

**1. General information****Course:** BOTANY**Type:** CORE COURSE**Degree:** 340 - UNDERGRADUATE DEGREE PROGRAMME IN ENVIRONMENTAL SCIENCES**Center:** 501 - FACULTY OF ENVIRONMENTAL SCIENCES AND BIOCHEMISTRY**Year:** 1**Main language:** Spanish**Use of additional languages:****Web site:****Code:** 37306**ECTS credits:** 6**Academic year:** 2023-24**Group(s):** 40**Duration:** C2**Second language:** English**English Friendly:** Y**Bilingual:** N

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**2. Pre-Requisites**

Not established

**3. Justification in the curriculum, relation to other subjects and to the profession**

Botany is a basic course. It is integrated into the Scientific Bases of the Natural Environment Module. This course provides a systematic and evolutionary view of plant and fungal diversity. Starting from a basic level, it is intended that students become aware that actions and environmental impacts require rigorous knowledge of their consequences on affected organisms. This course contributes with the rest of the subjects of the Degree to achieve the professional skills necessary to carry out environmental inventories.

**4. Degree competences achieved in this course****Course competences**

Code	Description
CB01	Prove that they have acquired and understood knowledge in a subject area that derives from general secondary education and is appropriate to a level based on advanced course books, and includes updated and cutting-edge aspects of their field of knowledge.
CB02	Apply their knowledge to their job or vocation in a professional manner and show that they have the competences to construct and justify arguments and solve problems within their subject area.
CB05	Have developed the necessary learning abilities to carry on studying autonomously
E01	Ability to understand and apply basic knowledge.
E04	Ability to integrate experimental evidence found in field and/or laboratory studies with theoretical knowledge.
E05	Capacity for qualitative data interpretation
T02	To know and apply the Information and Communication Technologies (ICT).
T03	To use a correct oral and written communication.
T04	To know the ethical commitment and professional deontology.

**5. Objectives or Learning Outcomes****Course learning outcomes**

Description

Management of biodiversity databases.

Management of keys for the taxonomic identification of plants.  
 Management of vegetable collection and sampling techniques.  
 Basic knowledge of plant biodiversity, its interactions with other biological systems and its environmental importance.  
 Basic knowledge of environmental inventory development.  
 Mastery of biological scientific nomenclature.

## 6. Units / Contents

**Unit 1: Introduction. Concept of Botany and aims of the subject**

**Unit 2: Algae**

**Unit 3: Bryophytes (moss and liverworts) and Pteridophytes (ferns)**

**Unit 4: Introduction to Spermatophytes and Gimnosperms**

**Unit 5: Angiosperms**

**Unit 6: Fungi**

## 7. Activities, Units/Modules and Methodology

Training Activity	Methodology	Related Competences (only degrees before RD 822/2021)	ECTS	Hours	As	Com	Description
Class Attendance (theory) [ON-SITE]	Lectures	CB01 CB05 E01 T02	1.2	30	N	-	The objectives and contents of each unit will be discussed. All the material will be available on the virtual platform
Group tutoring sessions [ON-SITE]	Group tutoring sessions	CB01 CB05 E01 T02 T03	0.28	7	Y	N	Joint session at the end of each of the units. The participation will be evaluated through completion of online questionnaires during group tutorials to detect the concepts misunderstood about the subject and resolve possible doubts (See section 8)
Laboratory practice or sessions [ON-SITE]	Practical or hands-on activities	E01 E04 E05 T02 T03	0.6	15	Y	Y	Attendance at practices is compulsory and non-reschedulable
Field work [ON-SITE]	Other Methodologies	CB02 E04 E05 T04	0.2	5	Y	Y	A field trip to Montes de Toledo and Meseta Crystalline (Toledo)
Writing of reports or projects [OFF-SITE]	Guided or supervised work	CB02 CB05 E04 E05 T02 T03 T04	1.6	40	Y	Y	Elaboration of a Herbarium. The students must make a collection of pressed plants and labeled in which they will put in practice knowledge and skills acquired in laboratory and field practices.
Study and Exam Preparation [OFF-SITE]	Self-study	CB01 CB02 CB05 E01 E04 E05 T02 T03 T04	2	50	N	-	Study of the theoretical and practical contents that they must acquire in activities developed in the course.
Final test [ON-SITE]	Assessment tests	T02	0.12	3	Y	Y	Written exam of short questions and test to assess the knowledge of theoretical contents of the course.
<b>Total:</b>			<b>6</b>	<b>150</b>			
<b>Total credits of in-class work: 2.4</b>							<b>Total class time hours: 60</b>
<b>Total credits of out of class work: 3.6</b>							<b>Total hours of out of class work: 90</b>

As: Assessable training activity

Com: Training activity of compulsory overcoming (It will be essential to overcome both continuous and non-continuous assessment).

