

Degree programme	Type	Course
Environmental Biology	OB	2

Contact lecturer

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Prerequisites

None

Group languages

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

Objectives

Vegetal Physiology is the first subject of a set of 3 that form the matter of Plant Physiology. It is compulsory and is attended in the first semester of the second year.

The training objective of this subject is focused on the acquisition of competences within the framework of the theoretical and practical training of the student.

Vegetal Physiology has as its training objectives the acquisition of knowledge of the different levels of organization of the organisms in its operation

Learning outcomes

- CM26 (Integrate theoretical and practical knowledge in the field of plant physiology to propose new methods or alternative solutions to society's problems.) Integrate theoretical and practical knowledge in the field of plant physiology to propose new methods or alternative solutions to society's problems.
- CM27 (Propose actions in the field of plant physiology aligned with the Sustainable Development Goals related to the conservation of terrestrial ecosystems, climate action, and responsible production and consumption.) Propose actions in the field of plant physiology aligned with the Sustainable Development Goals related to the conservation of terrestrial ecosystems, climate action, and responsible production and consumption.
- CM28 (As a team, evaluate ways to solve problems and practical cases in the field of plant physiology, developing interpersonal skills inherent to the professional environment (collaborative work, communication, critical sense).) As a team, evaluate ways to solve problems and practical cases in the field of plant physiology, developing interpersonal skills inherent to the professional environment (collaborative work, communication, critical sense).
- SM35 (Determine vital parameters and indicators of plant growth and development by performing functional tests.) Determine vital parameters and indicators of plant growth and development by performing functional tests.
- SM36 (Identify key discoveries in the history of Plant Physiology, evaluating their significance for the subsequent scientific development of the discipline.) Identify key discoveries in the history of Plant Physiology, evaluating their significance for the subsequent scientific development of the discipline.

Contents

General contents:

Master classes:

Concept and sources of information

Cellular wall

Water and nutrition relations

Absorption and transport mechanisms

Reduction and assimilation of C, N and S

Metabolism C3, C4 and CAM.

Introduction to secondary metabolism

Mechanisms of regulation of growth.

Phytohormones

Sensing systems

Regulation of development phases (germination, flowering, fruition, senescence)

Laboratory:

Water relations: Measurement of water potential and observation of plasmolysis in plant tissues

Photosynthesis: Study of the Hill reaction in isolated chloroplasts and their inhibition by DCMU, Stomatal opening and closure and Demonstration of CO₂ need.

Measurement of transpiration water loss and transpiration rate under different environmental conditions.

Observation of stomata in mono- and dicotyledonous plants.

Bioassay of cytokinin in barley leaf segments (*Hordeum vulgare*).

Determination of nitrate overfertilization

Learning activities and methodology

Title	Hours	ECTS	Learning outcomes
Personal Study	38	1.52	CM26, SM36
Laboratory practices	16	0.64	CM26, CM27, CM28, SM35
Reading texts	30	1.2	CM26, SM36
Seminars	6	0.24	CM26, CM27, CM28
Report writing	20	0.8	CM26, CM27
Theoretical classes	30	1.2	CM26, SM36
Group tutorials	3	0.12	CM28

The teaching methodology runs on lectures, virtual lectures, seminars, tutorials, personal study, as well as laboratory practices that combine individual and team work

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
2nd written test	40%	1.5	0.06	CM26, SM36
Seminars	15%	2	0.08	CM26, CM27, CM28
Laboratory practices	10%	2	0.08	CM26, CM27, CM28, SM35
1st written partial test	35%	1.5	0.06	CM26, SM36

The specific and transversal competences of this subject will be evaluated by means of written tests (exams), questionnaires, oral presentations, participation in seminars and tutorials.

The written tests will be worth 75% of the final weight of the subject. It consists of two partial tests (first partial test 35% and second partial test 40%).

Students who have not submitted to any of the written tests, or who have submitted have not approved, will have to recover the part or parts suspended in a final exam. To pass the subject, or to eliminate the subject in the partial exam, you will have to obtain a minimum grade of 5.0 in each of the written tests.

To pass the mark of the subject, students must present themselves to a final exam of the whole subject, taking into account that the mark that will be counted will be the one of this last examination (that is to say, resigning to the notes previously obtained in the subject).

To participate in the recovery, the students must have previously been evaluated in a set of activities whose weight equals to a minimum of two thirds of the total grade of the subject or module. Therefore, students will obtain the "Non-Valuable" qualification when the evaluation activities carried out have a weighting of less than 67% in the final grade.

