Department of Animal Resource

College of Agriculture Engineering Sciences

University of Salahaddin

Subject: Hatching &Hatchery Management

Course Book – (Third stage)

Lecturer's name Theory

Assist. Prof. Dr Nidhal A. Mustafa Dr. Haval I. Aziz

Lecturer's name Practical

MSc. Same Mahdi MSc. Ayhan Jalal

Academic Year: 2022-2023

Course Book

1. Course name	**Autumn semester**
2. Lecturer in charge	**Assist. Prof . Dr Nidhal Abdul-Gani Mustafa** Dr. Haval I. Aziz MSc. Same Mahdi MSc. Ayhan Jalal
3. Department/ College	**Animal Resource Department / Agriculture College**
4. Contact	**e-mail:nizalss@yahoo.com** **Tel: (optional)**
5. Time (in hours) per week	**For example Theory: 2** **Practical: 3**
6. Office hours	**5 day a week**
7. Course code	**--**
8. Teacher's academic profile	**e.g Webpage, Blog, Moodle…** **or few paragraphs about not less than 100 words**
9. Keywords	

10. Course overview:

Theory

The role of this lecture to provide a good information about the hatchery and how to manage the process of hatching. Develops general skills and knowledge of the principles of efficient works in hatching such as select good quality of eggs to produce a good chicks,

The quality of the day old chicks is the foundation of poultry business. With this manual "From egg to chicken" we have tried to give the reader management factors for the production of first class day old chicks. At the same time this manual contains several hints for the flock owner and the hatchery man who may positively influence the results An increased hatchability of 1 percent in large hatcheries would mean much better return. Have a calculation done for your hatchery on "What a 1 percent better hatchability would mean to you". You can be sure that improvements in the hatchery offer great possibilities.

- The importance of studying the subject
- Understanding of the fundamental concepts of the course
- Principles and theories of the course
- A sound knowledge of the major areas of the subject
- Sufficient knowledge and understanding to secure employment

Practical

Many changes have taken place in hatcheries in recent years, such as the introduction of computer monitoring and control of the machines, and automation

of many day-to-day hatchery operations. Additionally, there is increasing awareness of the role of the hatchery in disease control.

In this class we will discuss a general overview of incubation process history, hatchery functions and importance, as well as in depth lectures on hatchery building, design andhatchingoperationsmanagement ...etc. There is no text book for this class, so students will be expected to take notes during lecture. Students must pay attention in class to record their notes. Students that disrupt the class by talking during lecture will be removed from the classroom. For this class, cell phones and other electronic devices are PROHIBITED in the classroom.

Deals with many studies, showing by images of types of eggs, practical in laboratory to see all the shape and size of eggs that required to incubation and also those eggs that not required. However going to some commercial hatchery when the egg incubates with take some notes for more information and also explanation by the expert. One hour lecture, two hourslab per week.

This should not be less than 200 words

11. Course objective:

Theory

This should not be less than 100 words

Students will be introduce to the basic principles of hatchery and be able to identify each system of hatching. Identify and the function of each room in the hatchery before put the eggs inside the hatching machine. Explain the poultry industry. Principles of poultry breeding, nutrition, brooding, and rearing. Housing and equipment. Inform student about incubation and hatchery management, control of diseases, marketing. Students will be learn what are the factors that affect on the rate of hatching percentage during rearing stock and incubation time.

Practical

The objectives of this course is to study the parts of hatchery and how it managed practically and how put the eggs in one point when are in the breeder farms and transport to the hatchery and interred in one direction and cross all parts and the changes that occur in each part then put the eggs in to the hatchery and embryonic developments during incubations and hatcheries, after that hatching day and some services in one day old chicks. Incubation requirement; incubators working, care. Hatchery layout and equipment's. Handing,selection, care of eggs prior and during incubation. Candling. Fumigation. Project reports of setting up a hatchery. Hatchery bio-security, sanitation and hygiene. Disposal of hatchery waste. Sexing, grading, packing and dispatch of day old chicks. Economics of hatchery business; Trouble shooting hatch failure: importance of hatchery records, break even analysis of un-hatched eggs. Computer applications for hatchery management Hatchery records and maintenanceThe fertility and hatchability and Factors affecting fertility and hatchability as well as how the fertility effect on the hatchability. The studied

material is very important because in worldwide businessmen and employers build hatchery due to hatchery is a source of money.

