

# [ INCUBATION MANAGEMENT ]

The incubation constitutes the foundation of every poultry and every egg production operation. A good quality chick is key to maximize meat and egg production for consumption.

An essential requirement for all professionals and operators involved in poultry production is knowing about egg management from the breeder farm until the chicks are born. This course provides a general overview of the best practices in each stage of the process.

## WHAT WILL I LEARN IN THIS COURSE?

At the end of this course, you will:

- Value the impact of the previous tasks performed at the breeder farm and during transport on the success of the incubation process.
- Describe the characteristics that the site, the design and the management flows of a hatchery should have to achieve optimum productive results.
- Identify the main egg defects or anomalies to classify the eggs as unsettable and isolate them.
- Describe the steps that the eggs and the newborn chicks must go through inside the hatchery.
- Recognize the importance of permanent care in egg management, especially during their handling and maintenance of environmental, hygiene and biosecurity conditions.
- Identify the temperature, relative humidity, ventilation, and position that eggs must remain during the different stages at the breeder farm, transport, and the different areas inside the hatchery.
- Describe the problems that hatching eggs and newborn chicks may present, and the methods through which they can be identified and minimized.

## WHEN CAN I DO IT? HOW LONG WILL IT TAKE?

You can decide:

- **Dates and times.** The course is available 24 hours, every day, for 6 months after registration.
- **Duration of each learning session.** The duration of each module and resource that is shown here constitutes an estimate. You can follow your own pace and momentarily leave a module to continue whenever you want (when you return to the interactive multimedia module, the system will automatically take you to the last visited screen).

Although, the schedule is flexible, you will receive reminders to help you to maintain a good pace of learning, and to successfully complete the course.

## WHERE CAN I DO IT?

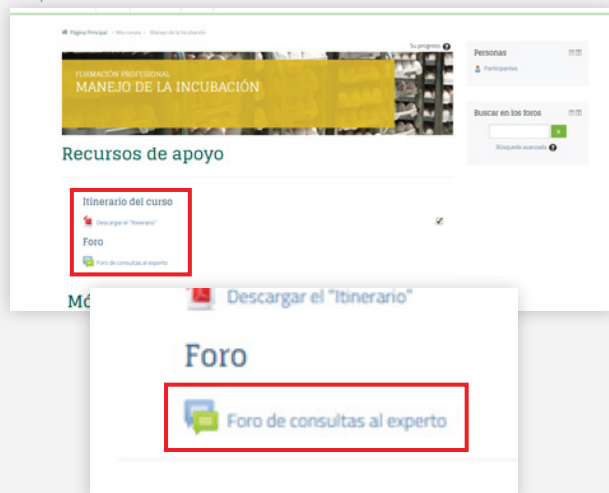
You can choose the device (PC / tablet / mobile phone) and the navigation way (online / offline without the need for a permanent connection to internet, through the **anpro campus** app).

## WHAT CAN I DO IF I NEED HELP?

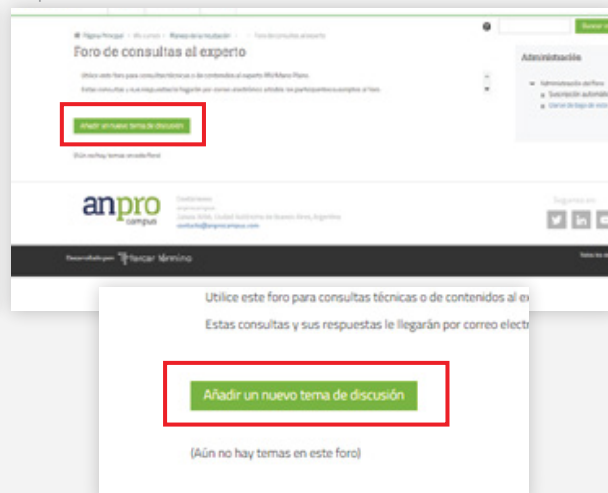
You will have:

- **Support from the expert.** Although the course includes clear and simple explanations, understandable for people with different levels of experience and previous training, you will be able to send queries about the contents to the course expert through the course Forum.

