

Food Hygiene

Code: 101009
ECTS Credits: 6

Degree	Type	Year	Semester
2500502 Microbiology	OT	4	0

Contact

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Use of languages

Principal working language: spanish (spa)
Some groups entirely in English: No
Some groups entirely in Catalan: Yes
Some groups entirely in Spanish: No

Teachers

Artur Xavier Roig Sagués
Carolina Ripolles Avila

Prerequisites

Although there are no official prerequisites, it is convenient for the student to review the knowledge acquired in the subjects of first, second and third courses:

- Microbiology
- Microbe ecology
- Food Microbiology
- Epidemiology of infectious diseases

Objectives and Contextualisation

Food hygiene is an asignature that integrates diferents subjects. The aim is students can develop a system that allows the food industry to implement and manage rationally the measures and conditions necessary to control hazards and ensure the suitability of a product for consumption human.

General objective:

To identify and analyze the significant hazards that may appear in every one of the stages of production and commercialization of foods, as well as identify the different factors that can affect the hygienic quality of a food in order to apply the appropriate control measures , managing all activities to ensure the suitability of a product for human consumption.

Specific objectives:

- Identify, analyze and evaluate the most significant biological, chemical and physical hazards.
- Identify the factors that affect the presence of hazards in food in order to establish critical limits and monitoring systems as well as shelf-life
- Identify the preventive measures to control the presence or development of hazards in food processing
- Development and management the system of Hazard Analysis and Critical Control Points

- Development and management the operational conditions necessary to produce safe food.
- Audit the HACCP and the prerequisites

Skills

- Apply suitable methodologies to isolate, analyse, observe, cultivate, identify and conserve microorganisms.
- Identify and solve problems.
- Obtain, select and manage information.
- Use bibliography or internet tools, specific to microbiology or other related disciplines, both in English and in the first language.

Learning outcomes

1. Identify and solve problems.
2. Identify food hazards, assess their risk, manage it and communicate it.
3. Know and interpret legislation on microorganisms in different types of industries.
4. Know the hygiene requirements demanded of the food industries.
5. Obtain, select and manage information.
6. Understand the system of Analysis of Hazards and Critical Control Points.
7. Use bibliography or internet tools, specific to microbiology or other related disciplines, both in English and in the first language.

Content

Unit 1.- Concepts: Food Hygiene. Current trends in hygiene and food safety. The Hazard Analysis and Critical Control Points system and the Prerequisites

Unit 2.- Legal aspects in food hygiene. Application of European, national, regional and local regulations. Codex recommendations in relation to food hygiene.

Unit 3.- Identification of the biological, chemical and physical hazards and the factors that affect their presence.

Unit 4.- The Hazard Analysis and Critical Point Control (HACCP) system. Technical barriers in its implementation. Key stages in the development of the HACCP system. Study and development of the HACCP system. Team training, product description. Elaboration of the flowchart and its verification. Analysis of hazards and selection of the most significant. Identification of preventive and / or control measures. Identification of the Critical Control Points, establishment of the critical limits, monitoring of PCC and corrective measures. Verification of HACCP. Documents, registries and validation of the Plan.

Unit 5.- Program of control of suppliers. Definition Development of the program. Factors to consider: suppliers and product specifications. Description and registration of activities. Importance of supplier control. Documents and registers

Unit 6.- Traceability program. Definition Legal Bases. Benefits and requirements for its implementation. Importance and aspects to be considered in the development of the traceability plan. Documents and registers

Unit 7.- Design and maintenance of facilities and equipment. Location of the industries. General characteristics in the design of the installations. Characteristics of materials. Description, monitoring and registration of maintenance activities.

Unit 8.- Clean and disinfecting program. Definition. Key aspects to be considered in the design of the plan: level of risk, evaluation of dirt, selection of detergents and disinfectants. Factors that affect the effectiveness of disinfectants. Monitoring, corrective measures and control of the plan. Documents and registers

Unit 9.- Control Plan of pests and other undesirable animals. Definition. The integrated control Pest Plan. Devices used to control pests. Monitoring, corrective measures and control of the plan. Documents and registers

Unit 10.- Water control plan. Definition of potability. Health criteria of water for human consumption. Characteristics of the facilities. Monitoring, corrective measures and control of the plan. Documents and registers

Unit 11.- Control plan for allergens and substances that cause intolerance. Information required in the control of suppliers and the labeling of the elaborated product. Measures to avoid cross contamination: Warehouses, processing and cleaning. Monitoring, corrective measures and control of the plan. Documents and registers

Unit 12.- Plan of control of by-products and waste. Definition Hygienic aspects in the elimination of waste. Classification, separation, storage and withdrawal. Characterization of by-products and waste. Monitoring, corrective measures and control of the plan. Documents and registers

Unit 13.- Temperature control plan: Description of the equipment used. Monitoring and calibration activity. Food, equipment and environment temperature records. Corrective measures and control of the plan.

