COURSE DESCRIPTION

COURSE DETAILS

Title (of the course): **FUNDAMENTOS DE HIGIENE ALIMENTARIA**
Code: 102232
Degree/Master: **GRADO DE CIENCIA Y TECNOLOGÍA DE LOS ALIMENTOS** Year: 3
Field: SEGURIDAD ALIMENTARIA
Character: OBLIGATORIA
Duration: SECOND TERM
ECTS Credits: 6.0
Classroom hours: 60
Face-to-face classroom percentage: 40.0%
Study hours: 90
Online platform:

LECTURER INFORMATION

Name: PÉREZ RODRÍGUEZ, FERNANDO (Coordinator)
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PREREQUISITES AND RECOMMENDATIONS

Prerequisites established in the study plan

Prerequisites established in the study plan Students must have at least a B-1 level of English.

Recommendations

It is recommended that students have taken subjects corresponding to basic formation modules, in particular, Physiology, Chemistry, and Biochemistry, and previously or simultaneously Food Technology, Food Microbiology and Food Law.

COURSE DESCRIPTION

INTENDED LEARNING OUTCOMES

CB1	Students must demonstrate to possess and understand knowledge in a field of study which takes place from the base of the general secondary school, and it is common to find a level that, albeit it relies on advanced text books, also includes some aspects which imply knowledge from the forefront of its field of study.
CB2	Students must know how to apply their knowledge to their job or vocation in a professional manner and they must possess the competencies which are usually demonstrated by means of the elaboration and defense of arguments and the solution of problems in their field of study.
CB3	Students must possess the capacity to gather and interpret relevant information (usually in their field of study) in order to give opinions which include a reflection about relevant topics which are social, scientific or ethic in nature.
CB4	Students must transmit information, ideas, problems and answers to both specialised and not specialised publics.
CB5	Students must develop those necessary learning abilities to undertake subsequent studies with a high degree of autonomy.
CE13	To understand and be able to perform actions to promote food education, health care systems and food policies.
CE14	To assess, control and manage the strategies and plans of prevention and control of diseases caused by the consumption of food.
CE16	To put into practice the principles and methodologies which define the scientist and food technologist s professional PROFILE, showing IN an integrated way the acquisition OF the skills AND competences taken INTO ACCOUNT BY this DEGREE.
CE7	To analyse the biological, physical and chemical dangers of the food chain in order to protect public health.
CE8	To apply the food hygiene standards to industry design, as well as to food processes and products, in order to ensure food safety according to the established legal framework.
CT4	Ability to apply theoretical knowledge in a practical way.
CT5	Ability to take decisions.
CT7	Ability for analysis and synthesis.
CT8	To develop a critical reasoning.
CT9	To develop skills in research initiation.
CU3	To increase the habits of an active searching for employment and the capacity of enterpreneurship.

OBJECTIVES

The objective is that students acquire knowledge on general concepts in food hygiene in concordance with competences and skills related to the subject as well ass technical abilities for application in food safety:
- Chemical, Physical, and biological hazards ín foods
- Food safety management systems - Hygiene in food premises and food handling
- Personal, product and process hygiene
- Food regulation
- Prerrequistes programmes and introduction to Hazard Analysis and Critical Control Point

COURSE DESCRIPTION

CONTENT

1. Theory contents

THEORETICAL CONTENT (30 hours)
SECTION I.- GENERAL CONCEPTS (3 h)
- Food hygiene concept: Edibility and food quality. Food wastage.
- Food hygiene legislation.
- Types of hazard. Food safety.

SECTION II.- HYGIENE IN FOOD PRODUCTION (7 h)
-Introduction to Food safety management systems.
-Self-control systems in the food chain.
-Hygiene General Plans. Prerequisites in food hygiene. Traceability of foods.
-Food handlers. Good Handling and Manufacturing Practices. Injuries and professional infections. Human-based contamination indexes.
-Introduction to Hazard Analysis and Critical Control Points. Principles. Requisites for its implementation.
-Hygienic design of food premises. Other elements of food safety: alert systems and food crisis management systems.

