

**COURSE DATA****Data Subject**

Code	41026
Name	Food Safety
Cycle	Master's degree
ECTS Credits	10.0
Academic year	2024 - 2025

Study (s)

Degree	Center	Acad. Period year
2021 - Master's Degree in Food Quality and Safety	Faculty of Pharmacy and Food Sciences	1 Annual

Subject-matter

Degree	Subject-matter	Character
2021 - Master's Degree in Food Quality and Safety	1 - Food safety	Obligatory

Coordination

Name	Department
FERNÁNDEZ FRANZÓN, MÓNICA	265 - Prev. Medicine, Public Health, Food Sc.,Toxic. and For. Med.
RUIZ LEAL, MARIA JOSE	265 - Prev. Medicine, Public Health, Food Sc.,Toxic. and For. Med.

SUMMARY

The Food Safety module aims to provide knowledge to estimate the risks associated with exposure to natural or synthetic toxicants in foods according to consumption habits and population subgroups.

The most important toxicants of concern, their sources and formation, as well as their effects, mechanisms of action and manifestations of these effects and the prevention of poisoning through the establishment of safety limits will be addressed.

The methodologies used for toxicological research will be studied, which will allow doses to be related to effects and, by extrapolation, applying uncertainty factors and to establish the most appropriate safety margins.



This module will provide the basis of the most commonly used analytical methodologies for the determination of toxicants in foodstuffs.

It will be introduced to the processes of toxicological risks assessment, management and communication.

PREVIOUS KNOWLEDGE

Relationship to other subjects of the same degree

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

Other requirements

Not applicable

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

2021 - Master's Degree in Food Quality and Safety

- Adquirir habilidades en las técnicas y métodos de análisis que permiten evaluar distintos aspectos de la seguridad de los alimentos.
- Adquirir conocimientos sobre los procedimientos reglamentarios en la gestión de la calidad alimentaria
- Students should apply acquired knowledge to solve problems in unfamiliar contexts within their field of study, including multidisciplinary scenarios.
- Students should be able to integrate knowledge and address the complexity of making informed judgments based on incomplete or limited information, including reflections on the social and ethical responsibilities associated with the application of their knowledge and judgments.
- Students should communicate conclusions and underlying knowledge clearly and unambiguously to both specialized and non-specialized audiences.
- Students should demonstrate self-directed learning skills for continued academic growth.
- Conocimiento de los conceptos básicos de higiene de los alimentos. Medidas higiénicas y preventivas.
- Conocimiento y capacidad para estimar los riesgos asociados a la exposición de sustancias químicas y de tóxicos biológicos en productos de consumo.
- Conocimiento de los métodos más empleados para evaluar riesgos por la presencia productos químicos y tóxicos en alimentos y medidas para su control.
- Conocimiento de los compuestos tóxicos procedentes de la fabricación de alimentos.
- Capacidad para interpretar los datos obtenidos de la evaluación del riesgo y extrapolación al hombre. Establecimiento de límites de seguridad.



- Capacidad para adaptar los procesos relacionados con los alimentos a las normas vigentes de higiene de los alimentos y sistemas de gestión de calidad.
- Manejar la metodología estadística y saber analizar problemas y aplicar las herramientas estadísticas más apropiadas en cada caso.
- Students should possess and understand foundational knowledge that enables original thinking and research in the field.
- Ser capaces de obtener y de seleccionar la información y las fuentes relevantes para la resolución de problemas, elaboración de estrategias y asesoramiento a clientes.
- Elaborar y manejar los escritos, informes y procedimientos de actuación más idóneos para los problemas suscitados.
- Contemplar en conjunto y tener en cuenta los distintos aspectos y las implicaciones en los distintos aspectos de las decisiones y opciones adoptadas, sabiendo elegir o aconsejar las más convenientes dentro de la ética, la legalidad y los valores de la convivencia social.
- Know how to work in multidisciplinary teams reproducing real contexts and contributing and coordinating their own knowledge with that of other branches and participants.
- Participate in, lead and coordinate debates and discussions, be able to summarize them and extract the most relevant conclusions accepted by the majority.
- Use different presentation formats (oral, written, slide presentations, boards, etc.) to communicate knowledge, proposals and positions.
- Proyectar sobre problemas concretos sus conocimientos y saber resumir y extraer los argumentos y las conclusiones más relevantes para su resolución.
- Planificar, ordenar y encauzar actividades de manera que se eviten en lo posible los imprevistos, se prevean y minimicen los eventuales problemas y se anticipen sus soluciones.
- Obtener la formación necesaria para incorporarse a Departamentos de Investigación, Desarrollo e Innovación dentro de las empresas del sector agroalimentario.

