Universitat Autònoma de Barcelona

2023/2024

Improving the Quality of Food From the Food Industry

Code: 43033
ECTS Credits: 9

Degree	Type	Year	Semester
4313796 Quality of Food of Animal Origin	OB	0	1

Contact

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Teaching groups languages

You can check it through this link. To consult the language you will need to enter the CODE of the subject. Please note that this information is provisional until 30 November 2023.

Teachers

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Àngels Videla. Pescados Videla

Prerequisites

No official requirements are defined for this course. However, we strongly recommend that the student has basic knoledgement in general process at the food industry, and Food chemistry and composition.

Objectives and Contextualisation

To establish criteria for proper food processing to ensure its quality, taking into account all stages until the food reaches the consumer.

To study conventional processes applied in the agri-food industry to products of animal origin, referred to the quality module from the farm as well as their derivatives. It involves using appropriate criteria to the characteristics of processed food consumption and identifying relevant issues that affect and determine their quality at different stages of the process, from previous treatments until the product reaches the consumer. It's also included the study of different aspects that affect and guarantee product quality such as composition, physical, chemical, biochemical and microbiological properties as well as the proper use of additives.

Competences

- Continue the learning process, to a large extent autonomously.
- Design, organise and execute projects related to this field of study, working alone or in a unidisciplinary or multidisciplinary team, displaying a critical sense and creativity, and the ability to analyse, synthesise and interpret information.
- Distinguish the quality parameters of fresh and processed foods in accordance with their standards.
- Establish appropriate processes for maintaining or improving the quality of fresh and processed foods in accordance with their quality standards.
- Integrate knowledge and use it to make judgements in complex situations, with incomplete information, while keeping in mind social and ethical responsibilities.
- Search for information using the appropriate channels and use this information to solve problems in the work context.

Learning Outcomes

1. Choose the correct packaging and storage conditions for the product until it is consumed.
2. Choose the most important quality-control parameters for the process and the final product and the parameters for determining the food's shelf life.
3. Continue the learning process, to a large extent autonomously.
4. Decide on ingredients to use, and identify their functions.
5. Describe the stages of food production, identifying their impact on the overall process and on the characteristics of the final product.
6. Establish the essential quality parameters for defining quality.
7. Identify the modifications that can take place during the processing and storage of the product.
8. Integrate knowledge and use it to make judgements in complex situations, with incomplete information, while keeping in mind social and ethical responsibilities.
9. Present one's own work or discussions arising from the different courses within the module, in oral and/or written form and following scientific and technical criteria.
10. Relate the composition of a food to its characteristics.
11. Use scientific and technological criteria when choosing treatments to be applied.
12. Use search tools correctly when completing the activities in the module, and show that the information found has been used, interpreted and integrated.

Content

Milk and dairy products

- Milk: Influence of previous treatments on the quality of milk and derivatives. Influence of heat treatments on the quality of milk and derivatives.
- Yogurt and fermented milks: Initial quality of milk for the preparation of yogurt and fermented milks. Influence of the process on the quality of the final product. Use of microbial cultures for quality improvement. Defects in yogurts and fermented milks.
- Cheese: Initial quality of milk for cheese making. Cheese production procedures and their influence on the quality of the final product. Cheese defects.
- Other dairy products: Ice cream, cream, butter, milk powder, condensed milk.

Meat and meat products

- Quality of fresh meat: strategies in slaughterhouses and cutting rooms. Sanitary, organoleptic quality and shelf life.
- Injected meats: differentiation between legislation, organoleptic and nutritional quality. Ingredients and additives according to their function. Industrial performance.
- Restructured meats: applicable technologies, ingredients and necessary additives. Design potential of meats of desired composition.
- Quality of heat-treated meat derivatives according to business objectives: desirable properties of raw materials and evolution of products over the years.
- Quality of the fermented meat derivatives according to business objectives: desirable properties of the raw materials and evolution of the products over the years.

Fish and derived products.

- Optimization of the processing offishery products: based on the quality factors already known for each type of product and pursuing benefits for the environment, for the industry and for the consumer.
- Assessment of the quality of fish and processed products: delve into the most recent contributions of instrumental and sensory analytical methods.

Eggs and egg products.

- Quality assessment: current methodologies applicable to shell eggs, non-destructive and to the most widely used isolated components and their derivatives in the industry.

Methodology

The methodology of the module will be based on master classes, lectures by professionals, seminars, laboratory practices and work presentations by students through self-study work. Some visits are also scheduled.

Milk and dairy products:

- *Master classes*
- *Visit* to a oficial laboratory.
- Laboratory:
  Influence of factors affecting yogurt production process on quality, and quality control of the final product.
  Influence of the coagulation of milk and curd whey on cheese quality.
  Cheese quality control.
- *Conference* dictated by a professional of the sector:Ice cream quality at industry.
- *Self-learning*: students, in small groups (2-3 people depending on enrolled), will study the main effects that determine the quality of different dairy products by oral presentation.

Meat and meat products:

- *Master classes.*
- *Self-learning*: Students, in small groups or individually will study one of the topics proposed in more depth by oral presentation.
- *Laboratory*:Use of additives in meat products and their influence on the final quality.

