COURSE DATA

Data Subject	
Code	34009
Name	Food Hygiene
Cycle	Grade
ECTS Credits	4.5
Academic year	2024 - 2025

Study (s)

Degree	Center	Acad. year	Period
1103 - Degree in Food Science and Technology	Faculty of Pharmacy and Food Sciences	4	First term

Subject-matter

Degree	Subject-matter	Character
1103 - Degree in Food Science and Technology	21 - Food hygiene	Obligatory

Coordination

Name	Department
FERRER GARCIA, EMILIA	265 - Prev. Medicine, Public Health, Food Sc.,Toxic. and For. Med.
HERNANDEZ RODRIGUEZ, CARMEN SARA	275 - Microbiology and Ecology
VALERO ALEIXANDRE, MARIA ADELA	21 - Cellular Biology and Parasitology

SUMMARY

The subject of Food Hygiene (33954) is an obligatory subject of the fourth year part of the Degree in Food Science and Technology, imparted at the Faculty of Pharmacy of University of Valencia. This subject, according to the current curriculum, is awarded a total of 4.5 ECTS credits, imparted on a six-month basis.

Fundamental aims are:

i)To provide the necessary knowledge to students in food safety so that they know the principles and common responsibilities to achieve a high level of protection of life and health in humans;

ii) To protect consumer interests applying correct practices in the food trade;

iii) Bearing in mind, when applicable, the well-being of animals, phytosanitary aspects and the environment.

PREVIOUS KNOWLEDGE

Relationship to other subjects of the same degree

There are no specified enrollment restrictions with other subjects of the curriculum.

Other requirements

In order to participate, basic concepts of food Microbiology, food Parasitology and food Toxicology are required and it is anticipated that the students have already acquired this knowledge. The above-mentioned concepts form part of the contents of the subjects imparted during previous courses along the Degree.

COMPETENCES (RD 1393/2007) // LEARNING OUTCOMES (RD 822/2021)

1103 - Degree in Food Science and Technology

- Capacidad de interpretar datos relevantes.
- Manage food safety.
- Realizar tareas de formación de personal en higiene alimentaria.
- Provide scientific and technical advice to the food industry and consumers.
- Poseer y comprender los conocimientos en el área de Ciencia y Tecnología de los Alimentos.
- Desarrollo de habilidades para emprender estudios posteriores.
- Analyze and evaluate food safety risks.
- Know the basics of hygiene in food, processes and products.
- Know the hygiene and preventive measures applicable to the major alterations in food products caused by toxic substances and chemicals originated during food processing.
- Know the hygiene and preventive measures against major parasite-induced alterations in food.
- Know the hygiene and preventive measures against major microorganism-induced alterations in food.
- Understand the use of guides to good hygiene practice as a tool to ensure the proper handling of food.

- Know and interpret the results obtained in the hazard analysis and critical control points (HACCP).
- Conocer y manejar las fuentes de información básicas relacionadas con la Higiene alimentaria.

LEARNING OUTCOMES (RD 1393/2007) // NO CONTENT (RD 822/2021)

- Knowledge of the basic concepts of food hygiene, processes and products
- Knowledge of hygienic and preventive measures of the principal alterations of food produced by toxic substances, chemical products in the course of food processing;
- Knowledge of hygienic and preventive measures of the principal alterations of food caused by parasites;
- Knowledge of the hygienic and preventive measures of the principal alterations of food caused by microorganisms;
- Knowledge of the guidelines on the correct practices of hygiene as a tool to assure the correct handling of food;
- Knowledge and interpretation of the results obtained in the analysis of hazards and critical points of control (HACCP).
- Knowing and handling the basic sources of information related to food hygiene;
- Aptitude to prepare and expose a project publicly in a clear and precise manner;
- Aptitude to establish good relations with other members of the group and team-work;
- Awareness of the importance of active participation in one's own intellectual and scientific development;
- To have a receptive attitude, understanding the meaning of the knowledge transmitted.

DESCRIPTION OF CONTENTS

1. Introduction to food hygiene

Definition. Concepts. Spanish Agency of food safety and nutrition (AESAN). Food Codex. Food Security: Definition. Control of microbiological, parasitological and toxicological food safety. Instruments of food safety management: good manufacturing practices (GMP), good hygiene practices (GHP) and hazard analysis and critical control points (HACCP). Principles and definitions of hygiene and traceability requirements (HATR) and hazard analysis and critical control points (HACCP). Directives for its application. Analysis of hazards. Control of critical points and limits (physical and chemical parameters

measurable in real time). Quality management. Training. Control and auditing.

2. Specific quality regulation in the alimentary sector

Definitions contemplated in food legislation. General and specific principles. Voluntary standards. Standards required by consumers.

