

## 68761 - Research in molds and mycotoxins in food

### Syllabus Information

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**Academic year:** 2023/24

**Subject:** 68761 - Research in molds and mycotoxins in food

**Faculty / School:** 105 - Facultad de Veterinaria

**Degree:** 631 - Master's Degree in Food Quality, Safety and Technology

**ECTS:** 3.0

**Year:** 1

**Semester:** First semester

**Subject type:** Optional

**Module:**

### 1. General information

The main objective of this subject is to learn about the most important moulds in food, the main mycotoxins and their toxicological aspects, maximum limits and strategies for their prevention and control in the food chain. It also aims at the practical application of analytical techniques for the investigation of mycotoxins in raw materials, feed and food.

These approaches and objectives are aligned with the Sustainable Development Goals (SDGs) of the United Nations Agenda 2030 (<https://www.un.org/sustainabledevelopment/es/>), so that the acquisition of the learning results of the subject will contribute to some extent to the achievement of Goals 2, 3, 9 and 12.

### 2. Learning results

- -To list and describe toxigenic moulds and factors affecting their growth and relate this knowledge to the synthesis of mycotoxins in foods susceptible to be affected by them based on case studies.
- -To plan procedures for quantification and identification of moulds and mycotoxin analysis by various techniques, and to carry them out in the laboratory with the appropriate methodology, applying them to samples of raw materials, feed and food.
- -To list and describe the toxicological aspects of mycotoxins, as well as the systems for their prevention and control in the context of the food chain, in order to apply the knowledge acquired in real situations.
- -To critically analyse a scientific publication in English on moulds and/or mycotoxins of agri-food interest, and give an oral presentation on it.

### 3. Syllabus

#### Theoretical teaching

Topic 1. Introduction to moulds and mycotoxins in food.

Topic 2. Analysis of moulds and mycotoxins in food. Sampling and methods of analysis.

Topic 3. Fusarium toxins: trichothecenes, zearalenone, fumonisins.

Topic 4. Aflatoxins.

Topic 5. Ochratoxin A.

Topic 6. Other mycotoxins: patulin, citrinin, ergot alkaloids.

Topic 7. Prevention and control of mycotoxins in the food chain.

Topic 8. Mycotoxins in animal feed.

Topic 9. New challenges in mycotoxin analysis. Emerging mycotoxins.

#### Practical teaching

Session 1. Computer classroom practice on sources of information on moulds and mycotoxins in food.

Session 2. Laboratory practice on mycotoxin analysis using screening methods.

Session 3. Laboratory practice on mycotoxin analysis by instrumental methods (HPLC).

Session 4. Oral presentation of students' work.

## 4. Academic activities

**Lectures (16 hours):** sessions where the teacher will explain the subject's topics.

**Laboratory practice (8 hours):** research sessions on mycotoxins in food and analysis and result interpretation.

**Problem solving and case studies (6 hours):** sessions for solving practical cases with the help of computer tools (web pages, multimedia material) and oral presentation of works.

**Teaching assignments and other activities (13.5 hours):** learning activities that will help in the writing of practice reports and in the presentation on a scientific article.

**Study (30 hours)**

**Assessment tests: 1.5 hours.**

## 5. Assessment system

### Continuous assessment

#### Test 1 (25% of the grade, minimum of 6.75 out of 10)

It is a 40-question test with 4 alternatives to assess the learning of the theoretical contents presented in the lectures. The assessment criteria are mastery of the contents and ability to interrelate them, use of appropriate terminology and accuracy of the concepts.

#### Test 2 (25% of the grade, minimum of 5 out of 10)

Assessment of the practical classes through continuous observation of the student's work and correction of the written reports drawn up in each session. The assessment criteria are: student's autonomy and participation, use of the required tools and equipment, capacity for analysis and interpretation of the results as well as correct writing of the reports.

#### Test 3 (50% of the grade, minimum of 5 out of 10)

Drawing up and oral presentation of an individual work on a scientific article from Web of Science (WOS). The assessment criteria are quality and structure of the presentation, student's critical capacity, oral communication skills, discussion and argumentation.

### Global assessment.

Students who have not chosen the continuous evaluation modality or have not passed any of the tests, may take a final test consisting of the same evaluation activities (theoretical, practical and oral presentation) carried out in the two official exams. For this global test, the grading percentages for each activity and the evaluation criteria will be the same as for the continuous evaluation.