

27125 - Plant Biotechnology

Información del Plan Docente

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| Academic Year | 2017/18 |
| Faculty / School | 100 - Facultad de Ciencias |
| Degree | 446 - Degree in Biotechnology |
| ECTS | 6.0 |
| Year | 4 |
| Semester | First semester |
| Subject Type | Compulsory |
| Module | --- |

1.General information

1.1.Introduction

1.2.Recommendations to take this course

1.3.Context and importance of this course in the degree

1.4.Activities and key dates

For students enrolled 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-biotechnologia>.

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

2.Learning goals

2.1.Learning goals

2.2.Importance of learning goals

3.Aims of the course and competences

3.1.Aims of the course

3.2.Competences

4.Assessment (1st and 2nd call)

4.1.Assessment tasks (description of tasks, marking system and assessment criteria)

5. Methodology, learning tasks, syllabus and resources

5.1. Methodological overview

5.2. Learning tasks

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 resistance. Strategies for abiotic stress tolerance.
10. Improvement of crop yield and quality.
11. Molecular farming.
12. Plant Biotechnology challenges.

FORMATIVE ACTIVITY 2- 1.5 ECTS

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

FORMATIVE ACTIVITY 3- 1 ECTS

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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.Syllabus

5.4.Course planning and calendar

Schedules of lectures and problems will coincide with the officially established 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 subjects at the beginning of course. The Coordinator will produce the groups of students for these activities at the beginning of course to avoid overlaps with other subjects.

5.5.Bibliography and recommended 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