Universitat de Lleida

DEGREE CURRICULUM

FOOD TECHNOLOGY

Coordination: MOLINO GAHETE, FRANCISCO

Academic year 2022-23

FOOD TECHNOLOGY 2022-23

Subject's general information

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<tr><td>Code</td><td>100376</td></tr>
<tr><td>Semester</td><td>1st Q(SEMESTER) CONTINUED EVALUATION</td></tr>
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<tr><td>Course number of credits (ECTS)</td><td>6</td></tr>
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<tr><td>Coordination</td><td>MOLINO GAHETE, FRANCISCO</td></tr>
<tr><td>Department</td><td>FOOD TECHNOLOGY</td></tr>
<tr><td>Teaching load distribution between lectures and independent student work</td><td>6/6</td></tr>
<tr><td>Important information on data processing</td><td>Consult this link for more information.</td></tr>
<tr><td>Language</td><td>Castilian 100%</td></tr>
<tr><td>Distribution of credits</td><td>3 credits theory
1 credits of seminars
1 credits of seminars/ visits to industry
1 credits of practices in pilot plant</td></tr>
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FOOD TECHNOLOGY 2022-23

Teaching staff	E-mail addresses	Credits taught by teacher	Office and hour of attention
GARZA GARZA, SALVADOR	salvador.garza@udl.cat	2	
GINER SEGUI, JOAQUIN JESUS	joaquin.giner@udl.cat	3,8	
MOLINO GAHETE, FRANCISCO	francisco.molino@udl.cat	7,2	

Subject's extra information

The mission of a veterinarian is not restricted to knowledge of the morbid states of the animal and the conditions that a farm must meet to achieve maximum productive performance, its responsibility extends to the processes of obtaining and transforming safe food to people.

The technology of the food provides the knowledge on the chemical composition, alterations and treatments of conservation and diversification of the foods and serves as base for the acquisition of the competitions in inspection control of the quality and security of the foods.

Learning objectives

The student to pass the subject must demonstrate that:

- Is able to know the main components of food, recognize the importance of sensory, nutritional and safety properties in the quality of food.

- Is able to understand the microbiological and biochemical foundations of the alteration of food and the basics of conservation systems.

- Is able to assess the quality of raw materials and identify the technologies used for their management, conservation and transformation.

- It is capable of evaluating the effects that the different technological operations have on the raw materials of animal origin and on the quality parameters of the processed foods.

- Is able to know the principles related to the processing and conservation of the food required to design, implement and supervise systems of quality management and food safety in the food industry.

Competences

General Competences:

- CG1: Hygiene control, inspection and technology for the production and processing of food for human consumption from primary production to the consumer.

- CG5 Knowledge and application of the legal, regulatory and administrative provisions in all areas of the veterinary profession and public health, understanding the ethical implications of health in a changing global context

- CG6 Development of professional practice with respect to other health professionals, acquiring skills related to teamwork, efficient use of resources and quality management

- CG7 Identification of emerging risks in all areas of the veterinary profession

The powers detailed below derive from the specific powers of Order ECI 333/2008 which are included in the block of Hygiene, Technology and Food Safety in the memory of the Degree. This Order indicates that the student upon passing the subject will be competent to:

- CE31 Know and identify the components and characteristics of food, technological processes for obtaining, processing, as well as the changes, alterations and adulterations that all foods of veterinary interest may undergo.

- CE34 Apply the bases of handling control and treatments in all establishments and products of veterinary interest, considering food safety and public health regulations.

- CE35 Know the bases of food risk analysis: Risk determination, management and communication

- CE36 Identify outbreaks of food poisoning, apply the bases of epidemiology, monitoring and surveillance protocols, as well as apply the dynamics and demographics of infection and poisoning.

- CE40 Perform basic analytical techniques and interpret their clinical, biological and chemical results, interpret the results of tests generated by other laboratories as well as collect, preserve and send all types of samples with their corresponding report.

In addition, together with other subjects of the Double Degree you can acquire skills to: - Know and interpret the fundamentals of the processes of the food processing industry of animal origin. - Design, implement and supervise the quality management systems used in the food industry. - Advise food companies on the transformation of food of animal origin on aspects related to food security.

