



1. General information

Course: BOTANY

Type: CORE COURSE

Degree: 376 - UNDERGRADUATE DEGREE PROGRAMME IN PHARMACY

Center: 14 - FACULTY OF PHARMACY

Year: 1

Main language: Spanish

Use of additional
languages:

Web site:

Code: 14308

ECTS credits: 6

Academic year: 2023-24

Group(s): 10

Duration: C2

Second language:

English Friendly: N

Bilingual: N

Lecturer: JORGE ANTONIO DE LAS HERAS IBAÑEZ - Group(s): 10

Building/Office	Department	Phone number	Email	Office hours
FARMACIA/botánica	PROD. VEGETAL Y TGIA. AGRARIA	8231	jorge.heras@uclm.es	

Lecturer: JOSE LUIS MORENO ALCARAZ - Group(s): 10

Building/Office	Department	Phone number	Email	Office hours
ETSIAM Edificio Manuel Alonso Peña	PROD. VEGETAL Y TGIA. AGRARIA	2576	joseluis.moreno@uclm.es	

Lecturer: DANIEL MOYA NAVARRO - Group(s): 10

Building/Office	Department	Phone number	Email	Office hours
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2. Pre-Requisites

Basic knowledge on Biology

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

This subject is directly related to other first-year subjects that complement the knowledge acquired in Botany, such as Biology that provides fundamental knowledge of plant physiology. Other subjects are: Physics Applied to Pharmacy, Applied Mathematics and Statistics, etc.

Botany has historically been a fundamental basis for the formation of the pharmacist

4. Degree competences achieved in this course

Course competences

Code	Description
B01	Proficiency in a second foreign language at level B1 of the Common European Framework of Reference for Languages.
B02	Knowledge of Information and Communication Technologies (ICT).
B03	A correct oral and written communication
B04	Ethical commitment and professional deontology.
B05	Ability to develop those learning skills necessary to undertake further studies.
EB02	Develop skills related to the use of the beneficial effects of medicinal plants and understand the health risks associated with their misuse
EB10	Know medicinal plants: botanical diversity, physiology, use and management
G01	Identify, design, obtain, analyze, control and produce drugs and medicines, as well as other products and raw materials of sanitary interest for human or veterinary use.
G03	Know how to apply the scientific method and acquire skills in the handling of legislation, sources of information, bibliography, elaboration of protocols and other aspects considered necessary for the design and critical evaluation of preclinical and clinical trials.
G15	Recognise own limitations and the need to maintain and update professional competence, with particular emphasis on self-learning of new knowledge based on scientific evidence.
T01	Critical thinking skills based on the application of the scientific method
T02	Ability to manage quality scientific information, bibliography, specialized databases and resources accessible through the Internet.
T03	Handling of basic and specific software for the treatment of information and experimental results.
T04	Motivation for quality, safety at work and awareness of environmental issues, with knowledge of the internationally recognised systems for the correct management of these aspects.
T05	Organizational, planning and implementation skills.
T06	Ability to address human resources decision-making and management.
T07	Ability to work as a team and, where appropriate, exercise leadership functions, encouraging entrepreneurship.
T08	Develop interpersonal skills and the ability to function in an international and multicultural context.

5. Objectives or Learning Outcomes

Course learning outcomes

Description

Knowledge of ethnobotany. Traditional uses of plants of medicinal interest.

Knowledge of the taxonomy and basic systematics of the plant kingdom, with special emphasis on plants of medicinal interest. Bases of economic botany.

Knowledge of the management of plants of medicinal interest: prospecting, reproduction and domestication of plant species.

Initiation in the use of taxonomic keys for the identification and determination of plant species.

Learning the fundamentals of plant physiology.

Management of computer databases and documentary sources related to Botany.

Skill in the preparation of plant herbaria and the preparation of plant samples for laboratory observation and analysis.

6. Units / Contents**Unit 1: Introduction to Botany****Unit 2: Taxonomical characters****Unit 3: Zygomycete and ascomycete fungi****Unit 4: Basidiomycete fungi****Unit 5: Symbiotic mushrooms****Unit 6: Algae****Unit 7: Bryophytes and pteridophytes****Unit 8: Gymnosperms****Unit 9: Class magnoliopsida (angiosperms) subclasses: nymphaeaceae and liliidae****Unit 10: Subclass liliidae (monocotyledons) II****Unit 11: Subclass magnolidae****Unit 12: Subclass ranunculidae (dicotyledons) I****Unit 13: Subclass ranunculidae (dicotyledons) II****Unit 14: Subclass ranunculidae (dicotyledons) III****Unit 15: Subclass ranunculidae (dicotyledons) IV****Unit 16: Subclass ranunculidae (dicotyledons) V****Unit 17: Subclass ranunculidae (dicotyledons) VI****Unit 18: Subclass ranunculidae (dicotyledons) VII****Unit 19: Lab 1.- Medicinal plants in Castilla-La Mancha****Unit 19.1** Field trip**Unit 19.2** Botanical garden**Unit 20: Lab 2.- Working with plants****Unit 20.1** Algae, fungi and lichens**Unit 20.2** Bryophytes, ferns gymnosperms**Unit 21: Angiosperms. Anatomy and organs****Unit 22: Angiosperms. Dichotomical keys****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	B01 B02 B03 B04 B05 EB02 EB10 G01 G03 G15 T01 T02 T03 T04 T05 T06 T07 T08	1.04	26	Y	N	the level of knowledge acquired is evaluated through an individual exam
Laboratory practice or sessions [ON-SITE]	Practical or hands-on activities	B01 B02 B03 B04 B05 EB02 EB10 G01 G03 G15 T01 T02 T03 T04 T05 T06 T07 T08	0.8	20	Y	Y	
Individual tutoring sessions [ON-SITE]	Guided or supervised work	B05 EB02	0.2	5	N	-	
Study and Exam Preparation [OFF-SITE]	Self-study	B01 B02 B03 B04 B05 EB10 G01 G03 G15 T01 T02 T03 T04 T05 T06	3.1	77.5	Y	N	
Formative Assessment [ON-SITE]	Assessment tests	B01 B02 B03 B04 B05 EB10 G01 G03 G15 T01 T02 T03 T04 T05 T06	0.16	4	Y	Y	
Practicum and practical activities report writing or preparation [OFF-SITE]	Self-study	B01 B02 B03 B04 B05 EB10 G01 G03 G15 T01 T02 T03 T04 T05 T06	0.5	12.5	Y	N	
Workshops or seminars [ON-SITE]	Guided or supervised work	B01 B02 B03 B04 B05 EB10 G01 G03 G15 T01 T02 T03 T04 T05 T06 T07 T08	0.2	5	Y	N	
Total:			6	150			
Total credits of in-class work: 2.4			Total class time hours: 60				
Total credits of out of class work: 3.6			Total hours of out of class work: 90				