12. Student's obligation

In this section the lecturer shall write the role of students and their obligations throughout the academic year, for example the attendance and completion of all tests, exams, assignments, reports , essays…etc

The role of students in the class should attend to the class weekly and we will put some points on it, every week we will do quiz for them and students participate in the class is very important.

Quizzes will occur each week and will cover the material presented during the previous week lecture. Students will have 10 minutes at the beginning of the class period to take the quiz. Students who arrive late will not be given extra time. All information presented during a lecture is fair game for a quiz. It is important to listen to everything the speaker says, do not rely only on the PowerPoint. Students are required to attend each class session and participate in all activities occurring during the class. Students are also required to wear lab-coat to each class. They must be respectful and attentive during lectures; this means no using cell phones during this time. Students are encouraged to take notes during lecture to use as study material for the quiz.

13. Forms of teaching

لێرە مامۆستا ڕێگەی وانە ووتنەوە دەنووسێت، بۆ نموونە: داتاشۆ و پاوەرپۆینت، سەر تەختەڕەش، تەختەی سپی، سمارتبۆردیان مەلزەمە... هتد

I use the projector to display my objectives by power point, sometimes we need to write some information on white board to clarify it. We will give all our objectives on the word paper to our students.

Power point
White board
Images
Video

14. Assessment scheme

Breakdown of overall assessment and examination

لێرە مامۆستا جۆری هەڵسەنگاندن (تاقیکردنەوەکان یان ئەزموونەکان) دەنووسێت بۆ نموونە تاقیکردنەوەی مانگانە، کویزەکان، بیرکردنەوەی ڕەخنەگرانە (پریزەنتەیشن)، ڕاپۆرت نووسین، ووتار نووسین یان ئامادەنەبوونی خوێندکار لە پۆلدا...هتد. ئامانە چەند نمرەی لەسەردەبێت و مامۆستا چۆن نمرەکان دابەشدەکات؟

First Exam after five lectures
Second Exam after ten lectures.
Mark Distribution:
Monthly Exam 25% (Theoretical 15% + Practical 25%)
Final Exam 50% (Theoretical)
Final Mark 100%

15. Student learning outcome:

پڕکردنەوەی ئەم خانەیە زۆر گرنگە، مامۆستا دەرئەنجامەکانی فێربوون دەنووسێت. بۆ نموونە:ڕوونی ئامانجە سەرەکیەکانی کۆرسەکە (بابەتەکە) بۆ خوێندکار
گونجاندنی ناوەڕۆکی کۆرسەکە بە پێویستی دەرەوە و بازاڕی کار
قوتابی چی نوێ فێردەبێت لە ڕێگەی پێدانی ئەم کۆرسەوە؟

This should not be less than 100 words

Students will be introduce to the basic principles of hatchery and be able to identify each system of hatching. Identify and the function of each room in the hatchery before put the eggs inside the hatching machine. Explain the poultry industry. Principles of poultry breeding, nutrition, brooding, and rearing. Housing and equipment. Inform student about incubation and hatchery management, control of diseases, marketing. Students will be learn what are the factors that affect on the rate of hatching percentage during rearing stock and incubation time.

A. Technical Thinking: the student will demonstrate competence of technical subject matter in poultry sciences.
B. CommunicationSkills: The student will demonstrate effective oral and written communication skills.
C. LeadershipSkills: The student will exhibit leadership and other interpersonal skills needed for career placement and advancement.
D. Problem Solving Skills: The student will exhibit problem solving skills based on quantitative and analytical reasoning.
E. Critical Skills: The student will demonstrate knowledge of poultry production facilities.

