

30813 - Food Microbiology

Syllabus Information

Academic year: 2023/24

Subject: 30813 - Food Microbiology

Faculty / School: 105 - Facultad de Veterinaria

Degree: 568 - Degree in Food Science and Technology

ECTS: 6.0

Year: 2

Semester: First semester

Subject type: Compulsory

Module:

1. General information

The **general objective** is for the student to know those microorganisms of interest in food, to know how they act and the mechanisms or parameters that influence them.

These approaches and objectives are aligned with the following Sustainable Development Goals (SDGs) of the United Nations Agenda 2030 2030 of the United Nations in such a way that the acquisition of the learning results of the subject will provide training and competence to contribute to some extent to their achievement:

Goal 3: Health and Wellness

Goal 12: Responsible Consumption and Production

2. Learning results

- Knows and differentiates the main microorganisms (bacteria, moulds and yeasts and parasites and viruses) present in or carried by food, as well as their origin and all those parameters that influence the development of these microorganisms (microbial ecology).
- Identifies the microorganisms that participate positively in the transformation of food raw materials (fermented foods), as well as the actions developed by them.
- Knows the problems derived from the growth of spoilage microorganisms (biodeterioration) in the different food groups, as well as the identification procedures and control mechanisms.
- Knows the problems derived from the presence, growth and survival of pathogenic microorganisms (bacteria, moulds and yeasts and parasites and viruses) in different food groups and their control mechanisms.
- Is able to interpret-tables and graphs of factors related to the survival and growth of microorganisms in food (aw, pH, acidity, temperature, Eh, antimicrobials, decontaminants) whether the data are in Spanish or in other languages.

3. Syllabus

BLOCK I: Microbial ecology of food. Action, origin and taxonomy of microorganisms present in the foods. Intrinsic, extrinsic and implicit factors that condition microbial growth. Treatment and processing factors that condition microbial growth,

BLOCK II: Microbiology of food fermentations. Microorganisms of technological interest: quantification, identification and metabolic activity. Fermented foods of animal origin: dairy and meat products.

Fermented foods of vegetable origin: bakery products, alcoholic beverages.

BLOCK III: Biodeterioration and microbial pathogens in food. Food of animal origin and fruit and vegetable products; Other food.

4. Academic activities

- **Master classes: 37 hours.** Theoretical sessions in which the contents of the subject are explained.
- **Problem solving and case studies: 3 hours.** Sessions to solve practical cases presented by the teachers.

- **Laboratory practices: 20 hours.**
- **Teaching assignments: 27 hours.** Development of tutored work on the microbiological study of a food assigned by the teachers.
- **Personal study: 60 hours.**
- **Assessment tests. 3 hours.**

5. Assessment system

The subject will be assessed in the global assessment modality by means of the following activities:

Test 1. Final written evaluation test of the theoretical sessions (75% of the grade). It will consist of 25-30 questions of short answer (the precision and concreteness of the answers will be valued) and closed multiple-choice tests (incorrect answers will subtract half of the value of the same).

Test 2. Written evaluation test of the practical sessions (10% of the grade). It will consist of questions of short answer and/or multiple-choice questions, which will be asked at the end of the practices. The grade will be maintained for two academic years.

Test 3. Supervised work (15% of the grade). Work on the microbiological profile of a food assigned by the teachers (mode of presentation: written work) The ability to obtain, order and synthesize the information will be assessed. The grade will be maintained for two academic years.

A minimum of 5 out of 10 will be required in all tests.

The students who have not completed the practices of the subject or who have missed any of the sessions without a justified cause, will have to pass a laboratory exam in which they must demonstrate that they have achieved the skills and abilities through the correct performance of a laboratory practice from among those proposed in the subject. Those who do not pass the exam of the practical sessions will be able to do it with the written test of the final evaluation.

Students who have not submitted the tutored work in a group or who waive the grade obtained will have to submit it individually, being evaluated following the same criteria already mentioned for Test 3. They will contact the teachers to agree on the topic of the work to be developed.