Universidad Zaragoza

Academic Year/course: 2023/24

28911 - Botany

Syllabus Information

Academic year: 2023/24
Subject: 28911 - Botany
Faculty / School: 201 - Escuela Politécnica Superior
Degree: 583 - Degree in Rural and Agri-Food Engineering
ECTS: 6.0
Year: 2
Semester: Second semester
Subject type: Compulsory
Module:

1. General information

The teaching of this course is intended to provide the knowledge, skills, attitudes and fields of application so that the student acquires the basic fundamentals of botany required for the studies and professionals of Agri-food and Rural Engineering.

These approaches and objectives are aligned with the Sustainable Development Goals (SDGs) of the 2030 Agenda of United Nations (https://www.un.org/sustainabledevelopment/es/), specifically, the learning activities planned in this subject will contribute to the achievement of target 4.7 of Goal 4, target 5.5 of Goal 5, targets 11.3 and 13.3 of Goal 13 and target 15.4 of Goal 15.

2. Learning results

1.- Understand, relate and recognize the structural and functional characteristics of plants

2.- Understand and apply the taxonomic classification of plants

3.- To know and apply the morphological and systematic characteristics of the main families of agronomic interest and of the most relevant species.

4.- Use botanical methodology in the field and laboratory for the description and taxonomic identification of vascular species.

5.- Acquire awareness of the level of their knowledge in relation to Botanical science and of the means necessary to progress in their knowledge

6.- Acquire awareness of the relationship between botanical knowledge and the different fields of application in agronomy

3. Syllabus

Theory program

1. Introduction to botany.

1.1. Objectives and branches of botany. Agricultural botany

2. Histology

2.1. Morphological levels of organization.

2.2. Meristematic tissues.

2.3. Parenchymal tissues.

2.4. Supporting tissues. Collenchyma. Sclerenchyma.

2.5. Vascular tissues. Xylem. Phloem.

2.6. Superficial tissues. Epidermis. Peridermis.

2.7. Anatomy of plant organs.

3. Morphology

3.1. Morphology of cormophytes. Stem.

3.2. Leaf.

3.3. Root.

3.4. Flower.

3.5. Inflorescences.

3.6. Seminal primordia and pollen.

3.7. Fruit.

3.8. Seed.

4. Plant reproduction

4.1. Plant reproduction. Sexual reproduction. Pollination and fertilization.

4.2. Dissemination of seeds and fruits.

4.3. Asexual reproduction. Vegetative reproduction and apomixis.

5. Plant Systematics

5.1. Fundamentals of systematics. Classification systems of the plant kingdom. Synopsis of the plant kingdom

5.2. Families and species of special agronomic interest

5.3. Gymnosperms. General characteristics. Subclass Pinidae. Pinaceae. Cupressaceae. Taxa of agronomic interest 5.4. Angiosperms. General characteristics. Subclass Magnoliidae. Superorder Liliianae. Liliaceae. Gramineae 5.5. Superorder Ranunculanae. Ranunculaceae. Papaveraceae

5.6. Superorder Rosanae. Vitaceae. Leguminosae. Rosaceae. Fagaceae. Betulaceae. Juglandaceae. Cucurbitaceae.

Salicaceae. Rutaceae. Malvaceae. Cruciferae

5.7. Superorder Caryophyllanae. Polygonaceae. Caryophyllaceae. Chenopodiaceae. Amaranthaceae

5.8. Superorder Asteranae. Solanaceae. Oleaceae. Labiatae. Compositae. Umbelliferae

5.9. Other taxa of agronomic interest

Practice Program

Laboratory practices. Morphological description and identification.

Field practices. Systematics, morphology and phenology.

4. Academic activities

Lectures: 30 hours

Sessions in which the contents of the subject will be explained

Laboratory practices: 26 hours

Practical sessions of morphological recognition and species identification.

Field Practices: 4 hours

Field practice of morphological recognition and species identification.

5. Assessment system

The evaluation will be carried out by means of a global test at each official call to be set by the EPS. The overall test is broken down into the following sections:

Theoretical section.

Written test on the contents of the theory part of the subject. Proportion of the final grade: 60%.

Practical section.

Written test on the contents of the laboratory practical part. Proportion of the final grade: 40%.

Calculation of the Final Rating, CF:

CF = 60% theoretical part + 40% practical part. In order to pass the subject, each of the theoretical and practical tests must be graded with a grade equal to or higher than 5. In the event that one test is passed (grade ≥ 5) and another is failed (grade < 5), the final grade for the course will be the lower of the grades obtained in the two tests.

The success rates of the subject in the last three years are: 2019/20: 100,00%; 2020/21: 52,08; 2021/22: 57,50