

Plant Physiology and Botanic

Code: 102811
ECTS Credits: 9

Degree	Type	Year	Semester
2501915 Environmental Sciences	FB	1	2

Contact

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Use of Languages

Principal working language: catalan (cat)
Some groups entirely in English: No
Some groups entirely in Catalan: Yes
Some groups entirely in Spanish: No

Teachers

Benet Gunsé Forcadell

Prerequisites

Although there are no official prerequisites, it is advisable for the student to have prior knowledge of Biology.

Objectives and Contextualisation

Objectives

Knowing the beings and understanding their functioning is necessary to maintain the biodiversity and the environment in the most favorable conditions for life.

This course is an indispensable preparatory basis for later subjects such as: ecology, environmental plant physiology, analysis of vegetation and applied ecology.

The course consists of two parts: Botany and Plant physiology.

The objectives in the part of Botany are to introduce the student to the knowledge of the large groups of organisms that comprise the vegetal world, the respective differential traits and the fundamental aspects of their biology and distribution. The ultimate aim is for the student to assess the biological function of organisms and the landscape, which is essential for good valuation, management and legislation.

The objectives of the part of plant physiology consist in introducing to the student in the knowledge of the functions and mechanisms that regulate the life of the vegetables.

Competences

- Adequately convey information verbally, written and graphic, including the use of new communication and information technologies.
- Analyze and use information critically.
- Collect, analyze and represent data and observations, both qualitative and quantitative, using secure adequate classroom, field and laboratory techniques
- Demonstrate adequate knowledge and use the most relevant environmental tools and concepts of biology, geology, chemistry, physics and chemical engineering.
- Demonstrate concern for quality and praxis.
- Demonstrate initiative and adapt to new situations and problems.
- Learn and apply in practice the knowledge acquired and to solve problems.
- Quickly apply the knowledge and skills in the various fields involved in environmental issues, providing innovative proposals.
- Teaming developing personal values regarding social skills and teamwork.
- Work autonomously

Learning Outcomes

1. Adequately convey information verbally, written and graphic, including the use of new communication and information technologies.
2. Analyze and use information critically.
3. Define the basis for the regulation of vital functions of organisms through internal and external and identify mechanisms of adaptation to the environment factors.
4. Demonstrate concern for quality and praxis.
5. Demonstrate initiative and adapt to new situations and problems.
6. Describe the life cycles of organisms.
7. Evaluate the responses of organisms to environmental changes.
8. Identify organisms and biological processes in the surrounding environment and evaluate them properly and originally.
9. Identify organisms and recognize the different levels of biological organization.
10. Learn and apply in practice the knowledge acquired and to solve problems.
11. Observe, recognize, analyze, measure and properly and safely represent organisms and biological processes.
12. Teaming developing personal values regarding social skills and teamwork.
13. To assess the effects of the organisms on the environment.
14. Work autonomously

Content

Contents

Plant Physiology (3 credits)

- Plants and the environment.
- Needs and use of resources for plants:
 - Light
 - Water
 - Mineral Nutrients
 - Carbon.
- Photosynthesis and respiration.
- Growth, development, senescence and death of plants.
- Agriculture and transgenic.

Botany (6 credits)

- Unit 1: Introduction to Botany.
- Unit 2: Systematics and taxonomy.
- Unit 3: Nuclear and somatic organization levels. Prokaryotes and eukaryotes. Prophytes, Thallophytes and Cormophytes.
- Unit 4: Reproduction. Biological cycles.
- Unit 5: Fungi S.L.
- Unit 6: Cyanobacteria.
- Unit 7: Photosynthetic aquatic eukaryotic organisms.
- Unit 8: Bryophytes.
- Unit 9: Vascular cryptogams.
- Unit 10: Flowering plants.
- Unit 11: Geobotanics.
- Unit 12: Vegetation of Catalonia, the Iberian Peninsula and the world.

Methodology

Methodology

The teaching methodology combines master classes, personal study and individual and team work.

Theory:

Theory managers: Concepción De Linares (BOT) and Benet Gunsé (FV). Group of students.

Lessons will be taught in the classroom using computer and projection cannon.

