

63009 - Research in microorganisms in food, water and environment: traditional and molecular techniques

Información del Plan Docente

Academic Year	2016/17
Academic center	105 - Facultad de Veterinaria
Degree	566 - Master's in Food Quality, Safety and Technology
ECTS	3.0
Course	1
Period	Second semester
Subject Type	Optional
Module	---

1. Basic info

1.1. Recommendations to take this course

1.2. Activities and key dates for the course

2. Initiation

2.1. Learning outcomes that define the subject

2.2. Introduction

3. Context and competences

3.1. Goals

3.2. Context and meaning of the subject in the degree

3.3. Competences

3.4. Importance of learning outcomes

4. Evaluation

5. Activities and resources

5.1. General methodological presentation

The learning process that is designed for this course is based on the following:

The theoretical teaching of this subject includes the knowledge and application of reference methods and other alternative methods of analysis of food, water and environment. In the practical sessions students will develop in the laboratory the different methodologies for detection and identification of pathogenic microorganisms in food; as well as different microbial groups in water and environment samples. To do this, they have a detailed experimental protocol

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stages of the process and the direct supervision of teachers.

During the presentation of the work the student participation is encouraged, urging them to make a critical interpretation of the same.

5.2.Learning activities

Theoretical classes: in this sessions the reference methods for microbiological analysis of food, water and surfaces are presented; as well as the fundament and application of rapid methods of microbiological food analysis.

Practical session, in which students perform the analysis of different matrices by rapid and alternative methods.

Teaching works, where students prepare in group a work on topics of interest under the supervision of the teachers.

Seminars, in which students will present and defend the work done in groups. In these meetings discussion and debate on the work will be established.

Individual or group tutoring, will be carried out in order to supervise the work and to answer any questions arising during development thereof.

5.3.Program

1. Theoretical sessions: 6 hours (sessions of 1 hour each)

- Standards UNE / ISO for detection of microorganisms in food, water and environment
- PCR-based methods in Food Microbiology
- Fundamentals of Real-Time PCR

2: Practical sessions: 20 hours (sessions of 2 or 4 hours each)

- Analysis of different matrices (food, water and environment) using reference methods ISO.

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- Optimization of the amplification reaction DNA

- Detection and identification of foodborne pathogens through rapid analysis methods (Impedanciometry and Real-Time PCR)

3: Teaching works

Different topics related to microbiological analysis methodology are proposed. The work will be developed by the recopilation and interpretation of several scientific papers and will be supervised by teachers. Work will be done in group and will be delivered on the date set.

4: Seminars: 4 hours (sessions of 2 or 4 hours each)

Students will present and will defend the work done in groups. In these meetings the discussion and debate on the work will be motivated

5.4.Planning and scheduling

The master calendar and scheduling of the theoretical and practical sessions of the subject will appear throughout the month of July on the website of the Faculty of Veterinary Medicine, at the following address: <http://veterinaria.unizar.es/>

5.5.Bibliography and recommended resources

Typically, the literature of the academic year is kept updated and is consulted by the Library website (search biblioteca.unizar.es recommended bibliography).