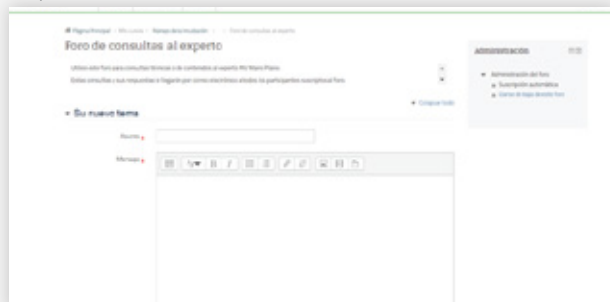
Step 1



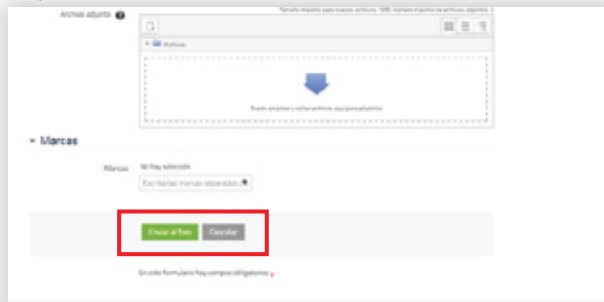
Step 2



Step 3



Step 4



- **Technical support.** You will be able to consult about the navigation of the course and possible technical issues, by sending a message to [help@anprocampus.com](mailto:help@anprocampus.com).

## WHAT WILL I FIND IN THE COURSE?

In each module of the course you will find an **interactive multimedia resource**, with the central contents explained through audio, videos, animations, images, graphics, and interactive diagrams, reading materials and review activities. Also, you can download a **PDF version** (that you can use as a review when necessary). On the other hand, in some modules you will find **tasks** (activities with a practical application or collaboration with other students that may be mandatory or optional) and other **extra resources** (for example, PDF documents to download).

## WHAT SHOULD I DO TO PASS THIS COURSE AND OBTAIN THE ANPROCAMPUS CERTIFICATION?

You will have to:

1. **Complete 100% of the mandatory modules.** To check this, make sure all modules have the check on the progress box.

If one does not have it, enter that module and review in the "Check" area that all the screens have a green check mark (otherwise, click on those with a red "X" to go through them).

2. **Complete the survey** of the course.

3. **Complete and pass the examination** of the course (at least 70% of the answers should be correct in one of three possible attempts).

4. **Download your Certificate of Completion.**



## WHAT STEPS SHOULD I FOLLOW TO GO THROUGH THE CONTENTS OF THE COURSE?

Take the following steps:

### STEP 1

Before starting, check if you have enough basic knowledge and decide if it is necessary to perform one or more of the following **OPTIONAL EXTRA MODULES** (which you will find at the end of the module access screen).



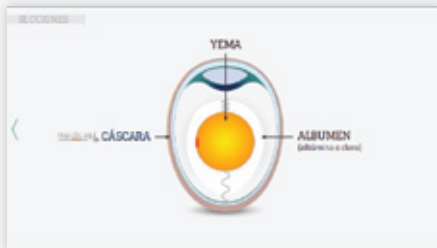
These modules include the following resources and contents:



#### THE REPRODUCTIVE SYSTEM OF THE HEN

 Interactive multimedia module (18 minutes).

Location of the reproductive system in the hen. Structure: components and their characteristics. Stages of development.



#### STRUCTURE OF THE EGG

 Interactive multimedia module (15 minutes).

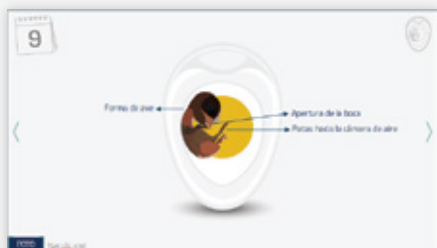
Parts of the egg and their characteristics. Factors that affect the structure of the egg. Changes over time.



