

Degree	Type	Year
4318297 Plant Biology, Genomics and Biotechnology	OB	0

Contact

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Teachers

Soledad Martos Arias

(External) Marta Pujol

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Teaching groups languages

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

Prerequisites

none

Objectives and Contextualisation

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

1. CA03 (Competence) 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.
2. CA09 (Competence) 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.

3. CA19 (Competence) 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.
4. KA07 (Knowledge) Recognise the most appropriate strategies to obtain or cultivate genetically modified plants or to evaluate plant germplasm.
5. KA08 (Knowledge) 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.
6. SA13 (Skill) Apply the most appropriate tools to molecular improvement, plant identification, genotyping or diagnosis.
7. SA14 (Skill) Develop a genetic improvement project or programme assisted by markers or by means of transgenesis or genome editing or in vitro cultivation.
8. SA15 (Skill) Apply bioinformatic tools to the genetic, evolutionary and functional study of plants.

Content

Applications of genetically engineered or edited plants in agriculture
 Micropropagation and in vitro culture applied to agriculture
 Fundamentals of plant breeding
 Molecular breeding

Activities and Methodology

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

- 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	Weighting	Hours	ECTS	Learning Outcomes
Research project presentation	50% total grade	1	0.04	CA03, CA09, CA19, KA07, KA08, SA13, SA14, SA15

- Written reports (Exam and exercises on bioinformatics)
- Oral presentation and defense of seminar session
- Attendance and participation in the classroom and seminar sessions
- 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.

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

Language list

Name	Group	Language	Semester	Turn
(PLABm) Practical laboratories (master)	1	English	first semester	afternoon
(PLABm) Practical laboratories (master)	2	English	first semester	afternoon
(SEMm) Seminars (master)	1	English	first semester	morning-mixed
(TEm) Theory (master)	1	English	first semester	morning-mixed