

Degree programme	Type	Course
Plant Biology, Genomics and Biotechnology	OB	1

Contact lecturer

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Teaching staff

Soledad Martos Arias

Teaching staff (external to UAB)

Marc Valls

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Group languages

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

Prerequisites

none

Objectives

The aim of this module is to introduce to the students the fundamentals of Agricultural Biotechnology, with a special emphasis on molecular breeding and modern molecular biology approaches, including transgenesis.

Learning outcomes

- CA03 (Recognise the ethical, social responsibility and legal considerations in the use of genetically modified plants, assessing the social, economic and environmental impact in order to apply them to the scientific and professional environment in accordance with the Sustainable Development Goals.)
Recognise the ethical, social responsibility and legal considerations in the use of genetically modified plants, assessing the social, economic and environmental impact in order to apply them to the scientific and professional environment in accordance with the Sustainable Development Goals.
- CA09 (Apply the knowledge acquired in new or unfamiliar environments within broader (or multidisciplinary) contexts related to agricultural biotechnology or based on the needs and demands of

society.) Apply the knowledge acquired in new or unfamiliar environments within broader (or multidisciplinary) contexts related to agricultural biotechnology or based on the needs and demands of society.

- CA19 (Develop a scientific, technical or industrial project in biology, genomics and plant and fungi biotechnology with respect for human and fundamental rights, diversity and democratic values, as well as the principles of universal accessibility and design for all.) Develop a scientific, technical or industrial project in biology, genomics and plant and fungi biotechnology with respect for human and fundamental rights, diversity and democratic values, as well as the principles of universal accessibility and design for all.
- KA07 (Recognise the most appropriate strategies to obtain or cultivate genetically modified plants or to evaluate plant germplasm.) Recognise the most appropriate strategies to obtain or cultivate genetically modified plants or to evaluate plant germplasm.
- KA08 (Identify the research results of the application of biotechnological methods in cell factories for plants and fungi to obtain new products or viable processes at industrial and commercial levels and transfer them to society.) Identify the research results of the application of biotechnological methods in cell factories for plants and fungi to obtain new products or viable processes at industrial and commercial levels and transfer them to society.
- SA13 (Apply the most appropriate tools to molecular improvement, plant identification, genotyping or diagnosis.) Apply the most appropriate tools to molecular improvement, plant identification, genotyping or diagnosis.
- SA14 (Develop a genetic improvement project or programme assisted by markers or by means of transgenesis or genome editing or in vitro cultivation.) Develop a genetic improvement project or programme assisted by markers or by means of transgenesis or genome editing or in vitro cultivation.
- SA15 (Apply bioinformatic tools to the genetic, evolutionary and functional study of plants.) Apply bioinformatic tools to the genetic, evolutionary and functional study of plants.

Contents

Applications of genetically engineered or edited plants in agriculture

Micropropagation and in vitro culture applied to agriculture

Fundamentals of plant breeding

Molecular breeding

Learning activities and methodology

Title	Hours	ECTS	Learning outcomes
Lectures	21	0.84	
Preparation of research project	67	2.68	
lab practicals	6	0.24	
Field practical	5	0.2	
autonomous study	40	1.6	
seminars	10	0.4	

-Lectures covering the different topics of the program. Powerpoint presentations will be available in advance at the \"campus virtual\".

-Reading of selected research papers for presentation and discussion in the seminar sessions

- practicals of in vitro propagation

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	Weight	Hours	ECTS	Learning outcomes
Research project presentation	40% total grade	0.5	0.02	CA03, CA09, CA19, KA07, KA08, SA13, SA14, SA15
written evaluation	40% of the final grade	0.5	0.02	CA03, CA09, CA19, KA07, KA08, SA13, SA14, SA15

-Written reports (Exam 50% final grade)

-Oral presentation and defense of seminar session (40%)

-Attendance and participation in the classroom and seminar sessions (10%)

-The student will be \"not qualificable\" when the mark of the different evaluations does not reach a global minimal qualification of 5.0 (out of 10).

This subject/module does not include the single assessment system.

In this module, the use of Artificial Intelligence (AI) technologies is not allowed in any of its phases. Any work that includes fragments generated with AI will be considered a lack of academic honesty and may lead to a partial or total penalty in the grade of the activity, or greater sanctions in serious cases. The performance of any irregularity in an assessment act (academic fraud, plagiarism or improper use of AI, unless this use is expressly authorized in the teaching guide), which may lead to a significant variation in the grade, means that this act will be graded with a 0. In the event that the teaching guide provides that to pass the subject it is an essential requirement to have obtained a minimum grade in this assessment act or that several irregularities occur in the assessment acts of the same subject, the final grade for this subject is 0. Apart from this, a disciplinary process may be initiated against the student who incurs any of these irregularities.

Bibliography

Specific bibliography (books, book chapters and journal publications) and useful links related with Agricultural Biotechnology will be provided for the different sessions of the program.

Software

none

Course groups and languages

The information provided is provisional until November 30. After this date, you will be able to consult the language of each group through this [link](#). To access the information, you will need to enter the course CODE

Type of teaching	Group	Language	Semester	Shift
(TEm) Theory (master)	1	English	first semester	morning-mixed
(PLABm) Practical laboratories (master)	1	English	first semester	morning-mixed

(SEMm) Seminars (master)	1	English	first semester	morning-mixed
(PLABm) Practical laboratories (master)	2	English	first semester	morning-mixed
(SEMm) Seminars (master)	2	English	first semester	morning-mixed
(PLABm) Practical laboratories (master)	3	English	first semester	morning-mixed