Improving the Quality of Food From the Food Industry 2015/2016

Code: 43033
ECTS Credits: 9

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

Contact

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Use of languages

Principal working language: spanish (spa)

Teachers

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Prerequisites

Although no pre-requirements are needed, it's recommended to have a general knowledge of processes in the food industry, chemistry of food, and food 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.

Skills

- 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

1. Milk and milk products:

1.1 Milk: Influence of pre-treatments on milk quality and on its derivatives. The effect of heat treatment on the quality of milk and derived products.

1.2 Yogurt and fermented milks: Milk initial quality for yogurt and fermented milks. Processes's influence on the quality of the final product. Use of microbial cultures to improve the quality. Defects in yogurts and fermented milks.

1.3 Cheese: Initial quality of milk for cheese making. Cheese production processes and their influence on the quality of the final product. Defects on cheeses. Guaranteed quality.

1.4 Ice Cream: an expert conference of the industry.

1.5 Other dairy products: self-study work.

2. Meat and meat products:

2.1 Fresh meat Quality: strategies in slaughterhouse and cutting rooms. Health quality, organoleptic and shelf life.

2.1 Injected Meat: differentiation between legislation, organoleptic and nutritional quality. Ingredients and additives by function. Industrial yield.

2.3 Restructured meat: applicable technologies, ingredients and additives used. Potential to design meats of desired composition.

2.4 Quality of heat-treated meat products according to business objectives: desirable properties of raw materials and product evolution over the years.

2.5 Quality of fermented meat products according to business goals: desirable properties of raw materials and product evolution over the years.

3. Fish and Fishery Products

3.1 Optimizing of the Processing of Fishery Products: Quality and Benefits.

3.2. Evaluation of the quality of fish and processed products: Recent contributions.

3.3 Quality assessment: current methodologies applicable to eggs and egg products.

Methodology

The methodology of the module will be based on lectures, labs, and conferences by professionals of the trade; seminars and exhibition of works by students working through self-study:

Milk and milk products:

- Quality control in the production of dairy pasteurized / sterilized milk: seminar / lecture taught by professionals.

- Influence of the factors of yogurt production process, in quality and quality control of the final product: lab.

- Influence of milk coagulation and curd whey on cheese quality: lab.

- Cheese quality control: lab

- Quality of the ice cream in the industry: speech by an industry professional (Farggi)

- Self learning: students, in small groups (2-3 people as registered), will examine the major effects that determine the quality through an oral presentation.

Meat and meat products

- Lectures: general introduction to all topics.

- Self learning: students, in small groups (2-3 people as registered), will study one of the proposed topics in a deeper way.

- Lab: use of additives in meat products and their influence on the final quality.

Fish and fishery products

- Lectures: raw and processed fish products material.

- Lab: relationship between raw materials and treatments on quality.

- Quality control in the fishing industry: speech by an industry professional.

Eggs and egg products

- Lectures: Egg and egg products processing.

- Lab: Quality of raw material: assessment methods.

- The quality of egg production: speech by an industry professional of the trade.

Activities

Title	Hours	ECTS	Learning outcomes
Type: Directed			
Laboratory	21	0.84	6, 7, 8, 3, 10, 2
Lectures	26	1.04	4, 5, 6, 7, 8, 10, 11, 2, 1
Seminars and conferences	20	0.8	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	126	5.04	4, 12, 5, 6, 7, 9, 8, 3, 10, 11, 2, 1

Evaluation

The competences of this module will be assessed by subject:

- Milk and dairy products: 40% attendance at lectures and practical work and 60% of self-learning.

- Meat and meat products: a) 40% attendance at lectures and practical; b) Self-study work; c) 20% questions on the work of self-learning. Note b) will be from the notes set by the teacher and peers.

- Fish and derivatives: elaboration of a poster from a research article in English. In Pairs.

- Eggs and egg products: production of a poster from a research article in English. In Pairs.

Evaluation activities

Title	Weighting	Hours	ECTS	Learning outcomes
Attendance	40%	0	0	4, 12, 5, 6, 7, 9, 8, 3, 10, 11, 2, 1
Self learning	60%	0	0	4, 5, 6, 7, 8, 3, 10, 11, 2, 1

Bibliography

Milk and milk products

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GRIFFITHS, M. W. (2010). Improving the Safety and Quality of Milk, Volume 1 - Milk Production and Processing,

Volume 2 - Improving quality of milk products. Woodhead Publishing, Cambridge, UK.

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TAMINE, A. Y. (2009). Dairy Fats and Related Products. John Wiley & Sons, New York, USA

TAMINE, A. Y. (2009). Dairy Powders and Concentrated Products. John Wiley & Sons, New York, USA.

TAMINE, A. Y. (2009). Milk Processing and Quality Management. John Wiley & Sons, New York, USA.

TAMINE, A.Y., ROBINSON, R.K. (2007). Yogur: science and technology. Woodhead, Cambridge.

WALSTRA, P., GEURTS, T.J., NOOMEN, A., JELLMA, A., Van BOEDEL, M. (2001). Ciencia de la leche y tecnología de los productos lácteos. Editorial Acribia, Zaragoza.

WEHR, H.M., FRANK, J.F. (2004). Standard methods for the examination of dairy products. American Public Health Association, Washington, USA

Recursos electrónicos:

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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* Toldrá F. (Ed.). 2008. Meat biotechnology. Springer, New York.

* Toldrá, F. 2010. Handbook of meat processing. Wiley-Blackwell, Oxford, Regne Unit.

* Warris, P.D. 2010. Meat science: an introductory text. Wallingford. 2nd ed.

Libros electrónicos (accesibles desde un ordenador conectado a un IP de la UAB o a través de la xpv)

http://www.knovel.com/web/portal/main (apartado Food science)

http://www.sciencedirect.com

- Encyclopedy of meat science

- Encyclopedy of food and nutrition

Scientific and technical journals:

- Fleischwirtschaft International

- Journal of Muscle Foods

- Meat Science

- Poultry Science

Web Addresses:

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.

Fish and fishery products

ALASALVAR C. I TAYLOR T. (2002) Seafoods - Quality, technology and nutraceutical applications. Ed.Springer

BREMNER H.A. (2002) Safety and quality issues in fish processing. CRC Press .

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MARTIN R.E., CARTER E.P., FLICK GJ, JR., DAVIS L.M. (2000) Marine & freshwater Products Handbook.Technomic pub

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(online Books)

El Pescado Fresco: Su Calidad y Cambios de su Calidad - 1999 FAO

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WEBS

http://www.fao.org/

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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

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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. Kent, UK.

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

(Online Books)

Egg marketing [Recurs electrònic] : a guide for the production and sale of eggs FAO 2003

Risk assessments of salmonella in eggs and broiler chickens FAO 200

WEBS

http://www.aeb.org/

http://www.institutohuevo.com

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

https://www.internationalegg.com

http://www.sanovogroup.com/