#### FORMATION OF THE EGG

 Interactive multimedia module (3 minutes).

Stages of egg formation inside the reproductive system of the hen.



#### EMBRYOGENESIS: CHICK EMBRYO DEVELOPMENT

 Interactive multimedia module (18 minutes).

Duration of the embryonic development of the chick. Main daily events during development.

## STEP 2

Later, start going over the different **MANDATORY MODULES** of the course.

These modules include the following resources and contents:



### MODULE 01: INTRODUCTION

**Interactive multimedia module (8 minutes).**

The artificial incubation: what is it and why is it artificially done, benefits that provides to the current process of poultry production. Challenge that created the genetic evolution over the incubation period.

Concepts presented by Carlos Mario Plano, MV and expert of the course.



### MODULE 02: NEST MANAGEMENT AND EGG COLLECTION AT THE FARM

**Interactive multimedia module (14 minutes).**

Main recommendations to keep in mind on egg laying (house and nest design, bird management, feeding, hygiene and quality controls) and on egg collection (methods and elements, frequency, care, and hygiene).



### MODULE 03: SELECTION OF HATCHING EGGS

**Interactive multimedia module (33 minutes).**

What are the hatching eggs, reasons why they are selected and their characteristics. Different selection methods. Unsettable eggs: criteria for identification, main defects that may be found, causes and possible consequences if they continue the incubation process. Correct placement of the selected eggs in the incubation trays.

**Task: Recognition of unsettable eggs (optional activity).**

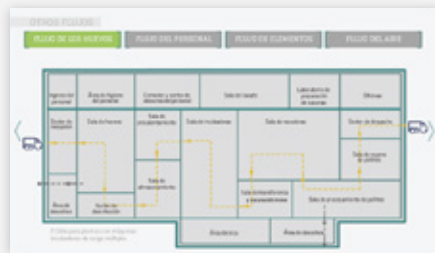
Invitation to take and send pictures of eggs with defects to create a picture gallery with the other coursemates.



### MODULE 04: CLEANLINESS, DISINFECTION, AND TRANSPORT OF THE HATCHING EGG

**Interactive multimedia module (12 minutes).**

Correct method for cleaning the egg. Reason, time, methods, and disinfection products. Conditions and optimal storage duration. Preparation and conditions for the transport of eggs to the hatchery.



## MODULE 05: THE DESIGN OF THE HATCHERY

Interactive multimedia module (25 minutes).

Importance of the correct location of the hatchery (distance to other facilities and altitude of the area). Recommendations to take into account in the construction project of the hatchery and infrastructure planning. Areas in which a hatchery is divided, recommended characteristics and optimal environmental conditions. Distribution of the areas to accomplish the operative efficiency and biosecurity. Flow of eggs, staff, elements, and air.

Task: Self-diagnosis of environmental conditions in the hatchery (optional activity).

Invitation to make a diagnosis of the environmental conditions of the hatchery where you work, using a table with the recommended ventilation, temperature, relative humidity, and atmospheric pressure values.

Incubator manufacturer directory

List with contact information for the main incubator manufacturers in the market.



## MODULE 06: MANAGEMENT OF THE EGG AT THE HATCHERY

### UNIT 1

#### Management of the eggs at the hatchery before incubation

Interactive multimedia module (15 minutes).

Importance of management inside the hatchery. Factors that affect the management. Recommendations to follow for the reception of eggs, the quantity control, the location in the egg room, and the placement in the incubator trays. Egg storage: why is it done, duration and recommended conditions. Pre-warming of eggs: why is it done, where and under what conditions.



### UNIT 2

#### Incubation of eggs

Interactive multimedia module (28 minutes).

