

Ministry of Higher Education and Scientific



**University of Salahaddin**

**College of Agricultural Engineering Sciences**

**Department of Animal Resource**

**Subject: Hatching & Hatchery Management**

**Course Book: 3<sup>rd</sup> grade**

**Lecturers' Names: MSc. Ayhan Jalal Khalil**

**MSc. Lecturer: Sami Mahdi Ahmed**

**Academic Year: 2022-2023**

## Course Book

<b>1. Course name</b>	<b>Hatching and Hatchery Management</b>
<b>2. Lecturer in charge</b>	<b>Ayhan Jalal Khalil</b>
<b>3. Department/ College</b>	<b>Animal resource</b>
<b>4. Contact</b>	<b>e-mail: aihan.khalil@su.edu.krd; Tel: (07507345477) sami.ahmed@su.edu.krd</b>
<b>5. Time (in hours) per week</b>	<b>Practical: 3</b>
<b>6. Office hours</b>	<b>6</b>
<b>7. Course code</b>	
<b>8. Teacher's academic profile</b>	<b>(Ayhan Jalal Khalil) I got Bsc. In 2000/2001 and after that I started working in agriculture college ,then I got Msc. In 2015, now an assistant lecturer in animal resources department.</b>
<b>9. Keywords</b>	
<b>10. Course overview:</b>	
<p>Many changes have taken place in hatcheries in recent years, such as the introduction of computer monitoring and control of the machines, and automation many day-to-day hatchery operations. Additionally, there is increasing awareness of role of the hatchery in disease</p> <p>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 design and hatching operations management ...etc. There is no text book for this class, students will be expected to take notes during lecture. Students must pay attention class to record their notes. Students that disrupt the class by talking during lecture will removed from the classroom. For this class, cell phones and other electronic devices <b>PROHIBITED</b> in the classroom.</p>	
<p>One hour lecture, two hours lab per</p>	
<b>11. Course objective:</b>	

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 hygiene. Disposal of hatchery waste. Sexing, grading, packing and dispatch of day chicks. Economics of hatchery business; Trouble shooting hatch failure: importance hatchery records, break even analysis of un-hatched eggs. Computer applications hatchery management Hatchery records and maintenance Th  
Factors affecting fertility and hatchability as well as ho

## **12. Student's obligation**

Quizzes will occur each week and will cover the material presented during the week lecture. Students will have 10 minutes at the beginning of the class period to the quiz. Students who arrive late will not be given extra time. All information during a lecture is fair game for a quiz. It is important to listen to everything the says, do not rely only on the PowerPoint. Students are required to attend each 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 lectures; this means no using cell phones during this time. Students are encouraged to notes during lecture to use as study material for the

## **13. Forms of teaching**

Power point  
White board  
Images  
Video

## **14. Assessment scheme**

**Marks of the Exam: 35 Marks of the total term divided as :**

Two exams will be done with quiz and activities .

Practical Exams (2 exam 2\*15 marks + quizzes and activities 5 marks) = 35 Marks

**15. Examination**

**Q1/ Numerate the rules of egg storage. (5 Marks)**

**Q3/ a - What is the oviduct functions? (2.5 Marks)**

**b - Write the length and egg stays in each parts of oviduct? (2.5 Marks)**

**Q4/ How is the Stages of embryonic development out of the mother's body? (5 Marks)**

**16. Student learning outcome:**

- A. Technical Thinking: the student will demonstrate competence of technical subject matter in poultry sciences.
- B. Communication Skills: The student will demonstrate effective oral and written communication skills.
- C. Leadership Skills: 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.

**17. Course Reading List and References:**

- 1- Journal of animal science.
- 2- Animal journal.
- 3- National Agriculture Library.
- 4- Agricultural Research Service [www.ars.usda.gov](http://www.ars.usda.gov)
- 5- Agricultural Research Service <http://www.science.gov/search.html>
- 6- Agriculture Network Information Center <http://www.central.agnic.org/>
- 7- Agricultural researches <http://images.google.com/images?q=+a...&start=20&sa=N>
- 8- Veterinary Medicine and Avian Disease Investigation Laboratory.
- 9- Web site: <http://www.biology-resources.com/all-biology-experiments.html>
- 10- Web site: [http://higherred.mcgraw-hill.com/sites/0072495855/student\\_view0/chapter10/](http://higherred.mcgraw-hill.com/sites/0072495855/student_view0/chapter10/)

With internet web sites and some new researches until 2018.

<b>18. The Topics:</b>	<b>Lecturer's name</b>
<p><b>1<sup>s</sup> Lecture:</b> Course book introduce the lessons and it's important to studying with some examples for explaining more.</p>	<p>Ayhan J. Khalil (3 hrs)</p>
<p><b>2<sup>n</sup> Lecture:</b> Aim of the article: A detailed explanation of what is the hatchery and its importance for hatching egg.</p>	<p>Ayhan J. Khalil (3 hrs)</p>
<p><b>3<sup>r</sup> Lecture:</b> 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.</p>	<p>Ayhan J. Khalil (3 hrs)</p>
<p><b>4<sup>t</sup> Lecture:</b> The objective of the article: Showing the evolution and stages of embryonic development in theory and in practice.</p> <ul style="list-style-type: none"> <li>- The period of embryonic development within the parent's</li> <li>- The period of embryonic development outside the parent's</li> <li>- Stages of embryonic development outside the parent's</li> </ul>	<p>Ayhan J. Khalil (3 hrs)</p>
<p>Doing this process in scientific laboratory and hatching order to apply the lessons.</p>	<p>Ayhan J. Khalil (3 hrs)</p>
<p>_____ The purpose 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.</p>	<p>Ayhan J. Khalil (3 hrs)</p>
<p><b>6<sup>t</sup> Lecture:</b> 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.</p>	
<p>_____ 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.</p>	<p>Ayhan J. Khalil (3 hrs)</p>

<p>The aim of this article is to illustrate the measurements after hatching directly as chicks weight then calculated the number of good or healthy chicks, Also the percentage of the number of hatched chicks calculated. The fertility rate also calculated.</p>	<p>Sami M. Ahmed (3 hrs)</p>
<p><u>                    </u>m 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.</p>	<p>Sami M. Ahmed (3 hrs)</p>
<p><u>                    </u> The objective of the article: discuss the embryonic mortality 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 on the future performance of the chicken meat.  - Examination of eggs during the hatching process.</p>	<p>Sami M. Ahmed (3 hrs)</p>
<p><u>                    </u> e 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.</p>	<p>Sami M. Ahmed (3 hrs)</p>
<p><u>                    </u> 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.</p>	<p>Sami M. Ahmed (3 hrs)</p> <p>Ayhan J. Khalil + Sami M. Ahmed (3 hrs)</p> <p>Ayhan J. Khalil + Sami M. Ahmed (3 hrs)</p>

**19. 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.

**20. Peer review**

پیداچووندهوی ھاوہن

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).*