SECTION III.- ABIOTIC CONTAMINATION IN FOODS (11 h)
-Contamination and contaminants. Food contaminants. Causes determining contamination along the food chain: Main chemical and physical contaminants.
-Environmental contaminations and contaminated produced during food processing. Polycyclic Aromatic Hydrocarbons. Nitrosamines. Heterocyclic amines. Acrylamides.
-Drugs for veterinary use. Antibiotics, hormones and growth promotors. Maximum Residues Limits. Food regulation. Control measures.
-Food additives. GRAS designation. Main groups of additives. EU list of food additives. Food regulation.
-Food packaging materials. Polymeric materials. Macromolecular compounds, vinyl chloride. Toxicological aspects. Food regulation.
-Radioactivity contamination in foods. Types of radioactivity contamination. Sources of contamination along the food chain. Decontamination systems. Control of irradiated foods. Food regulation.

SECTION IV.- BIOTIC CONTAMINATION IN FOODS (9 h)
-Main aspects of microbial contamination in foods. Sources of primary and secondary contamination. Reference microbial values. Microbiological criteria and their relationship with sampling plans. New risk metrics and their relationship with food microbiological safety.
-Factors impacting microbial activity. Introduction to Predictive Microbiology.
-Foodborne diseases: Concepts and types. State of art of foodborne outbreaks. Importance and prevention.
-Foodborne diseases caused by bacteria. Etiology. Contamination sources. Risk factors.
-Foodborne diseases caused by fungi: mycotoxicosis. Mold contamination in foods. Conditions for mold development. Food spoilage.
-Foodborne diseased caused by viruses. Etiology. Contamination sources. Risk factors
-Natural toxins. Etiology. Contamination sources. Risk factors

2. Practical contents

PRACTICAL CONTENT (27 hours):
LABORATORY: (9 h)
-Assessment of hygiene of food process. (3 h)
-Determination of the sanitary quality of eggs for human consumption. (3 h)
-Determination of abiotic contaminants in foods. (3 h)

SEMINARS (18 h)
- Foundations and application of sampling plans in food hygiene (3 h)
- Application of predictive microbiology in food hygiene. (3 h)

COURSE DESCRIPTION

- Epidemiological investigation of food-borne outbreaks. (3 h)
- Debates on food hygiene. (3 h)
- Emergence Risks along the food chain. (3 h)
- Food Safety Management Systems: Practical execises (3 h)

SUSTAINABLE DEVELOPMENT GOALS RELATED TO THE CONTENT

Zero hunger
Good health and well-being
Clean water and sanitation
Industry, innovation and infrastructure
Climate action

METHODOLOGY

General clarifications on the methodology (optional)

Each case will be considered particularly.

Methodological adaptations for part-time students and students with disabilities and special educational needs

Each case will be considered particularly

Face-to-face activities

Activity	Large group	Medium group	Small group	Total
Assessment activities	4	-	-	4
Debates	-	3	-	3
Group work (cooperative)	2	3	-	5
Lab practice	-	-	9	9
Lectures	24	-	-	24
Presentation	1	-	-	1
Reading Activities	2	-	-	2
Seminar	-	9	-	9
Tutorials	-	3	-	3
Total hours:	***33***	***18***	***9***	***60***

Off-site activities

Activity	Total
Activities	15
Analysis	15

COURSE DESCRIPTION

Activity	Total
Group work	15
Information search	10
Reference search	5
Self-study	30
Total hours	***90***

WORK MATERIALS FOR STUDENTS

Case studies
Dossier
Exercises and activities
Oral presentations
References

EVALUATION

Intended learning	Case Studies	Debate	Exams	Fieldnotes	Problem solving
CB1			X		X
CB2			X	X	X
CB3		X		X	X
CB4		X		X	
CB5					X
CE13	X				
CE14	X	X	X	X	X
CE16	X		X	X	X
CE7	X	X		X	X
CE8	X			X	X
CT4	X	X		X	X
CT5	X	X			X
CT7		X			X
CT8		X			X
CT9		X			
CU3		X			

COURSE DESCRIPTION

Intended learning	Case Studies	Debate	Exams	Fieldnotes	Problem solving
Total (100%)	*10%*	*10%*	*60%*	*10%*	*10%*
Minimum grade	*4*	*4*	*4*	*4*	*4*

(*)Minimum mark (out of 10) needed for the assessment tool to be weighted in the course final mark. In any case, final mark must be 5,0 or higher to pass the course.