## 8. Evaluation criteria and Grading System

Evaluation System	Continuous assessment	Non-continuous evaluation*	Description
Final test	50.00%	60.00%	Written exam of short questions and test to assess the knowledge of theoretical contents of the course.
Laboratory sessions	20.00%	20.00%	Evaluation of practices by conducting questionnaires and a flora recognition test (visu)
Fieldwork assessment	20.00%	20.00%	Evaluation of the herbarium in an individual interview.
Other methods of assessment	10.00%	0.00%	Evaluation of the questionnaires in the group tutoring sessions. They will be evaluated solely based on the percentage of questionnaires carried out.
<b>Total:</b>	<b>100.00%</b>	<b>100.00%</b>	

According to art. 4 of the UCLM Student Evaluation Regulations, it must be provided to students who cannot regularly attend face-to-face training activities the passing of the subject, having the right (art. 12.2) to be globally graded, in 2 annual calls per subject, an ordinary and an extraordinary one (evaluating 100% of the competences).

### Evaluation criteria for the final exam:

#### Continuous assessment:

The modality assigned by default to the student will be the continuous evaluation. Any student may request the change to the non-continuous evaluation modality (before the end of the class period) by sending an email to the teacher, as long as the 50% of evaluable activities have not been carried out. The

practical laboratory part of the course will be evaluated through questionnaires at the end of each practical session.

The course will be evaluated through the written tests (50%), the practical questionnaires and a visual exam (20%), the herbarium (20%) and the group tutorial questionnaires (10%). In order to pass the course, a minimum mark of 4 out of 10 must be obtained in the written test, in the practices and in the herbarium. In any case, students will pass the course if the set of all assessable activities results in a average mark of 5 or higher (out of 10).

#### Non-continuous evaluation:

The modality assigned by default to the student will be the continuous evaluation. Any student may request the change to the non-continuous evaluation modality (before the end of the class period) by sending an email to the teacher, as long as the 50% of evaluable activities have not been carried out. In the non continuous evaluation students will be evaluated through the written tests (60%), the practical questionnaires and a visual exam (20%) and the herbarium (20%). In order to pass the course, a minimum mark of 4 out of 10 must be obtained in the written test, in the practices and in the herbarium. In any case, the students will pass the course if the set of all assessable activities results in a average mark of 5 or higher (out of 10).

#### Specifications for the resit/retake exam:

The evaluation criteria coincide with those of the ordinary call.  
Students will take again the tests not passed in the ordinary call.

#### Specifications for the second resit / retake exam:

The evaluation criteria coincide with those of the ordinary call.  
Students will take the final written test, flora recognition exam (VISU) and will present the herbarium.

9. Assignments, course calendar and important dates	
<b>Not related to the syllabus/contents</b>	
<b>Hours</b>	<b>hours</b>
Field work [PRESENCIAL][Other Methodologies]	5
Writing of reports or projects [AUTÓNOMA][Guided or supervised work]	40
Study and Exam Preparation [AUTÓNOMA][Self-study]	50
Final test [PRESENCIAL][Assessment tests]	3
<b>Unit 1 (de 6): Introduction. Concept of Botany and aims of the subject</b>	
<b>Activities</b>	<b>Hours</b>
Class Attendance (theory) [PRESENCIAL][Lectures]	5
Group tutoring sessions [PRESENCIAL][Group tutoring sessions]	1
<b>Unit 2 (de 6): Algae</b>	
<b>Activities</b>	<b>Hours</b>
Class Attendance (theory) [PRESENCIAL][Lectures]	5
Group tutoring sessions [PRESENCIAL][Group tutoring sessions]	1
Laboratory practice or sessions [PRESENCIAL][Practical or hands-on activities]	2
<b>Unit 3 (de 6): Bryophytes (moss and liverworts) and Pteridophytes (ferns)</b>	
<b>Activities</b>	<b>Hours</b>
Class Attendance (theory) [PRESENCIAL][Lectures]	2
Group tutoring sessions [PRESENCIAL][Group tutoring sessions]	1
Laboratory practice or sessions [PRESENCIAL][Practical or hands-on activities]	2
<b>Unit 4 (de 6): Introduction to Spermatophytes and Gimnosperms</b>	
<b>Activities</b>	<b>Hours</b>
Class Attendance (theory) [PRESENCIAL][Lectures]	8
Group tutoring sessions [PRESENCIAL][Group tutoring sessions]	2
Laboratory practice or sessions [PRESENCIAL][Practical or hands-on activities]	2
<b>Unit 5 (de 6): Angiosperms</b>	
<b>Activities</b>	<b>Hours</b>
Class Attendance (theory) [PRESENCIAL][Lectures]	7
Group tutoring sessions [PRESENCIAL][Group tutoring sessions]	1
Laboratory practice or sessions [PRESENCIAL][Practical or hands-on activities]	7
<b>Unit 6 (de 6): Fungi</b>	
<b>Activities</b>	<b>Hours</b>
Class Attendance (theory) [PRESENCIAL][Lectures]	3
Group tutoring sessions [PRESENCIAL][Group tutoring sessions]	1
Laboratory practice or sessions [PRESENCIAL][Practical or hands-on activities]	2
<b>Global activity</b>	
<b>Activities</b>	<b>hours</b>
Group tutoring sessions [PRESENCIAL][Group tutoring sessions]	7
Laboratory practice or sessions [PRESENCIAL][Practical or hands-on activities]	15
Field work [PRESENCIAL][Other Methodologies]	5
Writing of reports or projects [AUTÓNOMA][Guided or supervised work]	40
Study and Exam Preparation [AUTÓNOMA][Self-study]	50
Final test [PRESENCIAL][Assessment tests]	3
Class Attendance (theory) [PRESENCIAL][Lectures]	30
<b>Total horas: 150</b>	

