UFV
Teaching guide

IDENTIFICATION DETAILS

Degree:	Biotechnology

Scope	Biology and Genetics

Faculty/School:	Experimental Sciences

Course:	FOOD TECHNOLOGY

Type:	Optional	ECTS credits:	3

Year:	4	Code:	2059

Teaching period:	Seventh semester

Subject:	Applied Biotechnology

Module:	Biotechnological Processes and Products

Teaching type:	Classroom-based

Language:	Spanish

Total number of student study hours:	75

SUBJECT DESCRIPTION

The Food Technology course is an optional subject that is part of the module 'Biotechnological Processes and Products'. Among the objectives of this module is for students to consolidate their training as a biotechnologist by studying biotechnological applications in the various areas of activity of Biotenology. In this course, biotechnological processes applied to the area of food production and preservation will be studied.

GOAL

It is intended to provide students with the necessary knowledge to be able to identify and understand the transformations that take place in the food industry as well as to apply the techniques and procedures used in

quality management and preservation of manufactured foods.

PRIOR KNOWLEDGE

Those corresponding to the grade.

COURSE SYLLABUS

Topic 1. Foundations of Food Biotechnology.

Theme 2. Food alteration: physical, microbiological, chemical. Microorganisms of interest in food.

Theme 3. Fermentative processes in the food industry and other forms of food preservation.

Topic 4. Technological ingredients. Enzymes in food production and antinutrients.

Topic 5. Biopreservation and lifespan extension

Theme 6. Sensory evaluation and quality of biotechnological foods

Topic 7. Biotechnology in the nutritional improvement of foods

Topic 8. Biotechnology and sustainability in the food industry

Topic 9. Emerging Innovations in Food Biotechnology

EDUCATION ACTIVITIES

- Participatory exhibition class. Students will be provided with essential and organized information from a variety of sources. In addition to the oral presentation, other teaching resources will be used and the active participation of students will be encouraged in order to facilitate greater reception and understanding.
- Individual or group work. -
- Individual or group tutoring. Individual or group care to answer questions and to monitor acquired skills.
- Final evaluation test.

DISTRIBUTION OF WORK TIME

TEACHER-LED TRAINING ACTIVITIES	INDIVIDUAL WORK
30 Horas	45 Horas

SKILLS

Basic Skills

Students must have demonstrated knowledge and understanding in an area of study that is founded on general secondary education. Moreover, the area of study is typically at a level that includes certain aspects implying knowledge at the forefront of its field of study, albeit supported by advanced textbooks

Students must be able to apply their knowledge to their work or vocation in a professional manner and possess

skills that can typically be demonstrated by coming up with and sustaining arguments and solving problems within their field of study.

Students must have the ability to gather and interpret relevant data (usually within their field of study) in order to make judgments that include reflections on pertinent social, scientific or ethical issues

Students must be able to convey information, ideas, problems and solutions to both an expert and non-expert audience

Students must have developed the learning skills needed to undertake further study with a high degree of independence

To acquire firm theoretical, practical, technological and humanistic training needed to develop professional activity.

To be familiar with the applications of biotechnology in the healthcare, food, agrobiotechnological, environmental and chemical fields.

Capacity for teamwork and group management.

Capacity for problem-solving and decision-making.

To foster a concern for knowledge as a key tool in the personal and professional growth process of a student.

To recognize the mutual influence existing between science, society and technological development in order to strive for a sustainable future.

To develop oral and written communication skills.

General Skills

To acquire firm theoretical, practical, technological and humanistic training needed to develop professional activity.

To be familiar with the applications of biotechnology in the healthcare, food, agrobiotechnological, environmental and chemical fields.

Capacity for teamwork and group management.

Capacity for problem-solving and decision-making.

To foster a concern for knowledge as a key tool in the personal and professional growth process of a student.

To recognize the mutual influence existing between science, society and technological development in order to strive for a sustainable future.

To develop oral and written communication skills.

Specific skills

Learn about food production and improvement strategies using biotechnological methods.

Know the microorganisms of industrial importance and understand their biotechnological potential.

Identify and understand the transformations that take place in the food industry and know how to apply the techniques and procedures used in quality management and preservation of manufactured foods.

Understand the social and environmental challenges of the globalized world to contribute to sustainable development.

Know how to apply the theoretical knowledge acquired to solving problems and practical cases related to different subjects.