Attendance will be assessed?:

No

General clarifications on instruments for evaluation:

A grade of "NO PRESENTADO" will be given to students who have not taken part in a number of evaluable activities adding up to more than 50% of the final grade (Art. 80.4 of the Regulations for the Undergraduate Studies Academic System).

Those students who have participated in assessment activities other than the final exam whose accumulated weight towards the final grade exceeds 50%, but has not attended the final exam in the course, the teacher will record "NO PRESENTADO" in the provisional publication of the grades.

If during the review process a student does not express his disagreement with this grade, it will be confirm ed as the final grade for the course. Otherwise, the student must notify the professor, and his final grade will be based on the weighted sum of all scores achieved in all assessment mechanisms completed, according to the criteria established in this addendum

Clarifications on the methodology for part-time students and students with disabilities and special educational needs:

Each case will be considered particularly

Clarifications on the evaluation of the extraordinary call and extra-ordinary call for completion studies:

Each case will be considered particularly

Qualifying criteria for obtaining honors:

The context will be appraised in accordance with the current regulation

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1. Basic Bibliography

Conceptos

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Contaminación abiótica

Bjeldanes, L.F. y Shibamoto, T. (1996) Introducción a la toxicología de los alimentos. Editorial Acribia, S.A. Zaragoza. ISBN 13: 9788420008226.

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- Codex Alimentarius: http://www.codexalimentarius.net/web/index_en.jsp
- Food and Agriculture Organization of United Nations (FAO): http://www.fao.org
- Organización Mundial de la Salud (OMS): http://www.who.ch
- European Food Safety Authority (EFSA): http://www.efsa.europa.eu
- Agencia Española de Consumo, Seguridad Alimentaria y Nutrición: http://aesan.msssi.gob.es

COURSE DESCRIPTION

- Ministerio de Agricultura, Alimentación y Medio Ambiente: http://www.magrama.gob.es
- Ministerio de Sanidad y Consumo: http://www.msc.es
- El Portal de la Unión Europea: http://europa.eu/index_es.htm
- Confederación de Consumidores y usuarios: http://www.seguridadalimentaria.org
- Centro Nacional de Epidemiología: http://www.isciii.es/ISCIII/es
- Fundación Alimentum: http://www.fundacionalimentum.org/materiales/adultos
- BEDCA: http://www.bedca.net/bdpub/index.php

2. Further reading

None

COORDINATION CRITERIA

Common evaluation criteria
Common learning outcomes
Orientation session
Visits organization

SCHEDULE

Period	Assessment activities	Debates	Group work (cooperative)	Lab practice	Lectures	Presentation	Reading Activities	Seminar	Tutorials
1# Fortnight	0,5	0,0	0,0	0,0	6,0	0,0	1,0	0,0	0,0
2# Fortnight	0,5	0,0	1,0	0,0	6,0	0,0	0,0	0,0	0,0
3# Fortnight	0,5	0,0	1,0	3,0	6,0	0,0	1,0	0,0	0,0
4# Fortnight	0,5	0,0	0,0	3,0	6,0	1,0	0,0	0,0	3,0
5# Fortnight	0,5	0,0	3,0	3,0	0,0	0,0	0,0	0,0	0,0
6# Fortnight	0,5	3,0	0,0	0,0	0,0	0,0	0,0	3,0	0,0
7# Fortnight	0,0	0,0	0,0	0,0	0,0	0,0	0,0	3,0	0,0
8# Fortnight	1,0	0,0	0,0	0,0	0,0	0,0	0,0	3,0	0,0
Total hours:	***4,0***	***3,0***	***5,0***	***9,0***	***24,0***	***1,0***	***2,0***	***9,0***	***3,0***

The methodological strategies and the evaluation system contemplated in this Course Description will be adapted according to the needs presented by students with disabilities and special educational needs in the cases that are required.