Duration of incubation. Loading of eggs in the incubator. Single and multi-stage incubators (horizontal and vertical loading system). Characteristics, advantages, and disadvantages of each type of incubator. Maintenance and control of parameters during the incubation, according to the type of machine. Environmental conditions: importance, recommended values and ways of measuring temperature, humidity, and ventilation. Location of the egg inside the machine: how often, how, and why is the regular turning of the eggs done. Washing and disinfection of the machines and rooms.



### UNIT 3

#### Transfer to the hatcher and hatching

Interactive multimedia module (23 minutes).

Transfer of eggs to the hatcher: where and why is it done, when is the right time to do it, how to identify it and what factors can affect it, what should the duration be, how is it done according to the equipment available. Detection of problems in eggs through ovoscopy during the transfer. The in-ovo vaccination as an optional step: why is it done, how is it applied and what care should be taken. Placement of eggs in the hatcher baskets, transfer and loading into the machines. Environmental conditions, duration of this stage and birth control (birth window). Washing and disinfection of machines and rooms.



### UNIT 4

#### Management of newborn chicks

Interactive multimedia module (14 minutes).

Chick processing tasks: final selection and evaluation of the quality and viability of the chicks, transfer to the transport boxes, division by sex, vaccination, and quantity count. Equipment and care during the process. Stacking of boxes and conditions in chick waiting room. Appropriate conditions for the dispatch and transport.



Recognition of common situation at the hatchery. (optional activity)

You are invited to watch some photographs taken at a hatchery with elements and situations frequently seen during normal operation. We propose you take a look to each one and answer the different instructions.



## MODULE 07: IDENTIFICATION OF PROBLEMS DURING INCUBATION

### UNIT 1

#### Identification of problems during incubation

Interactive multimedia module (8 minutes).

Factors involved during the incubation. Incidence of problems and different ways of evaluating it. Necessary definitions to prevent problems. Time and methods to identify problems. Why is it important to learn to identify problems. What to do after identifying them.





## UNIT 2

### Identification of problems in unborn hatching eggs

Interactive multimedia module (34 minutes).

Time and methods to identify problems in hatching eggs. The method of embryo diagnosis: what is it, who participate in it and what are the roles. Preparation, methods, and records. Classification of problems: identifiable characteristics and probable causes. Quantification of results and comparison to normal values. Review of causes, improvement actions and monitoring.



## UNIT 3

### Identification of problems in newborn chicks

Interactive multimedia module (25 minutes).

Time for identification of problems in newborn chicks. Expected quality, and reasons and criteria for isolation of chicks with problems. Identification methods. Types of problems that can be found: identifiable characteristics and probable causes. Quantification of results and detection of prevalent problems. Review and investigation of causes. Improvement actions and monitoring.



## MODULE 08: BIOSECURITY AND MAINTENANCE AT THE HATCHERY

Interactive multimedia module (28 minutes).

Requirements for a correct operation of the hatchery. Health risks and importance of biosecurity. Measures for the achievement and maintenance of biosecurity: control of vehicle and people access, incubation control, cleaning and disinfection program, fumigation of chambers, integrated pest management and waste disposal/treatment. Importance and key preventative maintenance of equipment and systems.

## STEP 3

After finishing the modules, if you desire to obtain the course certification, enter, and complete the following resources:

Survey (maximum 10 minutes)

Questionnaire to express opinions and comments about the course, its contents, methodologies, and resources, collaborating to make improvements in future editions.





**Examination (55 minutes as an estimate, will vary depending on the pace of each student).**

Questionnaire with 55 multiple-choice questions, related to all the mandatory modules of the course. The minimum percentage to pass the examination: 70% of correct choices. Facing an eventual disapproval, it is possible to retake the examination (two more attempts with different questions in each one).



**Certificate of Completion**

After you have approved the examination, you will be able to download your Certificate of Completion (and print it if you will).

ESTIMATED TOTAL DURATION (Step 1 to 3): **540 minutes (9 hours)**

## STEP 4

If you desire, access the list of recommended bibliography where you will find suggestions for books, manuals and articles related to the subject of the course, through which you can complement your training.