3. Cleanliness and disinfection

Definitions. Types of dirt. Process of cleanliness. Waste. Characteristics of the chemical products used in food establishments. Elements of cleanliness: detergents and disinfectants. Desirable properties of a detergent. Types of detergents. Desirable properties of a disinfectant. Types of disinfectants. Cleanliness and effective disinfection scheme. Heat application cleanliness, dry cleaning or in situ (CIP). Mechanized cleanliness. Cleanliness with foam. Evaluation of the cleanliness and disinfection scheme. Environmental sampling techniques. Sampling techniques of microorganisms on surfaces. Control and confirmation of the efficiency of cleanliness and disinfection.

4. Food handlers

Education in food hygiene. Initial and continued training of food handlers. Personal hygiene of food handlers. Health and personal hygiene. Good and bad work practices. Workwear.

5. Facilities and equipment

Facilities: hygienic foundations of industrial design and food establishments. Choice of materials and construction. Areas of work and gadgets. Equipment: general hygienic characteristics of equipment in food processing establishments and industry. Installation and maintenance.

6. Preparation and handling of food

Food processing. Cross-contamination. Disinfection of vegetables. Non suitable food for human consumption. Cooking methods. Boiling and reheating. Temperature. Cooking systems. Keeping heated food. Systems of heat treatment.

7. Plague control

Rodents. Treatment against rodents. Insects: flies, cockroaches, ants and others. Treatment against insects. Control and surveillance. Taking control measures.

8. Control of pathogens and toxic substances

Control of bacteria, viruses, parasites and toxic substances. Control, surveillance and taking measures.

9. (Perishable) goods

(Perishable) goods. Suppliers. Sanitary records of industries. Transport and receipt of (perishable) goods. Control, surveillance, irregularities and taking control measures. Storage of goods. Packing and wrapping. Dry storage, refrigeration and freezing. Defrosting of food.

10. Drinking water

Drinking water. Hazards and control. Periodic analyses. Legionella: control, surveillance and taking control measures. Hyperchloration

11. Food management in emergencies

Food management in emergencies. Measures to be followed in an emergency (of fire, water being cut-off, power cuts, floods etc.) to guarantee conservation conditions of goods. Food scares. Procedures to be followed in case of food poisoning. Declaration of food scares.

12. Laboratory sessions

1. CONTROL OF DISINFECTANT IN WATER: Determination of active chlorine (total residual chlorine) in water, by two methods:

1.1. Orthotolidine method.
1.2. Titrimetric determination by n, n-diethyl-pfenilendiamonium (DPD) reagent.

2.CONTROL OF CLEANING AND DISINFECTION OF FOODS BY BIOLUMINISCENCE METHOD: detection of Adenosin Triphosphate (ATP).

3.DETECTION OF TRICHINELLA IN THE MEATS: METHODS OF REFERENCE OF THE EU

4.ANALYSIS OF STAPHYLOCOCCUS AUREUS CARRIERS

5.MICROBIOLOGICAL ANALYSIS OF SURFACES

WORKLOAD

ACTIVITY	Hours	% To be attended
Theory classes	24,00	100
Laboratory practices	15,00	100
Seminars	2,00	100
Tutorials	2,00	100
Development of group work	8,00	0
Development of individual work	1,00	0
Study and independent work	7,00	0
Readings supplementary material	3,00	0
Preparation of evaluation activities	4,50	0
Preparing lectures	39,00	0
Preparation of practical classes and problem	5,00	0
TOTAL	**110,50**	

TEACHING METHODOLOGY

The development of the subject will be structured in the following way:

Theoretical classes will Include 2 weekly hours in which the teacher provides a global vision of the topic to the students along with the necessary information to understand the contents of the subject. In the above-mentioned classes the student is induced to search incidental or complementary information, orientating him/her in the use of necessary bibliographical sources. It is recommendable for students to check previously the material that the teacher leaves in the virtual classroom as follow-up of the class.

Specialized tutorials in small groups. The purpose is orienting students and determining the follow-up of the course. It is a suitable way for the students to raise doubts or questions arising from the development of the curriculum.

Practical laboratory classes. They will be imparted in small groups, attendance is obligatory. The work of the student is monitored step by step, to achieve the required manual skills in the laboratory and solve problems by him-/herself.

Seminars/projects. A project will have to be carried out in groups on a topic raised by the teacher to be later to be presented to the rest of the class and to generate a posterior debate. A résumé will have to be delivered in writing before the presentation to the class as a whole. The group is supervised personally by the teacher regularly and provides orientation when looking for bibliographical sources and in the critical analysis of the information found in the above-mentioned sources. The teacher advises on the general presentation of the project, thus promoting the students' capacity to work, synthesize and of research.

