

30820 - Food Technology I

Syllabus Information

Academic year: 2023/24

Subject: 30820 - Food Technology I

Faculty / School: 105 - Facultad de Veterinaria

Degree: 568 - Degree in Food Science and Technology

ECTS: 6.0

Year: 3

Semester: First semester

Subject type: Compulsory

Module:

1. General information

The main objective of this subject is to teach students, from a global and applied perspective, the physical, chemical and biological fundamentals of food alterations and hazards, the preservation processes that can be used to control them, and the modifications that food undergoes when they are applied. This will enable the student to select the most appropriate preservation methods in each case. The subject is closely linked to Food Technology II, which will complete the training in the handling of food and food processing and storage equipment and facilities, as well as control and data acquisition systems.

These approaches and objectives are aligned with the following Sustainable Development Goals (SDGs) of the United Nations Agenda 2030 (<https://www.un.org/sustainabledevelopment/es/>), in such a way that the acquisition of the learning results of the subject provides training and competence to contribute to some extent to their achievement: Goal 2: Zero hunger, Goal 4: Quality education, Goal 6: Clean water and sanitation, Goal 7: Affordable and non-polluting energy; Goal 9: Industry, innovation and infrastructure, Goal 12: Responsible Production and Consumption

It is recommended to have previously taken the subjects of Food Chemistry, Food Microbiology and Basic operations in the food industry.

2. Learning results

1. Is able to identify the main agents that determine food spoilage, interpret their kinetics of evolution and select the most appropriate strategies for their control.
2. Is able to solve questions or problems related to food sanitization and preservation based on knowledge of the most appropriate technologies.
3. Is able to foresee the effects that the different technological processes exert on the raw material and, as a consequence, on the quality parameters of the processed food.
4. Is able to solve calculation and optimization problems of the most common treatments in the food industry.
5. Is able to obtain, working in a team, interpret and defend in an oral presentation, the precise data for the calculation and optimization of the most common preservation treatments in the food industry (survival, thermodestruction and TDT graphs; freezing curves, and sorption isotherms).

3. Syllabus

BLOCK I. General principles.

BLOCK II: Food preservation by heat.

BLOCK III: Food preservation by cold and modified atmospheres.

BLOCK IV: Food preservation due to decreased water activity.

BLOCK V: Predictive modelling.

BLOCK VI: Other preservation methods.

4. Academic activities

- Master classes: 36 h.
- Classroom practices: 8 h. Cases and problems related to the calculation, optimization and adjustment of conservation treatments are solved and discussed.
- Laboratory practices: 16 h. Each group holds one session per week on a different topic, except for the two sessions related to heat conservation, which are held on consecutive days. In each session the group is divided into 2- 3 subgroups, which work on different activities.
- Teaching assignments: 12 h. Each student must submit a written report on one of the activities performed.
- Personal study: 60 h
- Assessment tests. 4 h.

5. Assessment system

- Written test with true/false questions with 100 statements. Each correct answer scores +0.01 and each incorrect answer scores -0.005. The minimum passing grade is 5 out of 10. The grade constitutes 50% of the overall grade.
- Individual written test of problem solving and short questions. The understanding of the statement, the application of the concepts seen in the theoretical and practical classes, reasoning of the procedure used for the resolution, interpretation of the results and the arguments of the conclusions are valued. It is used as a midterm exam in the middle of the term. The minimum passing grade is 5 out of 10. The grade constitutes 40% of the overall grade.
- Written report of one of the practical activities. The clarity and precision with which the experimental design is presented, the difficulties encountered, the results obtained, the analysis of the data and the conclusions are valued. The minimum passing grade is 5 out of 10. The grade constitutes 10% of the overall grade.

The overall grade is obtained from the weighted average of the three exercises, being necessary to obtain a value higher than 5.0 in order to pass. The results obtained in the tests passed will be maintained until the end of the academic year.