16. Course Reading List and References:

- Key references:
- Useful references:
- Magazines and review (internet):

- Glos, K. (2011). *Humane and healthy poultry production*. A manual for organic growers. Chelsea Green Publishing Company. United State of America.
- Woodger, J., Effective Breeder/Hatchery Biosecurity, FarmCare GB Ltd., http://www.farmcaregb.com/downloads/08/Breeder_Hatchery_Biosecurity.pdf
- NASPHV. Compendium of Measures to Prevent Disease Associated with Animals in Public Settings, 2013. JAVMA 2013; 243(9):1270-1288.
- Dafwing, I.I., Odiba J. Y. and Ekani E. L. (2010). Hatchery Management Practices in Poultry. National Agricultural Extension and Research Liaison Services, Ahmadubello University.
- Nico Van Wageningen and Johan Meinderts (1990). Hatching Eggs by hen and in an Incubator Agrodak 34, CTA Pub. Agromisa, P.O. Box 41 6700 aaWageningen, the Netherlands.

1- Hatchery Management Guide.

2-USAD Best Management Practices Handbook.National Poultry Improvement Plan 1506 Klondike Rd. Suite 101 Conyers, GA 30094 (770)922-3496.

3-Comercial chicken production manual. MACK O. NORTH North publishing company inc. Westport, connect 1984.

1- Journal of animal science.
2- Animal journal.
3- National Agriculture Library.
4- Agricultural Research Servicewww.ars.usda.gov
5- Agricultural Research Servicehttp://www.science.gov/search.html
6- Agriculture Network Information Centerhttp://www.central.agnic.org/
7- Agricultural researches http://images.google.com/images?q=+a...&start=20&sa=N

- Veterinary Medicine and Avian Disease Investigation Laboratory

17. The Topics:	**Lecturer's name**
In this section the lecturer shall write titles of all topics he/she is going to give during the term. This also includes a brief description of the objectives of each topic, date and time of the lecture Each term should include not less than 16 weeks The titles of the objects will be the following: Introduction Hatching system Management of hatchery Requirements of Hatching Egg composition Fertilization Embryonic Development Factors that effect on fertility of breeder stocks Factors related to embryonic development in eggs Mal positions (abnormalities) of embryos Treatment of hatching eggs in the production stocks In Ova Injection Visit local hatchery in practical lecturer	Lecturer's name Dr Nidhal A. Mustafa Dr. Haval I. Aziz ex:(2 hrs) ex:25/2/2023
18. Practical Topics (If there is any)	
In this section The lecturer shall write titles of all practical topics he/she is going to give during the term. This also includes a brief description of the objectives of each topic, date and time of the lecture **1st Lecture**:Course book introduce the lessons and it's important to studying with some examples for explaining more. **2nd Lecture**:Aim of the article: A detailed explanation ofwhat is the hatchery and its importance for hatching egg. **3rd Lecture:** Aim of the article: A detailed explanation for the design of building and division the parts of hatchery and the role of each parts, the daily work for hatchery.	Lecturer's name ex: (3 hrs) Delman D. Maulod Alaa ab. Mustafa ex:26/2/2023

4thLecture: The objective of the article: Showing theevolution and stages of embryonic development in theory and in practice.

- The period of embryonic development within the parent's body.
- The period of embryonic development outside the parent's body.
- Stages of embryonic development outside the parent's body.

Doing this process in scientific laboratory and hatching in order to apply the lessons.

5thLecture: Thepurpose of this lecture is explaining the incubation factors affect hatchery success include temperature, humidity,ventilation, turning and egg position). In addition to what will happen when each factor is incorrect (increase or decrease) and how will affect hatchability and chick quality.

6th Lecture: Visit the Gardarasha scientific field therefore to apply the lessons in the form of scientific theory and to see parts of the hatchery, and how to manage.

