27125 - Plant Biotechnology

Información del Plan Docente

Academic Year	2016/17
Academic center	100 - Facultad de Ciencias
Degree	446 - Degree in Biotechnology
ECTS	6.0
Course	4
Period	First semester
Subject Type	Compulsory
Module	---

1.Basic info

1.1.Recommendations to take this course

1.2.Activities and key dates for the course

For students erolled in the subject, places, times and dates of lectures and practical sessions will be public via Bulletin Board advertisements of the grade on the platform Moodle at the University of Zaragoza, https://moodle2.unizar.es/add/ and in the moodlepage of the course. These routes will be also used to communicate enrolled students their distribution by groups of practical sessions, which will be organized by the coordination degree. Provisional dates will be available on the website of the Faculty of Sciences in the corresponding section of the Degree in Biotechnology: https://ciencias.unizar.es/grado-en-biotecnologia.

In this web there will be also available the dates of exams.

2.Initiation

2.1.Learning outcomes that define the subject

2.2.Introduction

3.Context and competences

3.1.Goals

3.2.Context and meaning of the subject in the degree

3.3.Competences

3.4.Importance of learning outcomes

4.Evaluation

5.Activities and resources

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5.1.General methodological presentation

5.2.Learning activities

FORMATIVE ACTIVITY 1-3.5 ECTS

1. Introduction to Plant Biotechnology. Origin and history of the Plant Biotechnology. Relationship with other disciplines.

2. The organization of the plant genome.

3. Mechanisms of plant variability.

4. Plant totipotency. Growth and development. Differentiation.

5. Plant tissue culture. Organogenesis, embryogenesis.

6. Germoplasm conservation.

7. Techniques and vectors for plant transformation.

8. Problems related to genetic manipulation in plants. Regulation of genetically modified crops.

9. Genetic manipulation of herbicide tolerance. Genetic manipulation of pest resistence. Strategies for abiotic stress tolerance.

10. Improvement of crop yield and quality.

11. Molecular farming.

12. Plant Biotechnolgy challenges.

FORMATIVE ACTIVITY 2- 1.5 ECTS

Study of practical cases and evaluation of current problems in Plant Biotechnology.

FORMATIVE ACTIVITY 3- 1ECTS

Laboratory practices. Plant tissue culture *in vitro* . During laboratory students are acquainted with the basic skills and different kinds of cultures. They use several type of explants to study organogenesis, vegetative micropropagation and

somatic embryogenesis.

5.3.Program

5.4.Planning and scheduling

Schedules of lectures and problems will coincide with the officialyestablished and will be available at: https://ciencias.unizar.es/grado-en-biotecnologia.

The places, calendar and groups for training and practical sessions will be established in coordination with the rest of maters at beginning of course. The Coordinator will produce the groups of students for these activities at beggining of course to avoid overlaps with other subjects.

5.5.Bibliography and recomended resources

BB	Slater, Adrian. Plant biotechnology : the genetic manipulation of plants / Adrian Slater, Nigel W. Scott and Mark R. Fowler . 2nd ed. Oxford : Oxford University Press, 2008