In the theoretical and practical sessions, examples of the applications of the subject content in relation to the Sustainable Development Goals (SDG) will be indicated, as well as in the proposals of topics for the coordinated seminars. This is intended to integrate the application of the SDGs in food hygiene teaching to provide students with related knowledge and skills, as well as to promote reflection and criticism. Of the 17 sustainable development goals, special emphasis will be placed on the following objectives related to the subject: SDG1, SDG2, SDG3, SDG4, SDG5, SDG6, SDG8, SDG12, SDG13.

EVALUATION

Continuous assessment of knowledge, competence and skills will take place along the course.

Seminars are compulsory and their evaluation will contribute 10% to the final mark, which will be added to the mark obtained in theory and practicals, provided that this sum (theory mark plus practical mark) is equal to or higher than 5.0 points out of ten. It is compulsory to attend the tutorials in the first registration. Attendance at seminars is compulsory.

The evaluation of the practical classes will contribute 20 % to the final mark in. Attendance is indispensable to pass the subject, and a report with the methodology and results obtained will have presented at the end. To pass the subject, a minimum of 40 % (compensable with theory) of the maximum mark of this part in the final exam will have to be obtained.

70 % of the final mark will be obtained in the examination corresponding to theoretical knowledge. To pass the subject, a minimum of 40 % (compensable with practical) of the maximum mark of this part in the final exam will have to be obtained.

The voluntary elaboration of technological contents proposed by the professor will mean a contribution of 0.5 additional points to the final mark if the theoretical and practical part of the subject has been passed.

Those students who do not pass the subject in first time, the corresponding mark of seminars will kept until the second summons, and also for practice or theory, PROVIDED that they have passed the practice or theory corresponding to seminars for the July exam, and also for practicals or theory, PROVIDED that they have passed the practicals or theory, respectively (minimum 5.0 points out of ten, respectively).

Evidence of copying or plagiarism in any of the assessable tasks will result in failure to pass the subject and in appropriate disciplinary action being taken. Please note that, in accordance with article 13. d) of the Statute of the University Student (RD 1791/2010, of 30 December), it is the duty of students to refrain from using or participating in dishonest means in assessment tests, assignments or university official documents.
In the event of fraudulent practices, the “Action Protocol for fraudulent practices at the University of Valencia” will be applied (ACGUV 123/2020): https://www.uv.es/sgeneral/Protocols/C83sp.pdf

The continuous assessment activities, which in this subject are practices, tutorials and seminars, are of MANDATORY ATTENDANCE and, therefore, NOT RECOVERABLE, in accordance with the provisions of article 6.5 of the Regulation of Evaluation and Qualification of the UV for Bachelor and Master degrees. In the event that, for justified reasons, it is not possible to attend any of these activities, sufficient notice must be given in advance. In this way, the person in charge of the subject may assign the student a session in another group.

REFERENCES

Basic

- Felipe Tablado C, Felipe Gallego J. 2004. Manual de higiene y seguridad alimentaria en hostelería. Ed. Thomson, Paraninfo, Madrid
- Forsythe SJ, Hayes, PR. 1999. Higiene de los alimentos. Microbiología y HACCP. Editorial Acribia, S.A., Zaragoza.
- Hobbs BC, Roberts D. 1993. Higiene y toxicología de los alimentos. Editorial Acribia, S.A., Zaragoza.
- Hui YK, Sattar SA, Murrell KD, NIP WK, Stanfield PS edit., 2000.- Foodborne Diseases Hadbook, Second Edition. Volume 2: Viruses, Parasites, Pathogens, and HACCP. Marcel Dekker Inc., News York, 515 pp.
- Marriott, N.G. 1999. Principios de higiene alimentaria. Editorial Acribia, S.A., Zaragoza
- Mortimore S, Wallace C. 1994. HACCP. Enfoque práctico. Editorial Acribia, S.A., Zaragoza
- Murrell KD, Fried B edit., 2008.- World Class Parasites, Vol. 11, Food-Borne Parasitic Zoonoses, Springer, USA.
- Organización mundial de la salud, 1988.- Lucha contra Vectores y Plagas urbanos. Informe de un Grupo Científico de la OMS, Serie de Informes Técnicos nº 767, Ginebra, 88 pp.
- Ortega YR, 2006.- Foodborne Parasites. Springer, 289 pp.
- Palumbo F, Ziglio G, Van der Beken A edit., 2002.- Detection methods for algae, protozoa, and helminths in fresh and drinking water. John Wiley & Sons, Ltd., Chichester, 225 pp.

Additional

- http://www.aetox.es. Asociación Española de Toxicología
- http://busca-tox.com. Portal de búsqueda de información toxicológica.
- http://www.aesan.msps.es/
- http://europa.eu/agencies/community_agencies/efsa/index_es.htm
- http://www.sp.san.gva.es/
- http://www.dpd.cdc.gov/dpdx/html/image_library.htm