evaluation in class b4:participation In addition to blended learning, the theoretical part of the subject is given electronically and on the Class Room platform The practical part of the subject is given in person	Exams, reports, discussions quizzes
twelfth week	2 Theoretic 3practical	Hatching plan. coz exam10 Preparing eggs for hatching and examining them during hatching	The cellular basis of crossing - double crossing - genetic maps - three-point test multiplication - overlap and	b1:Audio and visual methods (teaching explanation of the topic) Style of writing on the blackboard The method of direct dialogue between the teacher and the student, with the student's evaluation in class b5:participation In addition to blended	Exams, reports, discussions quizzes

			compatibility - use of genetic maps - genomes. Chromosomal abnormalities.	learning, the theoretical part of the subject is given electronically and on the Class Room platform The practical part of the subject is given in person	
thirteenth week	2 Theoretic 3practical	A- Health care for hatcheries The cost of producing chicks and factors affecting profits. Embryonic deaths during the spawning period	The chemical and engineering basis of inheritance: genetic material - composition of genetic material - sources of change Cytoplasmic genetics.	a12:Audio and visual methods (teaching explanation of the topic) Style of writing on the blackboard The method of direct dialogue between the teacher and the student, with the student's evaluation in class a20:participation In addition to blended learning, the theoretical part of the subject is given electronically and on the Class Room platform The practical part of the subject is given in person	Exams, reports, discussions quizzes
fourteent week	2 Theoretic 3practical	Detecting hatching problems (causes and treatment). Treating the hatched chicks and calculating the quantitative results at the end of the hatching period	Mutation and structure of genetic material - structure of nucleic acids (DNA and RNA) and similarities and differences between them - replication of genetic material - cloning of genetic material. Cytoplasmic	C1:Audio and visual methods (teaching explanation of the topic) Style of writing on the blackboard The method of direct dialogue between the teacher and the student, with the student's evaluation in class a21:participation In addition to blended learning, the theoretical part the subject is given electronically and on the Class Room platform The practical part of the subject is given in person	Exams, reports, discussions quizzes

			genetics.		
fifteenth week	2 Theoretic 3practical	the second exam	Second semester exam - general review. The second semester practical test - general review.	C2:Audio and visual methods (teaching explanation of the topic) Style of writing on the blackboard The method of direct dialogue between the teacher and the student, with the student's evaluation in class c4:participation In addition to blended learning, the theoretical part of the subject is given electronically and on the Class Room platform The practical part of the subject is given in person	Exams, reports, discussions quizzes

11.

S	Calendar methods	Calendar appointment (week)	degree	Relative weight %
1	Theoretical final report + practical experience reports	theory week 15 practical week 1-15	7 theoretical + 6 practical	13%
2	Short test (1) Quiz	Week (3)	4 theoretical + 2 practical	6%
3	Midterm Exam (theoretical and practical)	Week (10)	10 theoretical + 5 practical	15%
4	Short test Quiz (2)	Week (12)	4 theoretical + 2 practical	6%
5	Final practical test	Practical exams week	20	20%
6	Final theoretical test	theoretical exams week	40	40%
	total		100	100

12. Learning and Teaching Resources

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

School of theoretical subject: Dr.Faiyz Sami Saaduldeen

Practical subject teachar: Yaser Ghanim Ksab

Head of Scientific Committee : Prof Dr. Muthanna Ahmed Muhammad

Head of the Animal Production Department: Prof Dr.Omar dheya Al-mallah