Fish and derived products

- *Master classes.*
- *Visit* to an industry of the fish sector.
- *Conference* dictted by a professional of the sector.

Eggs and egg products

- *Master classes.*
- Laboratory;Methods of evaluation of the quality of the raw material.
- *Self-learning* together wit fish and products.

Annotation: Within the schedule set by the centre or degree programme, 15 minutes of one class will be reserved for students to evaluate their lecturers and their courses or modules through questionnaires.

Activities

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Laboratory	18	0.72	6, 7, 8, 3, 10, 2
Lectures	31	1.24	4, 5, 6, 7, 8, 10, 11, 2, 1
Seminars and conferences	21	0.84	8
Type: Supervised			
Supervised work	32	1.28	4, 12, 5, 6, 7, 9, 8, 3, 10, 11, 2, 1
Type: Autonomous			
Bibliographic work and autonomous study	123	4.92	4, 12, 5, 6, 7, 9, 8, 3, 10, 11, 2, 1

Assessment

The part corresponding to the competences evaluation of this module will be assessed by subjects:

- Milk and dairy products: completion, presentation and discussion of self-learning work (33.3%).
- Meat and meat products: completion, presentation and discussion of the self-learning work (33.4%)
- Fish and egg products: will be evaluated together. Completion, presentation and discussion of self-learning work (33.3%)

This course does not provide for a single evaluation system.

Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Assistance and active participation in lectures	5-10%	0	0	12, 8
Co-evaluation of work by classmates	15-20%	0	0	8, 3
Oral defense of self-learning	60-65%	0	0	4, 12, 5, 6, 7, 9, 8, 3, 10, 11, 2, 1
Tutorial attendance:	10-15%	0	0	12, 9, 8, 3

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- CHANDAN, R. C.; KILARA, A., SHAH, N.P. (2008). Dairy Processing and Quality Assurance. John Wiley & Sons, New York, USA.
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- FOX, P.F. (2004). Cheese: chemistry, physics and microbiology. Vol. 1. General aspects. Vol. 2. Major cheese groups. Elsevier Academics, Amsterdam.
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- TAMINE, A. Y. (2009). Milk Processing and Quality Management. John Wiley & Sons, New York, USA.
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- WEHR, H.M., FRANK, J.F. (2004). Standard methods for the examination of dairy products. American Public Health Association, Washington, USA

Electronic resources:

- Libros electrónicos http://www.knovel.com/web/portal/browse/subject/60/filter/0/
- Science Direct http://www.sciencedirect.com/science/book/9780126726909
- Scopus http://www.scopus.com/home.url
- Journal of Dairy Research http://journals.cambridge.org/action/displayJournal?jid=dar
- Journal of Dairy Science http://www.journalofdairyscience.org/
- International Dairy Journal http://www.journals.elsevier.com/international-dairy-journal/
- Dairy Science and Technology (Le Lait) http://www.dairy-journal.org/
- ILE, Industrias Lácteas Españolas http://dialnet.unirioja.es/servlet/revista?codigo=2831
- Milchwissenschaft http://www.milk-science-international.com/

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- technologies. Woodhead Publishing, Cambridge, Regne Unit.

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Electronic resources (acces from a PC conected to a UAB IP or throuot xpv):

- http://www.knovel.com/web/portal/main (apartado Food Science)
- http://www.sciencedirect.com
- Encyclopedia of meat science
- Encyclopedia of food and nutrition
- Scientific and technic journals:
- Fleischwirtschaft International
- Journal of Muscle Foods
- Meat Science
- Poultry Science

WEBS:

- American Meat Institute (AMI): http://www.meatami.com.
- International Meat Secretariat (IMS): http://www.meat-ims.org.
- World's Poultry Science Association (WPSA): http://www.wpsa.com.
- Asociación Española de Empresas de la Carne (ASOCARNE): http://www.asocarne.com.
- Asociación de Industrias de la Carne de España (AICE): http://www.aice.es.

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- LUTEN J.B. [et al.] (2003) Quality of fish from catch to consumer: labelling, monitoring and traceability.Wageningen Academic Publisher
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WEBS

- http://www.fao.org/
- http://www.seafood.nmfs.noaa.gov/Program_Services.html
- http://www.qim-eurofish.com/
- http://www.seafoodsource.com/
- http://www.eurofishmagazine.com/
- http://www.ift.org/

- http://www.intrafish.com/
- http://www.conxemar.com/v_portal/apartados/apartado.asp

Eggs and derived products:

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- YAMAMOTO T. (1997) Hen eggs: their basic and applied science Boca Raton CRC.
- Electronic resources
- Egg marketing: a guide for the production and sale of eggs FAO 2003
- Risk assessments of salmonella in eggs and broiler chickens FAO 2002
- Biochemistry of Foods (Third Edition) en http://www.sciencedirect.com/science/book/9780122423529

WEBS

- http://www.aeb.org/
- http://www.institutohuevo.com
- http://www.wpsa-aeca.es/
- https://www.internationalegg.com
- http://www.sanovogroup.com/

Software

No specific programs are required.