

Academic Year/course: 2021/22

30838 - Enrichment in the Drinks Sector

Syllabus Information

Academic Year: 2021/22

Subject: 30838 - Enrichment in the Drinks Sector

Faculty / School: 105 - Facultad de Veterinaria

Degree: 568 - Degree in Food Science and Technology

ECTS: 5.0

Year: 4

Semester: Second semester

Subject Type: Optional

Module:

1. General information

2. Learning goals

3. Assessment (1st and 2nd call)

4. Methodology, learning tasks, syllabus and resources

4.1. Methodological overview

The methodology followed in this course is oriented towards the achievement of the learning objectives. Students are expected to participate actively in the class throughout the semester. A wide range of teaching and learning tasks are implemented, such as theory sessions, laboratory sessions, assignments and visits.

Classroom materials will be available via Moodle. These include a repository of the lecture notes used in class, the course syllabus, as well as other course-specific learning material.

Students must follow the regulations described in:

- Prevention: A guide for students at the University of Zaragoza:
https://uprl.unizar.es/sites/uprl.unizar.es/files/archivos/Procedimientos/guia_preventiva_para_estudiantes.pdf
- Manual de seguridad en los laboratorios de la Universidad de Zaragoza y normas marcadas por la Unidad de Prevención de Riesgos Laborales:

https://uprl.unizar.es/sites/uprl.unizar.es/files/archivos/Procedimientos/manual_de_seguridad_en_los_laboratorios_de_la

<https://uprl.unizar.es/inicio/manual-de-procedimientos>

In addition, students will follow as well any instructions related to biosecurity given by the professor

4.2. Learning tasks

This is a 5 ECTS course organized as follows:

- **Lectures** (1.0 ECTS: 10 hours). The teacher will explain the theoretical contents of the course and solve the problems by using graphic material. Although it is not a mandatory activity, regular attendance is highly recommended.
- **Practice sessions in laboratory and pilot plant** (1.5 ECTS: 15 hours). 5 sessions of 3 hours duration. In these sessions the students will apply different conservation and disinfection techniques of horticultural products. In

groups of 3-4 people, they must choose the treatment to be applied, apply it and evaluate the benefits of its application on the shelf life and on the physical-chemical and organoleptic quality of the vegetable product. In the last session there will be a presentation where each working group will expose, with the help of graphic material, the results obtained, and will discuss the suitability of the applied technology.

- **Visits** (1 ECTS: 10 hours). Depending on the destination, 2 or 3 visits to companies or technological centers related to the fruit and vegetable sector will be carried out. These visits will focus on the challenges and opportunities that the Spanish fruit and vegetable sector faces both in cultivation and commercialization.
- **Assignments** (0.5 ECTS: 5 hours). It will consist in the analysis of a research work in English language in terms of its working hypothesis, applied methodology and results and conclusions obtained. On the last day of the course each student will make a presentation where he/she expose the previously commented aspects that will be discussed with the responsible teacher and the rest of the students.
- **Autonomous work**: 75 hours to study the concepts treated in the lectures, prepare laboratory sessions, prepare the supervised work and perform exams.
- **Tutories**: the teacher's tutorial hours will be published in Moodle and the CTA grade website to help the students with questions and doubts. It is beneficial for the student to come with clear and specific questions.

4.3. Syllabus

The course will address the following topics:

A) LECTURES

TOPIC I: Postharvest technology of horticultural crops (1 ECTS, 10 hours)

- 1.- Pome fruits
- 2.- Stone fruits
- 3.- Small fruits
- 4.- Citric fruits
- 5.- Fruit vegetables
- 6.- Flower, leafy and stem vegetables
- 7.- Flowers, sprouts and herbs
- 8.- Roots, tubers and bulbs

Topic II: SAFETY MANAGEMENT IN THE HORTICULTURAL SECTOR (0.5 ECTS, 5 hours)

- 1.- Biotic risks in fruit and vegetable products
- 2.- Low impact decontamination treatments versus traditional treatments
- 3.- Postharvest treatments for insect control and quarantine protocols
- 4.- Food safety protocols: BRC, IFS ...

Topic III: THE HORTICULTURAL SECTOR AND THE ENVIRONMENT (0.25 ECTS, 2.5 hours)

- 1.- Types of pollutants generated in the production, conservation and transformation of fruits and vegetables.
- 2.- Techniques to reduce pollution in the production, conservation and commercialization of fruits and vegetables. Zero waste: towards sustainable production.
- 3.- Complete management of the life cycle: carbon footprint, efficient water management, etc. Recycling of containers New methods of wastewater treatment.

Topic IV: THE ECONOMIC MAGNITUDES IN THE FRUIT AND VEGETABLE SECTOR (0.25 ECTS, 2.5 hours)

- 1.- Market structure (production, consumption and market at regional, national and international level). Common Market Organization (CMO).
- 2.- Distribution channels. Imports and exports.

B) PRACTICE SESSIONS: 25 HOURS

- B.I.) Practice sessions in laboratory and pilot plant: 15 hours
- B.II) Visits: 10 hours
- B.I) PRACTICE SESSIONS IN LABORATORY AND PILOT PLANT

In these five sessions of 3 hours the students will apply different techniques of conservation and disinfection of horticultural products. In groups of 3-4 people, they must choose the treatment to be applied, design it, apply it and evaluate the benefits of its application on the shelf life and the physical-chemical and organoleptic quality of the fruit and vegetable product. The last session will be devoted to the sharing of the results obtained.

- B.II) VISITS

Visits will be made to companies and technology centers of the fruit and vegetable sector with the aim of knowing in situ the

processes that take place there and sharing with experts and entrepreneurs the challenges and opportunities that this sector faces.

C) ASSIGNMENT: 5 hours

A scientific research work in English will be assigned at the beginning of the course to each student. This work should be analyzed in terms of its working hypothesis, applied methodology and results and conclusions obtained. The last day of the subject will proceed to the discussion of the work in a joint session.

4.4. Course planning and calendar

Further information concerning the timetable, classroom, office hours, assessment dates and other details regarding this course will be provided on the first day of class or please refer to the "Facultad de Veterinaria?" website and the Degree website (<http://veterinaria.unizar.es/gradocta/>).