Know how to work as a team in an effective and coordinated way.

Develop criteria for problem solving and decision-making in both the professional and personal spheres.

LEARNING RESULTS

The student will be able to identify and describe the main biotechnological processes applied in the food industry, including fermentation, biopreservation and nutritional improvement, analyzing their impact on the quality, safety and shelf life of food.

The student will apply theoretical knowledge to evaluate food alterations and propose technological solutions using enzymes, microorganisms and biotechnological preservation methods, considering criteria of sustainability, quality and consumer sensory perception.

LEARNING APPRAISAL SYSTEM

ORDINARY EVALUATION:
Ordinary call:
Exam: 50%.
Jobs and activities: 40%.
Participation and demonstrated attitude: class attendance is mandatory and will not earn points on its own: 10%.
It is necessary to get a 5 (out of 10) in each of the sections to pass the course.
Extraordinary call: In the case of suspending the subject in an ordinary call, for the extraordinary call, the student must undergo the necessary tests marked by the teacher to pass each of the suspended parts, keeping the notes of the approved parts.
All tests susceptible to evaluation will be subject to the provisions of the evaluation regulations of the Francisco de Vitoria University. Plagiarism, as well as the use of illegitimate means in evaluation tests, will be sanctioned in accordance with those established in the Evaluation Regulations and the University's Coexistence Regulations.
ALTERNATIVE EVALUATION:
For students in second or subsequent enrollment and students with an academic exemption.
Exam: 70%. Jobs and activities*: 30%. The delivery will be made at the end of the course.

* Students who have already taken the subject will have the grade they obtained in that part saved. In addition, it will be necessary to obtain a grade of 5 (out of 10) in the final evaluation test to pass the subject. In the case of suspending the subject in an ordinary call, for the extraordinary call the student must undergo the necessary tests marked by the teacher to pass each of the suspended parts, keeping the grade of the approved parts.

ETHICAL AND RESPONSIBLE USE OF ARTIFICIAL INTELLIGENCE

1.- The use of any Artificial Intelligence (AI) system or service shall be determined by the lecturer, and may only be used in the manner and under the conditions indicated by them. In all cases, its use must comply with the following principles:
a) The use of AI systems or services must be accompanied by critical reflection on the part of the student regarding their impact and/or limitations in the development of the assigned task or project.
b) The selection of AI systems or services must be justified, explaining their advantages over other tools or methods of obtaining information. The chosen model and the version of AI used must be described in as much detail as possible.
c) The student must appropriately cite the use of AI systems or services, specifying the parts of the work where they were used and describing the creative process followed. The use of citation formats and usage examples may be consulted on the Library website(https://www.ufv.es/gestion-de-la-informacion_biblioteca/).
d) The results obtained through AI systems or services must always be verified. As the author, the student is responsible for their work and for the legitimacy of the sources used.
2.- In all cases, the use of AI systems or services must always respect the principles of responsible and ethical use upheld by the university, as outlined in the Guide for the Responsible Use of Artificial Intelligence in Studies at UFV. Additionally, the lecturer may request other types of individual commitments from the student when deemed necessary.
3.- Without prejudice to the above, in cases of doubt regarding the ethical and responsible use of any AI system or service, the lecturer may require an oral presentation of any assignment or partial submission. This oral evaluation shall take precedence over any other form of assessment outlined in the Teaching Guide. In this oral defense, the student must demonstrate knowledge of the subject, justify their decisions, and explain the development of their work.

BIBLIOGRAPHY AND OTHER RESOURCES

Basic

Juan A. Ordoñez (ed.); María Isabel Cambero Rodriguez... [et al.]. Food Technology/Madrid:Synthesis, 2010.

Fellows PJ. Food processing technology. Principles and Practices. 3rd ed. Zaragoza: Acribia, S.A.; 2019

Additional

Casp-Vanaclocha A. Plant-based food technology. Vol. I and II. Summary; 2014.

Ordoñez JA. Food Technology vol. II: Food of animal origin. Synthesis; 2014.

Ordóñez, J.A. and García de Fernando, G.D. Food Technologies, Vol.1 (Foundations of Food Chemistry and Microbiology), Vol. 2 (Conservation Processes) and Vol. 3 (Transformation Processes). Editorial Síntesis, Madrid. 2019