

## 1. OVERVIEW

<b>Subject Area</b>	Environmental Biotechnology
<b>Degree</b>	Bachelor's Degree in Biotechnology
<b>School/Faculty</b>	School of Biomedical and Health Sciences
<b>Year</b>	4º
<b>ECTS</b>	6
<b>Type</b>	Optional
<b>Language(s)</b>	Spanish
<b>Delivery Mode</b>	On campus
<b>Semester</b>	S1
<b>Academic Year</b>	24-25
<b>Coordinating professor</b>	Paloma C Santos Moriano

## 2. INTRODUCTION

Environmental Biotechnology is an optional subject in the fourth year and belongs to the BIOTECHNOLOGICAL PROCESSES AND INDUSTRIAL APPLICATIONS module. Students will learn the main environmental issues and how biotechnology can help to prevent or reverse them.

## 3. LEARNING OUTCOMES (RA, by the acronym in Spanish)

### Abilities (HAB, by the acronym in Spanish)

**HAB05.** Communicate in English, spoken or written, any protocol or results analysis using the right terminology in any field of biotechnology.

### Skills

**COMP12.** Identify and analyse biotechnological strategies associated with monitoring, preserving and restoring the environment.

**COMP23.** Identify and analyse applications particular to bioremediation and biorestauration.

## 4. CONTENTS

- Introduction to environmental biotechnology.
- Pollution of water.
- Pollution of atmosphere.
- Bioremediation and biodegradation of natural compounds and industrial waste.
- Biosensors in environmental control.
- Phytoremediation.
- Biotechnology in the production of clean energy.
- Bioplastics and biomaterials.

- Basic concepts of biocontrol.

## 5. TEACHING/LEARNING METHODS

The types of teaching/learning methods are as follows:

- Lecture
- Project-based learning
- Learning based on workshop teaching

## 6. LEARNING ACTIVITIES

The types of learning activities, plus the amount of time spent on each activity, are as follows:

**On campus:**

Learning activity	Number of hours
Lectures	30
Asynchronous master lectures	12
Debates and discussions	3
Case Studies	4
Problem-solving	2
Spoken presentations	4
Written reports and essays	5
Tutorials	15
Independent working	58
Workshops and/or lab work	12
On-campus knowledge tests	5
<b>TOTAL</b>	<b>150</b>

## 7. ASSESSMENT

The assessment methods, together with how much they each count towards the final grade for the subject area, are as follows:

**On campus:**

Assessment system	Weight
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On-campus knowledge tests	50
Case study/problem scenario	15
Laboratory practice	15
Project/Final Degree Project	20

On the Virtual Campus, when you open the subject area, you can see all the details of your assessment activities and the deadlines and assessment procedures for each activity.

### 7.1. Ordinary exam period

To pass the subject area in the ordinary exam period you must obtain a mark of 5.0 or more out of 10.0 in all assessed parts of the subject. Any part you do not pass in the ordinary exam period will need to be recovered in the extraordinary exam period (resits).

Your final grade will be the average of the partial marks in each of the learning activities you have passed. The continuous assessment system for the learning activities requires attendance to at least 50% of the classes.

*It is compulsory for students to accredit attendance to at least 50% of classes. This requirement is essential to the assessment process and qualifies students for the right to obtain academic counselling, support and monitoring from the professor. To this end, students must use the technological means made available by the University to accredit their daily attendance to each of their classes. This system will also serve to guarantee an objective record of the active role of the students in the classroom. Failure to accredit attendance to at least 50% of the classes by any of the means proposed by the University will mean that the professor awarding a fail to the student for that subject area in the ordinary exam period in accordance with the grading system outlined in these regulations. All of the above, without prejudice to the other requirements or higher attendance percentages that other faculties may stipulate in their learning guides or internal regulations. Regulations for the assessment of official degree programmes, Art. 1 point 4. ([http://www.uem.es/myfiles/pageposts/reglamento\\_evaluacion\\_titulaciones\\_oficiales\\_grado.pdf](http://www.uem.es/myfiles/pageposts/reglamento_evaluacion_titulaciones_oficiales_grado.pdf)).*

### 7.2. Extraordinary exam period (resits)

To pass the subject area in the extraordinary exam period (resits), the students must obtain a mark equal to or above 5.0 out of 10.0 in all parts of the subject assessment they did not pass during the ordinary exam period.

The student must submit the activities not passed in the ordinary exam period taking into account the corrections or comments made by the teacher. The student must also submit any activities which were not submitted.

The final grade will be the average of the partial marks in each of the activities passed (with a mark equal to or higher than 5 out of 10). The marks for the assessable activities the student passed in the ordinary exam period will be maintained for calculating this grade.

## 8. TIMELINE

The timeline with delivery dates of assessable activities in the subject area is indicated in this section:

Assessable activities	Date
Case Problem-solving	Throughout the semester
Laboratory work	October-December
Field trip	November
Knowledge tests	November-January
Debate	November
Spoken presentations	December

The timeline may be subject to modifications for logistical reasons of the activities. Students will be informed of any changes in due time and course.

## 9. BIBLIOGRAPHY

The reference work for following this subject area is:

- Bioremediation and Biotechnology. Khalid-Rehman-Hakeem Rouf-Ahmad-Bhat Humaira-Qadri-(Eds.) Springer, Cham. Switzerland, 2020
- A Practical Guide to Environmental Biotechnology. Jayanta Kumar Patra, Gitishree Das, Swagat Kumar Das, Hrudayanath Thatoi. Springer, Cham. Switzerland, 2020.

## 10. EDUCATIONAL GUIDANCE AND DIVERSITY UNIT

The Educational Guidance and Diversity Unit (ODI in Spanish) offers support throughout your time at university to help you with your academic achievement. Other cornerstones of our educational policy are the inclusion of students with special educational needs, universal access in all our university campuses and equal opportunities.

This ODI unit offers students:

1. Support and monitoring through counselling and personalised student plans for those who need to improve their academic performance.
2. Curricular adaptations to uphold diversity, with assistance for those students who require specific educational support, leading to equal opportunities without significant changes to methodology or evaluation.

3. We offer students a range of extracurricular educational resources to reinforce skills which will enhance their personal and professional development.
4. Career guidance by offering tools and advice to students with doubts regarding their professional careers or those who believe they have chosen the wrong line of study.

Students who need educational support can contact us at:

[orientacioneducativa@universidadeuropea.es](mailto:orientacioneducativa@universidadeuropea.es)

## **11. SATISFACTION SURVEYS**

Your opinion matters!

Universidad Europea encourages you to complete our satisfaction surveys to identify strengths and areas for improvement for staff, degree courses and the learning process.

These surveys will be available in the surveys area of your virtual campus or by email.

Your opinion is essential to improve the quality of the course.

Many thanks for taking part.