Students will be provided with a student's material through the interactive Campus, so that in the classroom they can have a paper version of multiple images and schemes that complement the teacher's explanations, the diagrams on the board and the His subsequent bibliographical researches. Also, through the Virtual Campus, students will be suggested reading and consulting websites that will be part of individual and teamwork and study.

Plant Physiology: 13 sessions of theory.

Botany: 26 theory sessions.

Seminars:

Seminars: Benet Gunsé (FV) and Ramon Pérez (BOT); Other professors, researchers or related professionals can collaborate.

In the case of FV there will be 2 groups of students, at the time of participating in the seminars.

Topics related to the subject and its professional aspect will be exhibited. Students will be promoted to participate through debates, presentations and memoirs to write.

Plant Physiology: 4 sessions of seminars/group; 1 hour/session.

Botany: 3 sessions of seminars/group; 2 hours/session.

Practices:

Laboratory practical responsables: Benet Gunsé (FV) and Concepción De Linares (BOT). Other teachers can collaborate in teaching the subject.

Integrated Laboratory of Environmental Sciences (C5-Senar, 2nd floor).

It will not be allowed to enter laboratories after 15 minutes from the beginning of practice.

Responsible field trips BOT: Concepción De Linares. Other teachers will collaborate in teaching the subject.

4 groups of students, when participating in laboratory practicals.

Through the Virtual Campus, the student will be informed of the tasks to be carried out in each practical session, the necessary knowledge and the material that is to be taken to attend the laboratory or the field. In the laboratory the student will find the necessary material to develop the practice.

Plant Physiology:

Laboratory practices: 3 days/group; 3 Hour/day

Botany:

Laboratory practices: 5 days/group; 3 Hours/day

Fieldwork: 2 days/group; 3 hours/day (UAB Campus and Montseny or similar)

Activities

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Field practices.	10	0.4	2, 10, 13, 7, 3, 5, 4, 6, 9, 1, 14, 12
Laboratory practices	24	0.96	2, 10, 13, 7, 3, 5, 4, 6, 8, 9, 11, 14, 12
Seminars	39	1.56	2, 13, 7, 3, 5, 4, 6, 8, 9, 11, 14
Theory lectures	6	0.24	2, 10, 13, 7, 3, 5, 4, 8, 9, 11, 1, 14, 12
Type: Supervised			
tutoring	5.6	0.22	2, 10, 13, 7, 3, 5, 4, 6, 8, 9, 11, 14, 12
Type: Autonomous			
Preparation of dossiers and reports	18	0.72	2, 10, 13, 7, 3, 5, 4, 6, 8, 9, 11, 14
Reading documents and bibliographic work	39	1.56	2, 10, 13, 7, 3, 5, 4, 6, 8, 9, 11, 14
Study, scheme buiding and solving of problems	78	3.12	2, 10, 13, 7, 3, 5, 4, 6, 8, 9, 11, 14, 12

Assessment

The course competencies will be evaluated by several tests, each with a specific weight on the final grade. See details below.

GLOBAL NOTE : The degrees obtained in thePlant Physiology (FV) and Botanical (BOT) tests will be taken into account and, after the distribution of the credits, the following shall be calculated:

FV Bot

Theory 23% 37%

Practices 7% 30%

Seminars 3%

NOTES of the different TESTS:

Theoretical part, PP and BOT evaluation:

Theoretical examinations: Written and/or oral examinations will be performed on the theory taught in the classes.

- Evaluation of the practical parts:

FV: Students will take an exam that will be determined by the grade. In addition, they will prepare a report on practices that are not evaluable, but which can be used to modulate the practical note.

Caution: Attendance at practical PV classes is mandatory (except for justified cause). Students who do not attend will not be evaluated and therefore will not be able to pass the subject.

BOT: A) Practical Reports: Reports of practices with an overall weight of 15% on the BOT's mark will be evaluated. b) Practice Examination: A written examination of the teaching given and the studies suggested in the practical classes with an overall weight of 85% of the BOT mark will be conducted. Please note that attendance in the PRACTICAL classes of the BOT is not mandatory. Students who do not follow them will only be evaluated with the test score.

- Evaluation of seminars and bibliographic works (FV):

The preparation, presentation and exhibition of bibliographic works will be evaluated. Preparation shall be assessed from a summary delivered on the day of the exposure.

