

ANIMAL FOOD TECHNOLOGY

MODULE	CONTENT	YEAR	TERM	CREDITS	TYPE
Food Tecnology	Animal food technology	3º	1º	6	Optional
LECTURER(S)			Postal address, telephone nº, e-mail address		
Carmen Cabrera Vique Eduardo Jesús Guerra Hernández			Nutrition and Food Department, 3rd floor, Faculty of Pharmacy. Office No. 316 and 329. E-mail: carmenc@ugr.es and ejguerra@ugr.es		
DEGREE WITHIN WHICH THE SUBJECT IS TAUGHT					
Food Science and Technology					
PREREQUISITES and/or RECOMMENDATIONS (if necessary)					
Have passed the common block and the subjects of Analytical techniques, Production of Raw Materials, Food Chemistry and Biochemistry and Food Science I and II					
BRIEF ACCOUNT OF THE SUBJECT PROGRAMME (ACCORDING TO THE DEGREE ¿??)					
Classification and descriptive study of chemical composition, properties and nutritive value of animal foods: dairy, egg, meat and fish products.					
GENERAL AND PARTICULAR ABILITIES					
<p>General abilities: CB1 to CB5, CU2 and CT1 a CT15. collected in the framework document of the degree</p> <p>Particular abilities:</p> <ul style="list-style-type: none"> • CE2. Know the production models of animal foods, their composition and physical, physico-chemical and chemical properties to determine its nutritional value and functionality. 					



- **CE3.** Learn the techniques and food analysis to ensure optimal conditions for human consumption.
- **CE6.** Know, understand and apply the classical methodology and the new technological processes to improve the production and processing of food.
- **CE15.** Inform, educate and advise legal, scientifically and technically to the public administration, the food industry and consumers to design intervention strategies and training in the field of science and food technology.

OBJECTIVES (EXPRESSED IN TERMS OF EXPECTED RESULTS OF THE TEACHING PROGRAMME)

- Assess the present development of the Spain and EU dairy sector in terms of production, consumption, legislation, and socio-economic importance
- Know the chemical composition and elaboration of derivatives of milk, egg, meat and fish with special attention to new products
- Know the common analytical techniques in elaboration quality control
- Study of new technologies of dairy products with special reference to use of subproducts

DETAILED SUBJECT SYLLABUS

THEORETICAL CONTENT

MODULE 1. Dairy products

Item 1. Definitions. Characteristics of raw materials. Historical overview of the main dairy products. Importance and current of the dairy sector. Production, consumption and future prospects

Item 2.-Treatment and transformation of milk. Technology of dairy products. Thermic treatments. Centrifugation. Normalization of fat content. Bactofugation. Filtration. Evaporation. Other treatments

Item 3. Fermented milks. Definition and classification. Yogurt. Kefir. Koumis. New generation of fermented milks. Technological process of elaboration. Enzymes. Ingredients with functional properties. Quality control .

Item 4.- Cream and Butter. Definition. Chemical composition. Tecnological proccess of elaboration of cream and butter. New products. Interest in food science. Control of alterations

Item 5. Ice cream. Definition and classification. Ingredientes. Elaboration techniques. Chemical composition. Microbiological and sensory control.

Item 6.- Cheese. History. Their Importance in Mediterranean diet. General process of elaboration. Enzymes. Maturation: microbiological and biochemical aspects. Quality control. Legislation. Cheese types



more representative. Chemical composition and nutritive value. .

Item 7. Other dairy products. Curd. Cottage cheese. Smoothies and Dairy desserts. Chemical composition. Technological process of manufacture. Quality control

Item 8. By-products of the dairy industry. Caseinates. Whey. Whey proteins. Their obtention. Importance in the food industry. Investigation, Research, development and technological innovation.

MODULE 2. Egg products

Item 9.- Egg products. Definition. Classification. Manufacture and storage. Functional and technological properties. Interest and application in food industry.

MODULE 3. Meat products

Item 10.- Meat products. Definition. General process of manufacture. Raw material selection. Ingredients. Formulation. Dough preparation. Equipments used in the meat Industry

Item 11. Meat products. Definition. Classification. Raw products. Raw pickled meat products. Manufacture. Quality criteria. Nutritive value.

Item 12.- Cured meat products. Thermic meat products. Chemical composition. Manufacture. Quality criteria. Nutritive value.

Item 13.- Meat products in salt. Definition. Ingredients. Manufacture. Ham. Quality criteria. Distinctive quality. Nutritive value.

MODULE 4.- Fish products

Item 14.- Products dried, smoked, salted and pickled. Chemical composition and nutritive value. Manufacture. Quality criteria.

Item 15.- The spawns. Definition. Clasification. Manufacture. Nutritive value. Quality criteria.

Item 16.-. Concentrates of fish. Textured protein concentrates. Manufacture. Nutritive value. Quality criteria.

