

Course Unit	Quality and Food Safety	Field of study	Engineering and Similar Techniques
Master in	Agroecology	School	School of Agriculture
Academic Year	2025/2026	Year of study	1
Type	Semestral	Semester	2
Level	2-1	ECTS credits	6.0
Code	6348-747-1203-00-25		
Workload (hours)	162	Contact hours	T 30 TP - PL 30 TC - S - E - OT 4 O -

T - Lectures; TP - Lectures and problem-solving; PL - Problem-solving, project or laboratory; TC - Fieldwork; S - Seminar; E - Placement; OT - Tutorial; O - Other

Name(s) of lecturer(s) Maria Fátima Alves Pinto Lopes da Silva, Vitor Manuel Ramalheira Martins

Learning outcomes and competences

At the end of the course unit the learner is expected to be able to:

1. Identify the main aspects related to the quality and food safety problematic produced in sustainable agriculture;
2. Know the main hazards associated to vegetable and animal products;
3. Implement preventive and corrective measures to guarantee the safety of products of plant origin;
4. Contribute for the implementation of quality management systems and certification of products in sustainable production systems;
5. Integrate the acquired knowledge in the obtaining of safe products and in the traceability along the production chain.

Prerequisites

Before the course unit the learner is expected to be able to:
Non applicable.

Course contents

Food Quality and Safety. Main food safety issues in foods of animal and vegetable origin. Hazards. Maximum admissible levels. Good Agricultural and Animal Farming Practices. Traceability. Certification. Main certification systems applied to foodstuffs, food raw materials/agro-food industries/farming systems.

Course contents (extended version)

1. Food Quality and Safety.
 - Concepts and definitions.
 - Main food safety issues in foods of animal and vegetable origin.
2. Hazards in foodstuffs and minimization of their presence.
 - Biological hazards: bacteria, molds, virus, parasites.
 - Chemical hazards: micotoxins, antibiotics, pesticides, fertilizers, heavy metals, etc.
 - Physical hazards: radiation, foreign bodies.
3. Good Agricultural and Animal Farming Practices.
 - Farm production, hygiene, management, storage and transport of food and feed.
 - Cleaning and hygiene in farms, operators, equipments and installations.
 - Traceability.
4. Certification. Concepts and definitions, objectives, advantages and scope.
5. Main certification systems applied to products of plant origin and agro-food industries.
 - General standards: ISO 9001; HACCP; ISO 22000; ISO 45001.
 - Specific production system: Organic Agriculture, integrated protection and production.
 - Protected Designation Origin, Protected Geographical Indication, Traditional Speciality Guaranteed.
 - Private standards for systems of production, food safety and products.

Recommended reading

1. Autoridade de Segurança Alimentar e Económica. (2012). Perfil de risco dos principais alimentos consumidos em Portugal. ASAE - Direcção de Avaliação e Comunicação dos Riscos.
2. Páginas institucionais: www.dgav.pt; www.asae.gov.pt; www.efsa.europa.eu; www.fao.org/fao-who-codexalimentarius/codex-texts/codes-of-practice/en/; www.ipma.pt/pt/index.html; etc.
3. Páginas institucionais: <https://diariodarepublica.pt/dr/home>; <https://eur-lex.europa.eu/>; http://ec.europa.eu/food/food/chemicalsafety/contaminants/index_en.htm
4. Federação das Indústrias Portuguesas Agro-Alimentares (FIPA). (s. d). Rastreabilidade e Gestão de Incidentes na Indústria Agro-Alimentar.
5. Vaz, A. , Moreira, R. ; Hogg, T. , 2000. Introdução ao HACCP. Escola Superior de Biotecnologia – Universidade Católica Portuguesa.

Teaching and learning methods

Theoretical and practical lessons of the themes to be developed in the Course Unit. Research of literature for the preparation and discussion of the seminars presented by the students. Reading and interpretation of technical documents.

Assessment methods

1. Alternative 1 - (Regular, Student Worker) (Final, Supplementary, Special)
 - Practical Work - 30% (Team Works with presentation and discussion (minimum 10/20 values, total) and worksheets.)
 - Final Written Exam - 70% (Minimum 8/20 values.)
2. Alternative 2 - (Student Worker) (Final, Supplementary, Special)
 - Final Written Exam - 100% (Assessment by exam of all contents, practical and theoretical.)

Language of instruction

Portuguese, with additional English support for foreign students.

Electronic validation

Maria Fátima Alves Pinto Lopes da Silva, Vitor Manuel Ramalheira Martins	Maria da Conceição Constantino Fernandes	Manuel Ângelo Rosa Rodrigues	Elsa Cristina Dantas Ramalhosa
28-01-2026	28-01-2026	28-01-2026	04-02-2026