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	70.00%	70.00%	
Practicum and practical activities reports assessment	10.00%	10.00%	
Fieldwork assessment	10.00%	10.00%	
Laboratory sessions	10.00%	0.00%	
Assessment of problem solving and/or case studies	0.00%	10.00%	
Total:	100.00%	100.00%	

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:

Evaluation of the material not passed in the progress tests.

To pass the subject is MANDATORY:

- to present the book of practices
- to reach attendance higher than 80%
- to elaborate the herbal medicinal plant
- to pass the tests

Non-continuous evaluation:

Evaluation criteria not defined

Specifications for the resit/retake exam:

One test including all temary

9. Assignments, course calendar and important dates

Not related to the syllabus/contents

Hours	hours
Class Attendance (theory) [PRESENCIAL][Lectures]	26
Laboratory practice or sessions [PRESENCIAL][Practical or hands-on activities]	20
Individual tutoring sessions [PRESENCIAL][Guided or supervised work]	5
Study and Exam Preparation [AUTÓNOMA][Self-study]	77.5
Formative Assessment [PRESENCIAL][Assessment tests]	4
Practicum and practical activities report writing or preparation [AUTÓNOMA][Self-study]	2.5
Workshops or seminars [PRESENCIAL][Guided or supervised work]	5
Global activity	
Activities	hours
Class Attendance (theory) [PRESENCIAL][Lectures]	26
Laboratory practice or sessions [PRESENCIAL][Practical or hands-on activities]	20
Individual tutoring sessions [PRESENCIAL][Guided or supervised work]	5
Formative Assessment [PRESENCIAL][Assessment tests]	4
Practicum and practical activities report writing or preparation [AUTÓNOMA][Self-study]	2.5
Workshops or seminars [PRESENCIAL][Guided or supervised work]	5
Study and Exam Preparation [AUTÓNOMA][Self-study]	77.5
Total horas: 140	

10. Bibliography and Sources

Author(s)	Title/Link	Publishing house	Citv	ISBN	Year	Description
Bonnier, Gaston	Claves para la determinación de plantas vasculares	Omega		84-282-0796-8	2006	
Bruneton, Jean	Pharmacognosie : Phytochimie, plantes médicinales	Technique & documentation-Lavoisier		978-2-7430-1188-8	2009	
Cronquist, Arthur	The evolution and classification of flowering plants	The New York Botanical Garden		0-89327-332-5	1988	
Diego Calonge, Francisco de	Hongos medicinales /	Mundi-Prensa,		978-84-8476-508-0	2011	
Font Quer, Pío (1888-1964)	Botánica pintoresca	Península		84-8307-600-4	2003	
Font Quer, Pío (1888-1964)	Plantas medicinales : el dioscórides renovado	Península		978-84-8307-242-4	2007	
GARCIA ROLLAN, Mariano	Manual para buscar setas	Publicaciones de Extensión Agraria		84-341-0485-7	1982	
lcco, Jesús (y col.)	Botánica	Mc Graw-Hill Interamericana	Madrid	84-486-0609-4	2005	
Jahns, Hans Martin	Guía de campo de los helechos, musgos y líquenes de Europa:	Omega		84-282-0692-9	1982	
Moreno & Manjón	Guía de Hongos de la Península	Omega	Sabadell	978-84-282-1349-3	2010	

Salvo Tierra, A. Enrique	Ibérica Guía de helechos de la Península Ibérica y Baleares /	Pirámide,		84-368-0548-8	1990
Simpson, Beryl Brintnall	Economic botany : plants in our world	McGraw-Hill Higher Education		0-07-290938-2	2001
Strassburger, E. (y col.)	tratado de botanica	Omega	Barcelona	84-282-1353-4	2003
Vignes, Pierre	Herbario de plantas silvestres /	Larousse,		978-84-8016-876-2	2011
Vignes, Pierre	Herbario de plantas silvestres /	Larousse,		978-84-8016-876-2	2011
	Diccionario de botánica : seguido de un vocabulario ideológ	Península		84-8307-300-5	2000