10. Bibliography and Sources							
Author(s)	Title/Link	Publishing house	Citv	ISBN	Year	Description	
LÓPEZ GONZÁLEZ G.	Guía de los árboles y arbustos de la Península Ibérica y Baleares	Ed. Mundi-Prensa	Madrid		2002	Claves de identificación y guías ilustradas	
MORENO, G. & AL.	La Guía Incafo de los hongos de la Península Ibérica	Ed. Incafo	Madrid		1986	Claves de identificación y guías ilustradas	

PEINADO LORCA, M., J.M. MARTÍNEZ PARRAS & L. MONJE	El paisaje vegetal de Castilla-La Mancha	Ed. Cuarto Centenario	Toledo	2009	Texto especializado
RAVEN, P.H., EVERT, F. & EICHORN, S.E.	Biology of plants (7th ed.)	W.H Freeman and Co.	New York	2005	Texto especializado
RIVAS-MARTÍNEZ S.	Mapa de series de vegetación de España 1:400000	ICONA	Madrid	1987	Textos especializados
SALVO E.	Guía de los helechos de la Península Ibérica y Baleares	Ed. Pirámide	Madrid	1990	Claves de identificación y guías ilustradas
SITTE, P. & AL.	STRASBURGUER. Tratado de Botánica	Ed. Omega	Barcelona	2004	Bibliografía básica
TORMO, R.	Plantas y hongos <a href="http://www.plantasyhongos.es/">http://www.plantasyhongos.es/</a>				Recurso web
VARIOS	Herbario virtual del Mediterráneo occidental <a href="http://herbarivirtual.uib.es/">http://herbarivirtual.uib.es/</a>				Recurso web
WIRTH V. & AL.	Guía de campo de los líquenes, musgos y hepáticas	Ed. Omega	Barcelona	2004	Claves de identificación y guías ilustradas
ALEXOPOULOS, C.J., MIMS, C.W. & BLACKWELL, M.	Introductory mycology	John Wiley & Sons	New York	1996	Texto especializado
ANTHOS	Sistema de información de las plantas de España  <a href="http://www.anthos.es">www.anthos.es</a>	Real Jardín Botánico, CSIC-Fundación Biodiversidad			Recurso web
BONNIER, G. & G. LAYENS	Claves para la determinación de las plantas vasculares.	Ed. Omega	Barcelona	1993	Claves de indentificación
CASTROVIEJO, S. & AL. (EDS.)	Flora Ibérica  <a href="http://www.floraiberica.es">www.floraiberica.es</a>	Real Jardín Botánico de Madrid, CSIC	Madrid	1986	Claves de identificación
CHARCO J. & AL.	Árboles y arbustos de Castilla-La Mancha	CIAMED	Ciudad Real	2008	Claves de identificación y guías ilustradas
COSTA, M., MORLA, C., SAINZ, H. (eds.)	Los bosques ibéricos	Ed. Planeta	Barcelona	1997	Texto especializado
DEVESA J.A.	Vegetación y flora de Extremadura	Ed. Universitas	Badajoz	1995	Claves de identificación y guías ilustradas
DIEGO CALONGE F. DE	Setas (Hongos)	Ed. Mundi-Prensa	Madrid	1990	Claves de identificación y guías ilustradas
FONT QUER, P.	Diccionario de Botánica	Ed. Labor	Barcelona	1993	Libro de consulta
HEYWOOD, V.H.	Flowering plants of the world. Updated edition	Oxford University Press	New York	1996	Bibliografía básica
IZCO, J. & AL.	Botánica	McGraw-Hill Interamericana	Madrid	2004	Bibliografía básica
THOROGOOD, CHRIS	Field Guide to the Wild Flowers of the Western Mediterranean	Kew Publishing		2016	Guía ilustrada
Devesa J. A. & Carrión J.	LAS PLANTAS CON FLOR	UNIVERSIDAD DE CÓRDOBA. SERVICIO DE PUBLICACIONES	9788499271088	2012	Libro de Consulta