UAB Universitat Autònoma de Barcelona

Products Derived from Alcoholic Fermentation

Code: 103227
ECTS Credits: 3

2024/2025

Degree	Type	Year
2501925 Food Science and Technology	OT	4

Contact

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Teachers

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Teaching groups languages

You can view this information at the end of this document.

Prerequisites

There are no prerequisites for this subject. There is a limitation on the number of students to 36 people. The selection will be based on the number of credits passed and the academic record

Objectives and Contextualisation

The products derived from alcoholic fermentation are widely represented in many cultures around the world, and are commonly consumed. Products that retain a high ethanol content in their final form are usually consumed only by the adult population. There are, however, others for which alcoholic fermentation is only an intermediate stage before producing the final product (bread, vinegars ...).

Within the subject, the wine industry will be taken as a backbone of the theoretical classes and as a thread of the processes used in other products. The other two products also important in our environment, beer and cider, will be covered more seriously. Other auxiliary topics will be developed through work carried out by students.

The objective is for students to know this industry, which is very important in the Mediterranean environment, and to develop relationships with industrial processes, biochemical changes and microbiological processes that they have studied in previous years.

Competences

- Apply knowledge of the basic sciences to food science and technology.
- Apply the principles of processing techniques and evaluate their effects on the quality and safety of the product.
- Develop individual learning strategies and planning and organisation skills.
- Identify pathogenic, spoilage, and industrially-useful microorganisms, along with the conditions that are favourable or unfavourable to their growth in foods and in industrial and biotechnological processes.
- Search for, manage and interpret information from different sources.
- Show understanding of the mechanisms by which raw materials deteriorate and the reactions and changes that take place during storage and processing, and apply the methods for controlling this.
- Use IT resources for communication, the search for information within the field of study, data processing and calculations.

Learning Outcomes

1. Apply the technological processes that are specific to milk and dairy products, meat and meat derivatives, fish products, egg products and vegetable products, and understand the modifications to the final product that these processes make.
2. Describe the processes of spoilage and deterioration of foods.
3. Design complex processes in accordance with the established quality criteria.
4. Develop individual learning strategies and planning and organisation skills.
5. Foresee and solve problems that are specific to the food industries.
6. Recognise the importance of fermentation processes and appreciate the role of microorganisms in industrial processes.
7. Relate the characteristics of foods to their physical properties.
8. Search for, manage and interpret information from different sources.
9. Select processes of conservation, transformation, transport and storage that are suited to foods of animal and plant origin.
10. Use IT resources for communication, the search for information within the field of study, data processing and calculations.

Content

Expositive-participatory classes

- Raw materials
    - Grape
    - Cereals
- Prefermentative operations
    - Grapes pressing
    - Conversion of starch into sugars (endogenous enzymes or co-culture with fungi)
- Agents of fermentation
    - Yeasts
        - Conversion of sugars
        - Effect of temperature
- Maturation and ageing
    - Evolution and ageing
    - Modifications carried out by bacteria

Practical classes

- Brewing
- Sensory analysis of wines and beers
- Visits to producers

Activities and Methodology

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Expositive lectures	10	0.4	1, 2, 6, 9
Laboratory practical sessions	9	0.36	1, 4, 3, 5, 6, 7, 9
Visites	5	0.2	3, 6, 9
Type: Supervised			
Mentoring	5	0.2	4, 6
Type: Autonomous			
Preparation and development of the extension of the syllabus the form of wikis	16	0.64	8, 4, 10
Preparation of reports of practical sessions and visits	13	0.52	4
Self-study work	13	0.52	4

The methodology used in this subject to achieve the learning process is based on making the student work the information that is available to him. The function of the teacher is to give him the information or tell him where he can get it, help him and tutor it so that the learning process can be carried out effectively. To achieve this goal, the subject is based on the following activities:

Expositive lectures

The content of the theory program will be given by the teaching team in the form of expository classes. The theoretical classes will be complemented with the visualization of animations and videos related to the subjects treated in class. The visual aids used in class by the teacher will be available on the Virtual Campus. It is recommended that students print this material and take it to class to use it as a support when taking notes. Although it is not essential to extend the contents of the classes taught by the teacher unless expressly requested by the latter, it is advised that students regularly consult the books recommended in the Bibliography section in order to consolidate and clarify, if necessary, the contents explained in class.

