Universitat Autònoma de Barcelona

2020/2021

Industrial Microbiology

Code: 42934
ECTS Credits: 6

Degree	Type	Year	Semester
4313775 Applied Microbiology	OB	0	1

The proposed teaching and assessment methodology that appear in the guide may be subject to changes as a result of the restrictions to face-to-face class attendance imposed by the health authorities.

Contact

Name: Maria Pilar Cortés Garmendia

Email: MariaPilar.Cortes@uab.cat

Use of Languages

Principal working language: spanish (spa)

Teachers

Montserrat Llagostera Casas

Maria Pilar Cortés Garmendia

Neus Ferrer Miralles

Prerequisites

It is necessary to have a good knowledge of metabolism and microbial physiology, as well as of molecular microbiology and current techniques of genetic manipulation of microorganisms and protein modification.

Objectives and Contextualisation

The objective of this module is to offer the student a general vision of microorganisms of industrial interest and the potential of microbial diversity and the industrial application of their products in various industrial sectors. Likewise, it will be considered the different phases leading to the obtaining of a new microorganism or microbial product of interest, taking into account the peculiarities and regulations of each industrial sector.

Competences

- Communicate and justify conclusions clearly and unambiguously to both specialist and non-specialist audiences.
- Design tools and strategies based on microorganisms to optimise industrial processes, assess the environmental impact of human activity and recover polluted environments.
- Display knowledge of the most up-to-date methodology used in environmental, molecular, industrial and clinical microbiology.
- Solve problems in new or little-known situations within broader (or multidisciplinary) contexts related to the field of study.
- Use and manage bibliographic information and computer resources related to microbiology and related sciences.
- Use scientific terminology to account for research results and present these orally and in writing.

Learning Outcomes

1. Acquire knowledge of the most up-to-date tools and systems used in industrial microbiology and the industrial microbiology-biotechnology interface.
2. Communicate and justify conclusions clearly and unambiguously to both specialist and non-specialist audiences.
3. Recognise microbial diversity as an offer of new microorganisms and microbial products that are of interest to industry and the welfare of society.
4. Solve problems in new or little-known situations within broader (or multidisciplinary) contexts related to the field of study.
5. Use and manage bibliographic information and computer resources related to microbiology and related sciences.
6. Use scientific terminology to account for research results and present these orally and in writing.

Content

- R & D & I to obtain a product or a micro-organism of industrial interest

- Microbial production of recombinant enzymes and drugs

- Microbiology in different industrial sectors

- Visits to companies

*Unless the requirements enforced by the health authorities demand a prioritization or reduction of these contents.

Methodology

This module consists of two parts. The first one will be given through lectures and one work in the classroom. The second part will be developed through lectures given by microbiology specialists of different industries and one visit to companies related to microbiology. It is necessary 60% attendance to the lectures.

*The proposed teaching methodology may experience some modifications depending on the restrictions to face-to-face activities enforced by health authorities.

Activities

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Lectures	26	1.04	1, 3, 4, 2
Visits to technological centers and companies related to microbiology	4	0.16	4
Type: Autonomous			
Individual study	74.75	2.99	1, 3, 4, 2, 5
Preparation of an oral disertation	15	0.6	1, 4, 2, 5, 6
Preparation of projects	28	1.12	2, 5, 6

Assessment

The module will be evaluated through individual written tests, the delivery of a report carried out in a group, and a oral disertation. To pass the subject you must obtain a weighted average mark of 5 or higher and a mark of 5 or higher on the individual evaluations. If this qualification is not obtained, one or both individual evaluation can be reassessed.

If the written report contains more than 10% of a literal copy of previously published works, the module will not be approved.

To be eligible for the retake process, the student should have been previously evaluated in a set of activities equaling at least two thirds of the final score of the course or module. Thus, the student will be graded as "No Avaluable" if the weighthin of all conducted evaluation activities is less than 67% of the final score.

*Student's assessment may experience some modifications depending on the restrictions to face-to-face activities enforced by health authorities.

Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Evaluation of group assignments: oral presentations	10	0.25	0.01	1, 4, 2, 6
Individual evaluation: short questions	30	1	0.04	1, 3, 2
Evaluation of group assignements: written report	30	0	0	4, 2, 5, 6
Individual evaluation: multiple choice test	30	1	0.04	1, 3, 4, 2, 6

Bibliography

The student will have the basic bibliography to consult in the Moodle space of the module. In spite of this, a learning task will consist of bibliographic search in group or individual, the result may be different for each student.