

Eggs and Egg Products

Code: 102646
ECTS Credits: 3

Degree	Type	Year	Semester
2501925 Food Science and Technology	OT	4	2
2502445 Veterinary Medicine	OT	5	0

The proposed teaching and assessment methodology that appear in the guide may be subject to changes as a result of the restrictions to face-to-face class attendance imposed by the health authorities.

Contact

Name: Reyes Pla Soler
Email: Reyes.Pla@uab.cat

Use of Languages

Principal working language: catalan (cat)
Some groups entirely in English: No
Some groups entirely in Catalan: Yes
Some groups entirely in Spanish: No

Teachers

Ana Cristina Barroeta Lajusticia
Eduard Grau Noguer

Prerequisites

There are no prerequisites, but it is convenient for the student to refresh the knowledge acquired in the subjects of the previous courses: Microbiology and parasitology, Analysis and control of food quality, Food toxicology, Food Microbiology and Processing Methods I and II.

Objectives and Contextualisation

The subject "Eggs and eggproducts" is an optional subject of the "materia "Food Technology" that aims to give an overview of the most important aspects in the production, conservation and transformation of eggs.

The main objectives are:

- Identify the composition, variability and the most important factors that affect the raw material. Recognize technical issues of a productive nature or of raw materials.
- Identify the physical and biochemical processes that occur after placing and during conservation, in order to maintain their quality
- Know the indicators of freshness and the most suitable means to maintain their quality.
- Determine the conservation and transformation processes and the physical-chemical, microbiological and sensory changes that take place.
- Establish the quality control applicable to the egg and egg products industry and to base the conditions of production, transformation, distribution and use.
- Diversify the products and know the integral use of all components of the egg.

Competences

Food Science and Technology

- Analyse, summarise, resolve problems and make professional decisions.
- Apply knowledge of the basic sciences to food science and technology.
- Apply the principles of processing techniques and evaluate their effects on the quality and safety of the product.
- Apply the scientific method to resolving problems.
- Develop individual learning strategies and planning and organisation skills.
- Identify pathogenic, spoilage, and industrially-useful microorganisms, along with the conditions that are favourable or unfavourable to their growth in foods and in industrial and biotechnological processes.
- Search for, manage and interpret information from different sources.
- Show understanding of the mechanisms by which raw materials deteriorate and the reactions and changes that take place during storage and processing, and apply the methods for controlling this.
- Use IT resources for communication, the search for information within the field of study, data processing and calculations.

Veterinary Medicine

- Analyse, synthesise and resolve problems and make decisions.
- Apply food technology to the preparation of food for human consumption.
- Comunicar la informació obtinguda durant l'exercici professional de manera fluïda, oralment i per escrit, amb altres col·legues, autoritats i la societat en general.
- Demonstrate knowledge of the rights and duties of the veterinarian, with a special focus on ethical principles
- Demonstrate knowledge, understanding and differentiation of the main biological agents of veterinary interest.

Learning Outcomes

1. Analyse the importance of microorganisms in foods and understand the biotic and abiotic factors that affect their development in these substrates.
2. Analyse the importance of microorganisms in the field of food and understand the biotic and abiotic factors that affect development in these substrates.
3. Analyse, summarise, resolve problems and make professional decisions.
4. Analyse, synthesise and resolve problems and make decisions.
5. Apply the scientific method to resolving problems.
6. Apply the technological processes that are specific to milk and dairy products, meat and meat derivatives, fish products, egg products and vegetable products, and understand the modifications to the final product that these processes make.
7. Communicate information obtained during professional exercise in a fluid manner, orally and in writing, with other colleagues, authorities and society in general.
8. Describe the processes of spoilage and deterioration of foods.
9. Develop individual learning strategies and planning and organisation skills.
10. Identify the control parameters of deterioration and spoilage processes.
11. Recognise the changes, alterations and adulterations suffered by milk, meat, fishing products, eggs, plants and derived products, as well as products made in collective catering establishments.
12. Recognise the changes, spoilage and adulterations that can affect milk, meat, fish products, eggs, vegetables and products deriving from these, and also products made in group catering businesses.
13. Recognise the circumstances that cause milk, meat, fishing products, eggs, plants and derived products, as well as products made in collective catering establishments to be unfit for human consumption and justify why.
14. Recognise the dangers to milk, meat, fishing products, eggs, plants and derived products, as well as products made in collective catering establishments, and evaluate the risk involved for different consumers.
15. Recognise the influence of the intrinsic, extrinsic and implicit characteristics of milk, meat, fishing products, eggs, plants and derived products, as well as products made in collective catering establishments, in the presence or persistence of a danger.
16. Recognise the role of microorganisms as causal agents of food-transmitted diseases.

17. Recognise the role of microorganisms as causal agents of foodborne disease and appreciate their role in industrial processes.
18. Relate the characteristics of foods to their physical properties.
19. Search for, manage and interpret information from different sources.
20. Select food conservation methods that slow down deterioration.
21. Select processes of conservation, transformation, transport and storage that are suited to foods of animal and plant origin.
22. Select suitable conservation, transformation, transport and storage processes for foods of animal and plant origin.
23. Use IT resources for communication, the search for information within the field of study, data processing and calculations.

Content

Topic 1. Introduction. Production uses and consumption.

Topic 2. Production of eggs. Influence on quality. Modification nutritional value: functional eggs.

Topic 3. Structure and composition. Functional properties of the components

Topic 4. Physical-chemical quality of the whole egg. Non-destructive methods. Microbiological quality.

Topic 5. Handling, packaging and preservation. Changes during conservation. Regulations

Topic 6. Egg products: definition, description and uses.