With these lectures, the student acquires the basic scientific-technical knowledge of the subject that must complement with the personal study of the subjects explained.

Laboratory practices

The students will go to the practical sessions with the script. A brief questionnaire will be made at the beginning of the session to validate that the students read the instructions previously. We want to enhance the development of planning skills, observation and manual skills. Students will be taught in the handling of processing and control equipment and devices, learning to record their observations and discoveries, evaluating the results and discovering the links between theory and experimental work

After the practice session, the students will prepare a collective report for each group of work in the laboratory.

Mentoring

The tutorial sessions aim to direct and help the student in their training. Tutoring hours will be used to resolve doubts about the contents of the subject. Students can take the tutorials to ask questions, comment or raise doubts that have emerged throughout the course.

Annotation: Within the schedule set by the centre or degree programme, 15 minutes of one class will be reserved for students to evaluate their lecturers and their courses or modules through questionnaires.

Assessment

Continous Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Delivery of reports of laboratory practices (group activity)	25% of global evaluation	0.5	0.02	4
Elaboration of materials in the form of a short video (group activity) and qualification of the subjects elaborated by the other groups (individual activity). The video activity is divided into 3 steps: information research, script development, and video	40% of global evaluation	2.5	0.1	8, 4, 3, 5, 6, 10
Final exam (individual evaluation)	35% of global evaluation	1	0.04	1, 2, 3, 5, 6, 7, 9

In order to be able to choose to be evaluated on the subject, it will be necessary to have attended the practical sessions. Non-attendance is allowed for one practical session as a maximum. Visits do not count within this compulsory nature.

The grade of the subject will be obtained from the weighted average of the following activities of continuous evaluation:

- Final written exam. It will include the subjects presented in the expositive classes and the subjects prepared by the students and available for study through the Virtual Campus of the subject (35%)
- Reports of practices and visits (25%)
- Themes developed by students. The material prepared by the group (30%) and the evaluations made in the subjects prepared by the other groups (10%) will be described.

It is considered that a student is not evaluable if he has not participated in evaluation activities that represent ≤ 15% of the final grade.

In the event that a student enrols for the second time in the subject, they will have to go back to doing the written examination activity and the development of specific topics. The repetition of visits and practices is optional, and the student may decide to retain the qualification obtained in the previous enrollment.

The retake of the subject will consist of an oral exam of the topics presented in the lectures and of the topics prepared by the students and available for study through the Virtual Campus of the subject which will be worth 35% of the retake grade. A new assignment of the assigned topic can be made and developed by the student, which will weight 40% in the recovery grade. To this exercise will be added the grade of the previously evaluated practice report, which will be worth 25% of the retake grade. To participate in the reassessment, the student must have participated in all 3 elements of the continuous assessment and have obtained at least a 3 in each of the parts.

This subject cannot be evaluated through a single evaluation.

Bibliography

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- Waterhouse, A. L., Sacks, G. L., & Jeffery, D. W. (2016). Understanding Wine Chemistry. Chichester, UK: John Wiley & Sons, Ltd. https://doi.org/10.1002/9781118730720

Software

It will be necessary to use some office automation package to elaborate the works that the teachers commission. The contents will be conveyed through the Virtual Campus of the subject.

In case it is necessary to do synchronous activities remotely, the Teams platform will be used, where students must access using their institutional e-mail.

Language list

Name	Group	Language	Semester	Turn
(PLAB) Practical laboratories	1	Catalan	first semester	morning-mixed
(PLAB) Practical laboratories	2	Catalan	first semester	morning-mixed
(TE) Theory	1	Catalan	first semester	afternoon