The student must perform each of the tests: Theory, practices and seminars. If you do not do this in partial tests, you will have the option to do so in the compensation tests, appearing to those that remain to pass, with the exception of the FV seminars, given their particular characteristics and that do not exceed 50% of the weight in the subject.

To pass the course You need to:

To pass the course it is necessary to obtain a Global mark 5 or higher than 5.

1. *In the case of THE VF, they can intervene in the calculation of the overall note of the subject's scores > 4.5, but never lower. In the case of BOT, you can compensate for the note among the partials of the theory if one of them is suspended with a note > 4.5. In addition, the examination of internships with a grade of more than 5 may intervene in the calculation of the degree of practice.*
2. *You will also need to repeat the tests with a score between 4.5 and 4.9 in case the overall grade for each module (p or O BOT) does not exceed the approved one (5 or higher than 5).*
3. *To participate in the recovery, students must have been previously evaluated in a set of activities whose weight is equivalent to a minimum of 2/3 of the total grade of the subject or module.*
4. *Not evaluable: A student will receive the No Evaluable if and only if they have not submitted any of the test tests and have not provided any of the evaluable documents required for the Subject.*
5. *Students who have not been submitted to the evaluation of any of the parties, both theoretical and practical, of which the subject consists will be automatically suspended with a maximum score of 4 regardless of the overall score weighted may be greater than this value.*
6. *Grades will have a single decimal place. The final grade of the course will be rounded to the nearest integer when it is one-tenth a value that implies a qualitative change in the grade.*
7. *The obtaining of Honor Slate shall apply, to teacher's criteria, of a grade equal to or greater than 9.0 if it deems appropriate. The MH Name will depend on the number of students enrolled in the current course.*

Special cases: Special cases, duly justified, will be resolved individually with the teachers of the subject.

Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Botany seminars	5%	0.4	0.02	2, 10, 5, 4, 1, 14, 12
Examination of plant Physiology theory	22%	1	0.04	13, 7, 3, 8, 11
Plant Physiology seminars	5%	0.4	0.02	2, 10, 5, 4, 1, 14, 12
Practical exam of Botany	12%	0.6	0.02	2, 10, 5, 4, 8, 9, 11, 1, 14
Examination of Botany theory	45%	2	0.08	2, 13, 7, 6, 8, 9, 1, 14
Global mark of Plant Physiology and Botany.	0%	0	0	2, 10, 13, 7, 3, 5, 4, 6, 8, 9, 11, 1, 14, 12
Practical exam of Plant Physiology	6%	0.5	0.02	2, 10, 13, 7, 3, 5, 4, 11, 1, 12
Practical exam of botany	5%	0.5	0.02	10, 5, 4, 6, 8, 9, 11, 1, 14

Bibliography

Plant Physiology

Basic literature in Plant Physiologyl,

- J. Barceló et al., Ed. Pirámide, Madrid 2005
- Plant Physiology, L. Taiz y E. Zeiger, 4th edition, Sinauer, Sunderland, MA (USA, 2006)
- Web link <http://4e.plantphys.net/>

BOTÁNICS

Basic literature

- RAVEN, P.H., Evert, R.F. & EICHHORN, S.E. 1991 a 1992. Biología de las plantas. Vuelos. 1-2. editorial Reverté. Barcelona.
- VARIOS AUTORES. 1984-1988. Historia Natural de los Países Catalanes. Volúmenes 4, 5, 6 y 7. Fundación Enciclopedia Catalana. Barcelona.
- NUET, J. Panareda, J. A. & ROMO, A. 1992. Vegetación de Cataluña. Editorial Eumo. Vic.
- IZCO, J. et al. 2004. Botánica. McGraw-Hill-Interamericana. Madrid.
- VARIOS AUTORES. 1989-1999 Guías de varios grupos de organismos vegetales editadas por Editorial Pórtico y por Editorial Omega. Barcelona.
- BOLÓS, O. de, VIGO, J., Masalles, R.M. & NINOT, J. M. 2005. Flora Manual de los. Editorial Pórtico. Barcelona.
- LEE, R.E. 2008. Phycology. Fourth edition. Cambridge University Press, New York.
- Enlaces web Tree of life, Web project: <http://tolweb.org/tree/>

COMmon

- Aula Virtual de la Autónoma Interactiva: <https://cv2008.uab.cat>