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

Identify biological, chemical and physical hazards that may compromise food safety.

Know the analytical techniques used to detect and quantify contaminants in food and interpret the results to assess their impact on food safety.

Assess the exposure of the population to different hazards, taking into account factors such as the frequency and level of consumption of contaminated food, the concentration of the contaminant and the susceptibility of vulnerable groups.

Know how to apply the methods used in food safety risk assessment, including hazard identification, exposure assessment, biomonitoring and risk characterisation.



Know and interpret national, European and international food safety regulations.

DESCRIPTION OF CONTENTS

1. Food Safety

- Quality in companies in the agri-food sector: Certification, management and audits.
- Food Risk Assessment.
- Microbiological food safety.
- Control of chemical contaminants in food.
- Analysis of environmental contaminants of food interest.
- In vitro and in vivo Toxicological studies.
- Techniques and biological samples of toxicological interest in food safety.
- Techniques for detection and identification of pathogenic microorganisms in food.
- Importance of detecting viruses in food.
- Toxic effects of yeasts in foods.
- Food allergens.
- Risk Assessment of exposure to metals.
- Risk assessment for exposure to mycotoxins.
- Risk assessment of exposure to nano and microparticles.
- Pesticide residues in food and risk assessment.
- Risk assessment of polycyclic aromatic hydrocarbons and dioxins.
- Residues of veterinary drugs in food.
- Risks derived from the consumption of alkaloids in foods.
- Toxicological risks of food supplements.
- Food Security Programs.
- Total diet studies in Food Safety



WORKLOAD

ACTIVITY	Hours	% To be attended
Theory classes	85,00	100
Attendance at events and external activities	18,00	0
Development of group work	20,00	0
Study and independent work	18,00	0
Readings supplementary material	15,00	0
Preparation of evaluation activities	4,00	0
Preparing lectures	40,00	0
Preparation of practical classes and problem	50,00	0
TOTAL	250,00	

TEACHING METHODOLOGY

Theoretical classes: the lecturer, an expert in the subject to be covered, will provide the student with information on the subject to be studied (basic and/or complementary) previously in the virtual classroom. In order to follow the class, the student is recommended to review this material beforehand.

Group work activities: The lecturer may propose individual and/or group activities to the Master's students.

Conferences will be held on specific topics of interest such as entrepreneurship, food safety, industrial doctorate and food innovation.

During the theoretical classes and activities, the applications of the subject contents in relation to the Sustainable Development Goals (SDG) will be indicated. This aims is to provide knowledge, skills and motivation to understand and address these SDGs, while promoting reflection and criticism.

EVALUATION

To order to evaluate the theory, tests will be carried out throughout the teaching period of the subject. These tests may be written and/or online. The exam will consist of multiple choice questions. A mark of ≥ 5 is required to pass the course.

Individual and/or group evaluable activities may be carried out, which will contribute a maximum of 10% to the final grade



REFERENCES

Basic

- Lecturas recomendadas por los profesores y profesoras disponibles en bases de datos de la UV o accesibles por internet.

Additional

- https://www.aesan.gob.es/AECOSAN/web/home/aecosan_inicio.htm
- <http://www.efsa.europa.eu/es>
- https://food.ec.europa.eu/safety/rasff_en
- https://www.aesan.gob.es/AECOSAN/web/seguridad_alimentaria/subseccion/SCIRI.htm