Item 17.- Canned fish. Definition. Manufacture and storage. Nutritive value. Quality criteria.

PRACTICAL CONTENT

- Test of thermic treatment of milk. Alcohol test.
- Checking the homogenization process efficiency.
- Determination of sodium chloride in cheese.
- A yogurt elaboration



- Determination of trimethylamine nitrogen (N-TMA) in seafood
- -Starch analysis in meat products
- Sugar determination in egg derivatives.

READING

- Alais CH. Ciencia de la leche. Principios de técnica lechera. Reverté, Madrid, 1985
- Amiot J. Ciencia y tecnología de la leche: principios y aplicaciones. Acribia. Zaragoza, 1991.
- AOAC. Official Methods of analysis of the Association of Official Analytical Chemists, 17^a ed. Ed. Helrich, K.; Arlington, VA. USA. 2000
- Bartholami, A. Fabricas de alimentos. Acribia. Zaragoza. 2001.
- Belitz HD, Grosch W. Química de los alimentos. Acribia. Zaragoza, 2009.
- Ceballos, R. Manipulación de alimentos en las carnes y derivados, aves y caza. 2009
- Durand P. Tecnología de los productos de charcutería y salazones. Acribia, Zaragoza, 2002.
- Early R. Tecnología de los productos lácteos. Acribia, Zaragoza, 2000.
- Gil A (Editor). Tratado de Nutrición. Tomo II: Composición y calidad nutritiva de los alimentos. Panamericana, Madrid, 2010.
- HALL, G.M. Tecnología del procesado del pescado. Ed. Acribia. Zaragoza. 2001
- Luquet FM. Leche y productos lácteos: vaca, oveja, cabra. Vol. 1: La leche, de la mama a la lechería. Vol. 2. Productos lácteos, transformación y tecnología. Acribia, Zaragoza, 1991.
- Manaus M. Introducción a la tecnología quesera. Acribia. Zaragoza, 2003.
- Mazza G. Alimentos funcionales: aspectos bioquímicos y de procesado. Acribia, Zaragoza, 2000.
- Moutney GJ Parkhurst CR. Tecnología de productos avícolas. K. Acribia. Zaragoza. 2002.
- Ordoñez Sánchez, J. I. Guía de identificación de filetes y rodajas de pescado de consumo en España. Díaz de Santos. Madrid. 20122.
- Ordoñez JA (Editor). Tecnología de los alimentos. Vol. I: Componentes de alimentos y procesos. Vol. II: Alimentos de origen animal. Síntesis, Madrid, 1998.
- Ranken M.D.. Manual de industrias de la carne. AM Vicente ediciones. Madrid. 2003
- Ruitter A. El pescado y los derivados de la pesca: composición, propiedades nutritivas y estabilidad. Acribia, Zaragoza, 1999.
- Tanime AY, Robinson, RK. Yogur. ciencia y Tecnología. Acribia. Zaragoza. 1991.



- Timm F. Fabricación de helados. Acribia. Zaragoza., 1989.
- Varnam, A.M and Sutherland, J.A. Carne y productos cárnicos, Acribia. Zaragoza. 1998
- Veisseyre R. Lactología técnica. Acribia, Zaragoza, 1998. Walstra P, Geurts TJ, Normen A, Jellema A, Van Voekel M. Dairy technology. Marcel Dekker. New York, 1999.

National and international agencies-

- Agencia Española de Seguridad Alimentaria y Nutrición - AESAN
- Association of Official Analytical Chemists - AOAC
- Codex Alimentarius

Scientific Journals

- *Journal of the Society of Dairy Technology*
- *Journal of Dairy Research*
- *International Dairy Journal*
- *Journal of Agricultural and Food Chemistry*
- *Food Chemistry*
- *International Journal of Food Science and Nutrition*
- *Critical Reviews in Food Science and Nutrition*

Legislation of food

- Boletín Oficial de la Junta de Andalucía
- Boletín Oficial del Estado
- Diario Oficial de la Unión Europea

RECOMMENDED INTERNET LINKS

- European Dairy Association: <http://www.eda.euromilk.org/en/main.htm>
- Control de Calidad Agroalimentaria – Principales disposiciones aplicables a la leche: <http://www.mapya.es>
- Internacional Dairy Federation: <http://www.fil-idf.org/>
- Asociación Nacional de Industriales de Leche Líquida: <http://www.fenil.org.463.html>



- Agencia Española de Seguridad Alimentaria y Nutrición: <http://www.aesan.msc.es>
- Codex Alimentarius – Normas Alimentarias FAO/OMS: <http://www.codexalimentarius.net>
- Federación Española de Industrias de la Alimentación y Bebidas: <http://www.fiab.es>
- - Confederación de Industrias Agro-Alimentarias de la Unión Europea - CIAA
<http://www.shwebizonline.com/c/eucall/profiles/131-ciaa-confederation-of-the-food-and-drink-industries-of-the-eu.htm?Itemid=58>

