

Microbial Biotechnology

Code: 42900
ECTS Credits: 9

2025/2026

Degree	Type	Year
Biotecnología Avanzada	OB	1

Contact

Name: Antonio Pedro Villaverde Corrales

Email: antonio.villaverde@uab.cat

Teachers

Antonio Pedro Villaverde Corrales

Pau Ferrer Alegre

Neus Ferrer Miralles

Escarlata Rodriguez Carmona

Esther Vazquez Gomez

Eloi Parlade Molist

Anna Aris Giralt

Jose Luis Corchero Nieto

Elena Garcia Fruitós

Jesus Aranda Rodriguez

(External) Antonio Barreiro Vázquez

(External) Antonio Rodríguez Fernández de Henestrosa

(External) Carla Prat

(External) Jordi Feliu

(External) Lucas Martín

(External) Luis Enrique Brenes

(External) Luis Ruiz

(External) Manuel Rodríguez

(External) Marí Aldea Malo

(External) Patricia Ayma

(External) Pau Vila

(External) Remedios Mancebo

(External) Rubén León

Teaching groups languages

You can view this information at the [end](#) of this document.

Prerequisites

It is expected to have a good conceptual background in microbial metabolism and physiology, molecular microbiology, microbial cell culture techniques, genetic manipulation of microorganisms and protein engineering.

Objectives and Contextualisation

The objective of this module is to provide students with an overview of microorganisms of industrial interest, microbial diversity and their potential on an industrial scale in production / transformation processes.

There will also be several microbial products of industrial and biomedical interest, especially proteins, and how microbial cell factories can be used for the production and adaptation of the same for biotechnological and biomedical applications.

Learning Outcomes

1. CA03 (Competence) Design microorganism-based tools and strategies to optimize industrial processes.
2. CA03 (Competence) Design microorganism-based tools and strategies to optimize industrial processes.
3. CA04 (Competence) Evaluate research results to develop new products or industrial processes for transfer to society.
4. CA05 (Competence) Act in the industrial field with ethical responsibility and with respect for fundamental rights and duties, diversity and democratic values, in accordance with the Sustainable Development Goals.
5. KA02 (Knowledge) Recognise experimental procedures in the field of industrial microbiology.
6. KA02 (Knowledge) Recognise experimental procedures in the field of industrial microbiology.
7. KA03 (Knowledge) Recognize microorganisms of industrial interest.
8. KA03 (Knowledge) Recognize microorganisms of industrial interest.
9. SA04 (Skill) Apply microbial diversity as a source of new microorganisms and microbial products of industrial interest.
10. SA04 (Skill) Apply microbial diversity as a source of new microorganisms and microbial products of industrial interest.
11. SA05 (Skill) Apply current tools and systems used in industrial microbiology and at the interface between industrial microbiology and biotechnology.

Content

- R+D+I to obtain products or microorganisms of industrial interest.
- The Cell Factory concept: microbial production of metabolites, enzymes and recombinant drugs.
- Experimental design in microbial biotechnology.
- Production and engineering of protein drugs and materials of clinical interest.
- Microbiology in different industrial sectors (health, pharmaceutical, agri-food, cosmetics).

-Value and technological transfer of microbial products.

Activities and Methodology

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Lectures	46	1.84	CA03, KA02, KA03, SA04, CA03
Type: Autonomous			
Personal study	135	5.4	CA04, CA05, KA02, KA03, SA05, CA04
Preparation of an oral presentation	41.75	1.67	CA03, CA04, KA02, SA04, CA03

This module consists of expository masterclasses taught by researchers in fields related to Microbiology and Biotechnology, by professionals in these specialties from related industries, and by experts in valorization and industrial transfer. Attendance at 60% of master classes will be required.

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

Continuous Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Evaluation of group assignments: oral presentations	25	0.25	0.01	CA04, CA05, KA03, SA04
Individual evaluation: multiple choice test (Partial 1)	35	1	0.04	CA03, CA04, KA03, SA04, SA05
Individual evaluation: multiple choice test (Partial 2)	40	1	0.04	CA03, CA04, KA02, SA04

El módulo se evaluará a través de dos pruebas individuales escritas eliminatorias con preguntas tipo test y de la entrega de un trabajo realizado en grupo y evaluado mediante presentación oral.

Para superar la asignatura se debe obtener una nota media ponderada de 5 o más alta, y una nota de 4 o más alta en cada prueba escrita individual. En caso de no superar el módulo, la evaluación individual podrá ser recuperada.

To participate in the recovery, students must have been previously evaluated in a set of activities whose weight is equivalent to a minimum of two thirds of the total grade for the subject or module. Therefore, the student body will obtain the qualification of "Not Evaluable" when the evaluation activities carried out have a weighting of less than 67% in the final qualification.

In the event that the student wishes to improve the qualification of the individual evaluation, they will be able to opt for a grade improvement test that will be carried out the same day as the recovery test, giving up the grade

obtained previously in this section. Students who want to take this test must contact the module teachers in writing at least 72 hours before the scheduled day to take the test. It is necessary to get a minimum of 5 to pass it.

To pass the module it is mandatory to attend at least 60% of the theoretical classes.

Single assessment: The single assessment consists of a single individual written test consisting of two types of questions (test and short questions) in which the contents of the entire theory program of the subject will be assessed. The grade obtained in this synthesis test will account for 75% of the final grade for the subject.

The evaluation of the work presentation through oral presentation will follow the same process of the continuous evaluation. The grade obtained will account for 25% of the final grade for the subject.

The same recovery system will be applied as for the continuous evaluation.

Bibliography

The necessary basic and specific bibliography will be published on the moodle course. The databases will be indicated to obtain the necessary material for the individual works.

Software

No specific software is foreseen.

Groups and Languages

Please note that this information is provisional until 30 November 2025. You can check it through this [link](#). To consult the language you will need to enter the CODE of the subject.

Name	Group	Language	Semester	Turn
(TEM) Theory (master)	1	Spanish	first semester	morning-mixed