Topic 7. Obtaining liquid egg: stages. Parameters. Pasteurization. Conservation Quality

Topic 8. Cooling and Freezing. Characteristics.

Topic 9. Dehydration and concentration. Elimination of glucose. Packaging and preservation. Characteristics.

Topic 10. Hard cooked eggs. Production and parameters. Conservation and quality.

Topic 11. Other direct consumption products: description, processing and conservation.

Topic 12. By products: total recovery of the components: shell, membranes. Fractionation and specific uses.

*"** Unless the requirements enforced by the health authorities demand a prioritization or reduction of these contents."*

Methodology

Methodology

The development of the course is based on the following activities:

Face to face or online:

- 1) Theoretical classes: consisting of master classes with ICT support,
- 2) Practical classes: laboratory sessions where we will work with quality analysis techniques and procedures.
- 3) Visit to a farm, packing center and classification facilities.
- 4) Seminars for resolution and presentation of self-learning activities: 2 sessions will be carried out (total 4h). Dur
- 5) Tutorials: the student will have to perform at least two tutorials throughout the course to monitor the work of se

Non-contact:

- 1) Individual and group self-realization activities: the student will have to perform 2 activities, which will be presen

***The proposed teaching methodology may experience some modifications depending on the restrictions to face-*

Activities

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Lab practical	4	0.16	6, 21
Seminars	4	0.16	4, 6, 7, 21, 23
Theory	15	0.6	1, 2, 6, 8, 10, 17, 16, 12, 11, 14, 18, 21, 22, 20, 15, 13
Visit	2	0.08	6, 21
Type: Supervised			
Tutorials	2	0.08	6, 21
Type: Autonomous			
Case preparation	13	0.52	4, 5, 6, 19, 7, 9, 10, 12, 18, 21, 23
Self Study	33	1.32	6, 9, 21

Assessment

Evaluation

The competences of this subject will be evaluated by means of:

- Control of topics 1 through 12 and activities related to individual self-learning and / or the practices performed i
- Self-learning activities (two): both the written work and the presentation of the work will be valued, they will hav
-
- Attendance to the visit and the presentation and evaluation of the questionnaire of the sessions of laboratory p

It will be considered that a student is not evaluable if he has participated in assessment activities that represent ≤

To pass the course, it is asked:

a) a minimum of 4 points (out of 10) in each of the controls; If you do not arrive at this note, you must present you

b) A minimum of 6 points (out of 10) in the self-learning activities. c) Have attended at least 70% of the practical s

*"*Student's assessment may experience some modifications depending on the restrictions to face-to-face activities enforced by health authorities."*

Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Attendance to the visit, labs, and previous test	30%	0	0	3, 4, 5, 6, 19, 7, 9, 21, 23
Case preparation	20%	0	0	6, 8, 10, 12, 11, 18, 21, 22, 20, 15, 13
Control	Control	2	0.08	1, 2, 6, 8, 10, 17, 16, 12, 11, 14, 18, 21, 22, 20, 15, 13

Bibliography

BIBLIOGRAFIA (llibres disponibles a la biblioteca)

Burle R.W. i D.V. Vadehra (1989) The avian egg. Chemistry and biology. Ed. John Wiley & Sons, Inc., New York, USA.

Castelló Llobet, J. A. (2010) Producción de huevos Arenys de Mar, Real Escuela de Avicultura.

Mead G. C. (ed.) (2009) Análisis microbiológico de carne roja, aves y huevos. Ed. Acribia Zaragoza.

Mountney G.J. (1983) Poultry products technology. Ed. Avi Pub. Co., Inc., Westport, USA.

Nau F. (2010) Science et technologie de l'oeuf. Tec & Doc / Lavoisier, París.

Olson V.M. i W.J. Stadelman (1988) Egg and poultry meat processing. Ed. Technisciences, París.

Parkhurst C.R. i G.J. Mountney (1988) Poultry meat and egg production. Ed. Van Nostrand Reinhold Co., New York.

Sauveur B. (1988) Reproduction des volailles et production d'oeufs. Ed. Institut National de la Recherche Agronomique, Paris.

Sim J.S. i S. Nakai (1994) Egg uses and processing technologies. New developments. CAB Int. Oxon.

Solomon S.E. (1990) Egg and eggshell quality. Ed. Wolfe Pub. Ltd., Kent, UK.

Stadelman W.J. i O.J. Cotterill (1990) Egg science and technology. 4th ed. Ed. Avi Pub. Co. Inc., Wesport, USA.

Stadelman W.J., V.M. Olson, G.A. Shemwell i S. Pasch (1989) Egg and poultry-meat processing. Ed. VCH Publishers, New York, USA.

Thapon J-L iBourgeois C-M (1995) L'Oeuf et les ovoproduits Tech & Doc, Paris

Wells R.G. i C.G. Belyavin (Eds.) (1987) Egg quality- Current problems and recent advances. Ed. Butterworth & Co., Ltd., Kent, UK.

Yamamoto T. (1997) Hen eggs : their basic and applied science Boca Raton CRC.

BIBLIOGRAFIA (llibres disponibles online)

[Egg Innovations and Strategies for Improvements](#)

[Egg marketing: a guide for the production and sale of eggs FAO 2003](#)

[Risk assessments of salmonella in eggs and broiler chickens FAO 2002](#)

WEB

<http://www.aeb.org/>

<http://www.institutohuevo.com>

<http://www.wpsa-aeca.es/>

<https://www.internationalegg.com>

<http://www.sanovogroup.com/>

<http://www.eggsite.dk/>

<http://www.bnlfood.com/>

<http://www.lecoque-eggs.be/>

http://www.fsis.usda.gov/regulations/Meat_Poultry_Egg_Inspection_Directory/index.asp