Laboratory practices:

Attendance at all practical sessions is mandatory and attitude is valued. To pass the internship, the student must:

- Compulsory attendance at practical sessions (except in cases duly justified in accordance with UAB regulations)

- Compulsory delivery of the practice script within the established period.

The exam of practices is recoverable according to the calendar and the criteria of recovery established by the subject. The delivery of the practice script is mandatory and not recoverable.

For the evaluation of the practices, a final written test will be done individually that will represent 80% of the practice grade. The elaboration of the practice guide will be done in groups and will represent the remaining

20% of the grade. The script will be delivered via Virtual Campus one week after the end of the internship. The weight of the practices in the final grade of the subject is 10%.

To be able to attend, it is necessary for the student to justify having passed the biosafety and security tests that he will find in the Virtual Campus and be knowledgeable and accept the rules of operation of the laboratories of the Faculty of Biosciences.

Seminars / Problems:

Attendance to seminars is mandatory and represents 15% of the final grade of the subject. The activities developed during the seminars are not recoverable.

The absences justified in accordance with the regulations of the UAB will not entail any penalty. In case of unjustified absence, the grade corresponding to the seminars will be reduced according to the following criteria:

1 absence: 20% reduction in the grade of the seminars.

2 absences: 40% reduction in the grade of the seminars.

3 absences: 80% reduction in the grade of the seminars.

More than 3 non-justified absences: the subject will be considered not passed.

The quality of the preparation and presentation of works or public exhibitions will be evaluated as well as the answers to the proposed questions and problems.

In the event of justified absence from a seminar, the absence may be compensated by an alternative activity, to be defined by the teaching team. If this compensatory activity is not delivered, the percentage corresponding to this seminar will be reduced in the final grade.

The final grade of the subject will result from the weighting of the different evaluation activities:

o Theory: 75%

o Seminars: 15%

o Laboratory practices: 10%

To pass the subject it will be necessary to obtain a minimum grade of 5.0 in each of the exams. In case of not achieving this minimum grade in any of the exams, the subject cannot be passed, regardless of the mark obtained in the rest of the evaluation activities.

Unique assessment:

This subject contemplates the single assessment which consists of a single synthesis test in which the contents of the entire theory program will be assessed. The test will consist mostly of questions to be developed and some shorter questions in different formats. The grade obtained in this synthesis test will account for 75% of the final grade of the subject.

The assessment of practical activities, seminars and the delivery of assignments will follow the same process as the continuous assessment, and the grade obtained will represent 10% and 15% of the final grade of the subject respectively.

The single assessment test will coincide with the same date fixed in the calendar for the last continuous

assessment test and the same recovery system will be applied.

In this subject, 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 involve a partial or total penalty in the grade of the activity, or major penalties in cases of severity.

Any irregularity committed during an assessment activity (academic misconduct, plagiarism, or improper use of AI, unless such use is expressly authorized in the course syllabus) that may lead to a significant alteration of the grade will result in that activity being graded as 0. If the course syllabus stipulates that obtaining a minimum mark in this assessment is an essential requirement to pass the course, or if multiple irregularities occur in the assessment activities of the same course, the final grade for the course will be 0. Furthermore, disciplinary proceedings may be initiated against any student who incurs any of these irregularities.

Bibliography

BARCELÓ, J.; NICOLÁS, G.; SABATER, B.; SÁNCHEZ, R.: *Fisiologia Vegetal*. Pirámide. Madrid (2007).

MOHR, H.; SCHOPFER, P.: *Plant Physiology*. Springer Verlag, Berlin (1995).

SALISBURY, F.B.; ROS, C. W.: *Plant Physiology*, 4th edition. Wadsworth Publ. Company, Belmont, California (1992).

SCHOPFER, P.; BRENNICKE, A.: *Pflanzenphysiologie*, Elsevier, Spektrum (2006).

TAIZ, L.; ZEIGER, E.: *Plant Physiology*, several editions

Software

no software is used

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
(TE) Theory	22	Catalan	first semester	afternoon
(PAUL) Classroom practices	221	Catalan	first semester	morning-mixed
(PLAB) Practical laboratories	221	Catalan	first semester	morning-mixed
(PAUL) Classroom practices	222	Catalan	first semester	morning-mixed
(PLAB) Practical laboratories	222	Catalan	first semester	morning-mixed
(PLAB) Practical laboratories	223	Catalan	first semester	morning-mixed