

Academic Year/course: 2021/22

30837 - Enrichment in the Meat and Fish Sector

Syllabus Information

Academic Year: 2021/22

Subject: 30837 - Enrichment in the Meat and Fish Sector

Faculty / School: 105 - Facultad de Veterinaria

Degree: 568 - Degree in Food Science and Technology

ECTS: 5.0

Year: 4

Semester: Second semester

Subject Type: Optional

Module:

1. General information

2. Learning goals

3. Assessment (1st and 2nd call)

4. Methodology, learning tasks, syllabus and resources

4.1. Methodological overview

The course is structured in 6 specific knowledge matter blocks; each one of them includes theoretic and practical activities. The total of lectures is 48, of one hour each. Those lectures include two types: 1) Presentation and analysis of current issues, problems and challenges in meat and fish sectors (18 h). Suitable material will be put at disposal of the students for their work on the chosen subject. 2) Discussion of innovative strategies for giving solutions to those problems and challenges, on the basis of the work presented by student groups (30 h). These last may be considered as seminars, in which all the students will have an important role in discussion, as the teacher act as moderator and concluding chairperson.

Students must follow the regulations described in:

- Prevention: A guide for students at the University of Zaragoza:
https://uprl.unizar.es/sites/uprl.unizar.es/files/archivos/Procedimientos/guia_preventiva_para_estudiantes.pdf
- Manual de seguridad en los laboratorios de la Universidad de Zaragoza y normas marcadas por la Unidad de Prevención de Riesgos Laborales:

https://uprl.unizar.es/sites/uprl.unizar.es/files/archivos/Procedimientos/manual_de_seguridad_en_los_laboratorios_de_la

<https://uprl.unizar.es/inicio/manual-de-procedimientos>

In addition, students will follow as well any instructions related to biosecurity given by the professor

4.2. Learning tasks

48 hours of lectures and 12 hours of practical activities.

4.3. Syllabus

The program that the student is offered includes the following activities:

Block 1. Fresh meat

Packaging and shelf life of fresh meat. New developments.

Use of antioxidant and antimicrobial agents for extending the shelf and display life of fresh meat.

The rising problem of *Campylobacter* in fowl meat. Technological solutions.

Distribution and marketing systems for fresh meat.

Decontamination of carcasses and meat pieces.

Problems and cases related to the specific legal regulations for fresh meat.

Problems and cases related to hygiene, safety management and quality control applied to fresh meat.

Relations of technology, culture, society and food. The case of meat.

Cultural diversity and meat consumption; globalization.

Generated contaminants by meat industry. Techniques for reducing the generation of contaminants. Management of residues and by-products. Cases.

Meat market structure. Effects of EU policy on the meat production system. Marketing strategies.

Block 2. Fresh fish

New species in aquaculture; strategies of marketing.

Fatty species; their conservation in protective atmospheres.

Advances in the processing of fresh fish.

Ice "gel"; advantages and disadvantages.

Cases and problems related to the specific legislation applicable to fresh fish.

Cases and problems related to hygiene, management of food safety and quality control applied to fresh fish.

Technology, culture, society and food. Food practices: consumption of fish and its derivatives. Conditioning factors of production, processing and consumption of fish.

Cultural diversity and fish consumption. Globalization.

Generated contaminants by fish industry. Techniques for reducing the generation of contaminants. Management of residues and by-products. Cases.

Market Structure of fishery products and aquaculture (production, processing and marketing at national and international level). Foreign trade of fishery products and aquaculture. EU Fisheries Policy.

Block 3. Prepared meats

Development of new products and presentations: marinades.

Emerging pathogens in prepared fresh meats.

Shelf life, packaging and marketing of prepared fresh meats.

Specific legislation applicable to prepared fresh meats.

Cases and problems related to hygiene, management of food safety and quality control as applied to prepared fresh meats.

Block 4. Cured meat products

Developments and innovation in packaging and slicing cured meat products.

Problems caused by the presence of *Listeria* for the export of cured meat products.

Dry-curing process optimization.

Specific legislation applicable to cured meat products.

Cases and problems related to hygiene, management of food safety and quality control as applied to cured meat products.

Block 5. Cooked meat products

Optimization of manufacturing processes of cooked meat products.

Developments and innovation in packaging and slicing of cooked meat products. Treatments for the reduction of the microbial load.

Problems related to "artificial" textures in cooked meat products.

Specific legislation applicable to cooked meat products.

Cases and problems related to hygiene, management of food safety and quality control as applied to cooked meat products.

Block 6. Fish products

New products, new presentations derived from fish.

Development and production of cephalopods surimi.

Specific legislation applicable to fish products.

Cases and problems related to hygiene, management of food safety and quality control as applied to fish products.

Block 7. Molecular Basis

Molecular Basis of Genetic Engineering: What is molecular biology? Central Dogma of biology (-omics era). DNA: structure, replication, transcription, translation. Creation of mutants.

Applications of Genetic Engineering for improving the quality and safety of food derived from meat and fish. Specific case: introduction of plant genes. PCR-based methods.

Use of bioinformatics tools and databases to search for genetic sequences of interest.