



## IDENTIFYING DATA

### Biology: Plant Biology

Subject	Biology: Plant Biology			
Code	P03G370V01201			
Study programme	(*)Grao en Enxeñaría Forestal			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	6	Basic education	1st	2nd
Teaching language				
Department				
Coordinator	Souto Otero, José Carlos			
Lecturers	Souto Otero, José Carlos			
E-mail	csouto@uvigo.es			
Web	<a href="http://webs.uvigo.es/csouto/">http://webs.uvigo.es/csouto/</a>			
General description	Knowledge of the basic principles of the Vegetal Biology: anatomy, physiology and ecology of the plants.			

## Skills

Code	
B1	Ability to understand the biological, chemical, physical, mathematical and representation systems necessary for the development of professional activity, as well as to identify the different biotic and physical elements of the forest environment and renewable natural resources susceptible to protection, conservation and exploitations in the forest area.
B5	Knowledge of the foundations of forest improvement and capacity for its practical application to plant production and biotechnology.
C8	Knowledge of the bases and biological foundations of the plant field in engineering.
D2	Ability to communicate orally and written in Spanish or in English
D8	Ability to solve problems, critical reasoning and decision making
D10	Autonomous Learning

## Learning outcomes

Expected results from this subject	Training and Learning Results
------------------------------------	-------------------------------

1R. 2018 Knowledge and understanding of the mathematicians and other inherent basic sciences to the his speciality in engineering, it a level that allow them purchase the rest of the competitions of the qualifications.	B1	C8	D2
4R. 2018 Capacity to #analyze products, processes and complex systems in the his field of study; choose and apply analytical methods, of calculation and experimental *relevantes of form *relevante and interpret correctly the results of these analyses.	B5		D8 D10
5R. 2018 Capacity to identify, formulate and resolve problems of engineering in the his speciality; choose and apply analytical methods, of calculation and experiments properly established; Recognize the importance of the social restrictions, of health and security, environmental, economic and industrial.			
6R. 2018 Capacity to project, design and develop complex products (pieces, component, products finished, etc.), processes and systems of the his speciality, that fulfil the requirements established, including the knowledge of the social aspects, of health and environmental security, economic and industrial; as well as select and apply methods of appropriate project.			
8R. 2018 Capacity to realize bibliographic researches, consult and use databases and other sources of information with discretion, to realize @simulación and analysis with the objective to realize investigations on technical subjects of the his speciality.			
10R. 2018 Capacity and capacity to project and realize experimental investigations, interpret results and obtain conclusions in the his field of study.			
11R. 2018 Understanding of the techniques and methods of analysis, project and applicable investigation and his limitations within the scope of the his speciality.			
12R. 2018 practical Competition to resolve complex problems, realize complex projects of engineering and realize specific investigations stop his speciality.			
17R. 2018 Capacity to collect and interpret data and handle complex concepts inside the his speciality, to issue judgements that involve a reflection on ethical and social questions			
19R. 2018 Capacity to communicate of effective way information, ideas, problems and solutions in the field of the engineering and with the society in general.			
20R. 2018 Capacity to work effectively in national and international contexts, individually and in team, and cooperate with the engineers and people of other disciplines.			
21R. 2018 Capacity to recognize the need of a continuous training and realize this activity of independent way during his professional life.			
22R. 2018 Capacity to be to the day of the scientific and technological news.			

## Contents

### Topic

- 1.- Introduction to the vegetal Biology.
- 2.- General structure of the vegetal cells.
- 3.- The cellular division.
- 4.- Introduction to the vegetal anatomy.
- Meristems.
- 5.- Parenchyma, collenchyma and sclerenchyma.
- 6.- Conductive fabrics. The xylem. The phloem.
- 7.- Epidermis. The peridermis.
- 8.- General structure of the vascular plants.
- 9.- The leaf.
- 10.- The flower.
- 11.- Alternation of generations in haplodiplontes.
- 12.- Fecundation.
- 13.- The plants and the water.
- 14.- Absorption of nutrients.
- 15.- The photosynthesis.
- 16.- The breath.
- 17.- Growth and development.
- 18.- Physiology of the seed.