Unit 14. Training plan for the Handling and Training Staff. Previous staffing skills. Purpose of the plan. Phases to consider in its development, implementation and evaluation. General and specific knowledge. Monitoring, corrective measures and control of the plan.

Methodology

The course development is based on the following activities:

- 1) Classroom theoretical sessions: consist of lectures supported by ICTs, in explaining the fundamental concepts of the basic themes of the subject.
- 2) Classroom practice sessions for group self-learning activities: 6 sessions will be held at the end of the semester. Each group will have to present, with visual support, the most important aspects of the work done, as well as auditing the other group that performs the same work.
- 3) Tutorials: tutorials will be done throughout the course to monitor self-learning work, and other aspects related to the subject. The tutorials will be directed primarily to guide and resolve the doubts of students. Tutorials can be done individually or in groups, depending on the objectives.

Non-contact activities

- 1) Self-learning activities of individual or group: This is a task applied to a prerequisite in which the student will have to do the search for information along with the one provided by professor. Task will be presented documentally.
- 2) Group Self-learning activities: students will have to do two tasks on a topic posed by the professor, following formal guidelines and contents common to all groups. Activities carried out by the students will be supervised individually. One of the task (HAPCCP) must be submitted in writing at the end of the semester, and one another (audit) when conducting classroom practices.

Activities

Title	Hours	ECTS	Learning outcomes
Type: Directed			
Classroom practice session	6	0.24	6, 4, 3, 2, 1, 5, 7

Classroom theoretical sessions	39	1.56	6, 4, 3, 2
Type: Supervised			
Tutorials	4	0.16	6, 4, 3, 2
Type: Autonomous			
Individual or group Self-learning activities	40	1.6	6, 4, 3, 2, 1, 5, 7
Shelf-study	57	2.28	6, 4, 3, 2, 1, 5, 7

Evaluation

The skills of this subject will be evaluated by:

- First Control: from unit 1 to unit 4, and activities related to individual self-learning and / or the practices carried out in this period with a weight of 25% of the final mark
- Second Control: from unit 5 to unit 14, and activities related to individual self-learning and / or practices carried out during this period, plus the material treated in the seminars, with a weight of 35% of the final mark
- Individual or group-based self-learning activity (prerequisite): It will have a 10% weight of the final mark.
- Group-based self-learning activities (HACCP case). Both written work and oral presentation will be valued. It will consider the final tier of the participation of each student. HACCP activity will have a weight in the final mark of 30% (document 20% and oral presentation 5%), and Audit activity a weight of 5% (document and oral discussion).

To be eligible for the retake process, the student should have been previously evaluated in a set of activities equaling at least two thirds of the final score of the course or module. Thus, the student will be graded as "Not Evaluable" if the weighting of all conducted evaluation activities is less than 67% of the final score.

To pass the course is required:

1. A minimum of 5 points (over 10) in each of the two controls; If this mark is not reached, student must present to the recovery exam
2. A minimum of 5 points (out of 10) in the group self-learning activity (HACCP/Audit task). If this mark is not reached, the group will have one week for doing the appropriate modifications in order to improve this activity.

Evaluation activities

Title	Weighting	Hours	ECTS	Learning outcomes
First control	25	2	0.08	6, 3, 2, 1
Group-based self-learning activities (HACCP case): document and audit	30	0	0	6, 4, 3, 2, 1, 5, 7
Individual or group-based self-learning activity (prerequisite)	10	0	0	4, 3, 1
Second control	35	2	0.08	4, 3, 2, 1, 5, 7

Bibliography

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WEB food hygiene and food safety:

- OMS Food Safety: <http://www.who.int/foodsafety/en/>
- USDA American Food Safety and Inspection Service: <http://www.fsis.usda.gov/>
- International Food Safety Council: <http://www.foodsafetycouncil.org/> Food Safety Agency: <http://www.food.gov.uk>
- FDA (Food and Drug Administration) : <http://www.fda.gov/Food/default.htm> Codex Alimentarius: <http://www.codexalimentarius.net>
- European Food Safety Authority: <http://www.efsa.europa.eu/>
- Spanish Agency for Food Safety and Nutrition: http://www.aecosan.msssi.gob.es/AECOSAN/web/home/aecosan_inicio.htm
- Agència Catalana de Seguretat Alimentària: <http://acsa.gencat.cat/ca/inici/>