Subject contents

Week1		Presentation, teaching guide, food technology history, importance and career path (2H) (MOLINO)
	L1	**Flowchart (2h + 2h):** large group theory plus 2 hours seminar per medium group (GINER)
Week2	L2	**Milk technology (12h):** CQ, types of drinking milk. Obtaining and technology of different types of milk (GINER)
		Fermented milk, yogurt, cheese, cream, butter and ice cream
Week3	L3	**Slaughterhouse technology, carcass classification, by-products, scandal (4h)**: swine, poultry, beef and by-products (MOLINO)
	L4	**Meat technology (10h):** CQ, structure, types and classification, DFD and PSE meats, ripening technology of fresh meat. (MOLINO)
Week4		Meat products: types, manufacturing technology (fresh raw sausages, cured sausages, cooked and cured).
Week5	L5	**Fish technology (6h):** CQ, post-mortem changes, conservation, technological processes, smoking, pickling, brine, preserves, semi-preserves, partially processed and surimi (MOLINO)
Week6	L6	**Egg technology, egg products and honey (4h):** CQ, chilled egg, dehydrated pasteurizated, (MOLINO).

Week7		**Visits to food industries (8h)** (MOLINO) *dates to be confirmed*
		Dairy product manufacturing practices (butter, yogurt, ice cream, cheese, ...) (5h) (GINER)
		Cured and cooked meat product elaboration practices (fuet and mortadella) (5h) (GARZA) Students must monitor the evolution of the pH and humidity of the cured product every two days for,at least, 2 weeks.

Methodology

The teaching of the subject is distributed in 38 hours (3,8 ECTs) of participatory master classes, where students have previously the documentation. At the end of each session, questions will be made regarding the most outstanding topics of the session. The seminars suppose 4 hours of teaching (0.4 ECTs) in them will be especially emphasized in solving problems of calculations related to food technology as well as technology that are applied in the manufacture of different food products. The practical teaching will be taught in 20 hours divided into several sessions two of them will be in the pilot plant (10h) and the others will be visits to different food facilities (slaughterhouse, food processing companies) *if the health situation allows it*

In the case that for exceptional reasons the teaching has to be taught in a non-face-to-face way, the methodology will consist of virtual classes through the videoconference tool of the virtual campus (theoretical teaching, type 1 seminars and the practices will be solved with the projection of some videos where you can see in a detailed way the elaboration of various food products in a production plant). Visits to food facilities will be done in a virtual way.

Development plan

The participatory master classes and the type 1 seminars will be interspersed throughout the teaching sessions from the beginning of the course until the completion of the written exam in November. The practices and visits are not obligatory and will be evaluated with the reports that are made of them in the subsequent practical sessions.

It is **MANDATORY** that students have the following personal protective equipment (PPE) in the course of teaching practices.

- Laboratory coat UdL unisex
- Safety glasses
- Chemical / Biological protection gloves

Evaluation

A written test will be carried out in the period set by the Center's Management. It will be carried out: a written test that will consist of multiple choice questions and / or true false with explication (80% of the final grade) and a test with short questions (8%), 12% of the remaining final grade is distributed in the evaluation of the reports of the practices (10%) and seminar about flow charts (2%). The written test will last 2 hours (0.2 ECTs) and you will have to obtain at least 50 points out of 100 to pass it and be able to add the rest of the evaluations (practicals, classroom against poverty) to the final grade. It will be possible to obtain up to an additional extra point for those who participate in the program: “Classrooms against poverty”. The subject is passed, obtaining at least a 5 out of 10 in the final mark.

In the case that for exceptional reasons the Directorate of Studies indicates that the evaluation must be non-face-to-face, the evaluation will consist of two test-type tests (50% each) of all the contents taught (theoretical virtual classes, type 1 and 2 seminars, practicals, virtual visits).

Attitude to follow in the event of a voluntary or accidental violation of the rules for conducting the examination:

The voluntary or accidental violation of the rules of the exam prevents the assessment of the same. Therefore, the student suspends the subject without option to recovery with a "0". If intentionality is confirmed in the deception, it will be considered a very serious ethical breach, and the Service Inspectorate will be informed to take the disciplinary measures that it deems appropriate

Bibliography

Tecnologia de los alimentos VOL 1. componentes de los alimentos y procesos. Ordoñez et al. Madrid. Sintesis (1998).

Tecnologia de los alimentos VOL 2. Alimentos de origen animal. Ordoñez et al. Madrid. Sintesis(1998).

Procesos de conservación de los aliemtos. Casp Vanaclocha y Abril Requena. Madrid. Mundi-Prensa (2003)

Tecnología de mataderos. López Vázquez y Casp Vanaclocha. Mundi-Prensa (2004)