7th Lecture: The objective of the article: to address an important topic, a cleansing, evaporation and to display the importance of evaporation in each stage of the hatching in order to obtain good results at the end. Fumigation and disinfection, the most important materials used in this area and the proportion of materials and how to do the operation.

8th Lecture: The aim of this article is to illustrate themeasurements after hatching directly as chicks weight thencalculated the number of good or healthy chicks, Also the percentage of the number of hatched chicks calculated. The fertility rate also calculated.

9th Lect.: Aim of the article: The specifications of the quality of chick's one important indicator of the success of hatchery and used in the evaluation of laying hens or chicks mothers.
- External standards (body weight of chick, chick length, the case of the navel, physical handicap, dynamic chicks)
- Internal criteria.

10th Lect.: The objective of the article: discuss the embryonicmortality during stages of fetal development.

- Periods of fetal deaths (early period (early fetal deaths), the middle period (the average fetal deaths) and the recent period (late fetal deaths). Injected embryos, eggs and their effects onthe future performance of the chicken meat.

- Examination of eggs during the hatching process.

11th Lect.: The objective of the article: the processes taking place on the chicks after hatching. The naturalization of chicks, vaccinated chicks, debeaking, specification of quality chicks, chicken meat, breeding success starts from the fields of maternal and hatchery. **12th Lect.:** Doing this process in scientific laboratory and hatching in order to apply the lessons.The objective of the article: Showing the most important forms of the embryo inside the egg during the hatching process that affect the hatching. - Anomalies of the embryo. - The fate of the yolk sac in birds. - How to move the egg yolk to body chicks. - Transmission of HIV from mother to the chicks hatched. **13th Lect.**Doing some reports about the lect. **14th Lect.** Doing some reports about the lect.	

19. Examinations: Theory

1. True or false type of exams:

In this type of exam a short sentence about a specific subject will be provided, and then students will comment on the trueness or falseness of this particular sentence. Examples should be provided.

2. Multiple choices:
In this type of exam there will be a number of phrases next or below a statement, students will match the correct phrase.Examples should be provided.

3. Compositional: In this type of exam the questions usually starts with Explain how, What are the reasons for…?, Why…?, How….?
With their typical answers
Examples should be provided

4. Fill the blanks with suitable words.

5. Draw Table.

6. Numerate and point.

Q1/ Explain Positions of in-ovo injection with shape or point?

Q2/ Draw table of storage egg.

Q3/ Numerate all methods of Systems Incubation with an example.

Q4/ Pointe Methods of naturalization (chick sexing) with detail.

Q5/ Calculate capacity of hatchery

Practical

Q1/ Numerate the rules of egg storage.
Q2/ What are the daily duties (works) that you must to perform generally in hatcheries?

Q3/ a - What is the oviduct functions?

b - Write the length and egg stays in each parts of oviduct?

Q4/ How is the Stages of embryonic development out of the mother's body?

20. Extra notes:

Here the lecturer shall write any note or comment that is not covered in this template and he/she wishes to enrich the course book with his/her valuable remarks.

21. Peer review پێداچوونەوەی هاوەڵ

This course book has to be reviewed and signed by a peer. The peer approves the contents of your course book by writing few sentences in this section.
(A peer is person who has enough knowledge about the subject you are teaching, he/she has to be a professor, assistant professor, a lecturer or an expert in the field of your subject).

ئەم کۆرسبووکە دەبێت لەلایەن هاوەڵێکی ئەکادیمیەوە سەیر بکرێت و ناوەرۆکی بابەتەکانی کۆرسەکە پەسەند بکات و جەند ووشەیەک بنووسێت لەسەر شیاوی ناوەرۆکی کۆرسەکە و واژووی لەسەر بکات.
هاوەڵ ئەو کەسەیە کە زانیاری هەبێت لەسەر کۆرسەکە و دەبیت پلەی زانستی لە مامۆستا کەمتر نەبێت.