## Planning

	Class hours	Hours outside the classroom	Total hours
Lecturing	29	36	65
Case studies	2	4	6
Autonomous problem solving	1	3	4
Presentation	1	5	6
Laboratory practical	20	25	45
Studies excursion	10	14	24

\*The information in the planning table is for guidance only and does not take into account the heterogeneity of the students.

## Methodologies

	Description
Lecturing	Exhibition of the contents of the *asignatura. They treat the competitions To2, To8, To25 and To61.
Case studies	Formulation, analysis, resolution and debate of a problem or exercise related with the thematic of the *asignatura. They treat the competitions To2 and *B6.
Autonomous problem solving	Formulation, analysis, resolution and debate of a problem or exercise related with the thematic of the *asignatura, by part of the *alumnado. They treat the competitions To2 and *B6.
Presentation	Oral exhibition by part of the *alumnado of a concrete subject or of a work (previous presentation written). They treat the competitions To2, To8, To25 and To61.
Laboratory practical	Application to practical level of the theory of Vegetal Biology in the laboratory. They treat the competitions To2, To8, To25 and To61.
Studies excursion	Realisation of visits-exits to the field for the observation and study of the plants in his natural surroundings. They treat the competitions To2, To8, To25 and To61.

### Personalized assistance

Methodologies	Description
Presentation	

### Assessment

	Description	Qualification	Training and Learning Results
Lecturing	Examination: proof with questions of short answer and others of long answer. The students have to answer to the questions to show the knowledges purchased on the matter. They evaluate the competitions To2, To8, To25, To61 and *B6.	60	B1 C8
Presentation	It evaluates the preparation of the work and his oral exhibition. They evaluate the competitions To2, To8, To25 and To61.	20	B1 C8
Laboratory practical	Continuous evaluation of the activities realised in the practices, as well as of the memory that the students have to deliver when finalising the course. They evaluate the competitions To2, To8, To25 and To61.	20	B1 C8

### Other comments on the Evaluation

The avaliation of the second announcement will be the same as for the first one

Calendar of examinations availabel at <http://forestaes.uvigo.es/gl/>

### Sources of information

#### Basic Bibliography

#### Complementary Bibliography

Raven PH, Evert RF & Eichhorn SE, **Biology of plants**, WH Freeman and CP, Nabors M.W., **Introducción a la Botánica**, Pearson-Addison Wesley,  
 Azcón-Bieto J & Talón M, **Fundamentos de Fisiología Vegetal**, Mc Graw Hill,  
 Paniagua R, **Citología e Histología vegetal y animal**, Mc Graw Hill,  
 Stern KR, Bidlack JE & Jansky SH, **Introductory plant biology**, Mc Graw Hill,  
 Taiz L & Zeiger T, **Plant physiology**, 5ª ed.; Sunderland, MA : Sinauer Associates,

### Recommendations

### Contingency plan

#### Description

=== EXCEPTIONAL PLANNING ===

Given the uncertain and unpredictable evolution of the health alert caused by COVID-19, the University of Vigo establishes an extraordinary planning that will be activated when the administrations and the institution itself determine it, considering safety, health and responsibility criteria both in distance and blended learning. These already planned measures guarantee, at the required time, the development of teaching in a more agile and effective way, as it is known in advance (or well in advance) by the students and teachers through the standardized tool.

=== ADAPTATION OF THE METHODOLOGIES ===

\* Teaching methodologies maintained

\* Teaching methodologies modified

\* Non-attendance mechanisms for student attention (tutoring)

\* Modifications (if applicable) of the contents

\* Additional bibliography to facilitate self-learning

\* Other modifications

=== ADAPTATION OF THE TESTS ===

\* Tests already carried out

Test XX: [Previous Weight 00%] [Proposed Weight 00%]

...

\* Pending tests that are maintained

Test XX: [Previous Weight 00%] [Proposed Weight 00%]

...

\* Tests that are modified

[Previous test] => [New test]

\* New tests

\* Additional Information

---