UNIVERSIDAD DE CASTILLA - LA MANCHA

GUÍA DOCENTE

1. General information

Course: MICROBIOLOGY
Code: 60607
Type: BASIC
ECTS credits: 6
Degree: 402 - UNDERGRADUATE DEGREE PROGRAMME IN BIOTECHNOLOGY
Academic year: 2022-23
Center: 601 - E.T.S. AGRICULTURAL ENGINEERS AND MOUNTS AB
Group(s): 10
Year: 1
Duration: C2
Main language: Spanish
Second language: English
Use of additional languages:
English Friendly: N
Web site:
Bilingual: N

Lecturer: **PETRUS WILHELMUS JOHANNES DE GROOT ---** - Group(s): **10**

Building/Office	Department	Phone number	Email	Office hours
CRIB, Albacete	CIENCIAS MÉDICAS	926053569	Piet.DeGroot@uclm.es	

2. Pre-Requisites

Not established

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

Not established

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.
CB03	Be able to gather and process relevant information (usually within their subject area) to give opinions, including reflections on relevant social, scientific or ethical issues.
CB04	Transmit information, ideas, problems and solutions for both specialist and non-specialist audiences.
CB05	Have developed the necessary learning abilities to carry on studying autonomously
CE06	Apply techniques for the selection and manipulation of microorganisms of interest in biotechnological applications.
CG02	Capacity for analysis and synthesis.
CG03	Ability to work in multidisciplinary teams collaboratively and with shared responsibility.
CG04	Sensitivity towards environmental issues.
CT01	Know a second foreign language.
CT02	Know and apply the Information and Communication Technologies.
CT03	Use correct oral and written communication.
CT04	Know the ethical commitment and professional deontology.

5. Objectives or Learning Outcomes

Course learning outcomes

Description

Know culture media and conditions for different microorganisms, obtain pure microbial cultures from inhomogeneous mixtures, quantify microbial growth and make and interpret observations under the light microscope.

Distinguish the characteristics of the bacterial cell, structural components and their functions.

Knowing how to use biotechnological improvement strategies for soil microorganisms and those associated with plants.

Know the uses of microorganisms to increase agricultural production, biocontrol and biofertilizers.

Understand and value the importance of soil microbiology in agriculture.

Know the use of microorganisms in bioremediation

Distinguish beneficial plant-microorganism interactions.

Distinguish the main groups of microorganisms, and their positive and negative relationships with other living beings and with the environment.

Know the bacterial physiology and distinguish the different metabolic groups and their biotechnological potential.

6. Units / Contents

Unit 1:
Unit 2:
Unit 3:
Unit 4:
Unit 5:
Unit 6:
Unit 7:
Unit 8:

Unit 8.1
Unit 8.2
Unit 8.3

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]	Combination of methods	CB01 CB02 CB03 CB04 CB05 CE06 CG02 CG03 CG04 CT01 CT02 CT03 CT04	1.4	35	Y	N	
Laboratory practice or sessions [ON-SITE]	Practical or hands-on activities	CB01 CB02 CB03 CB04 CB05 CE06 CG02 CG03 CG04 CT01 CT02 CT03 CT04	0.5	12.5	Y	Y	
Study and Exam Preparation [OFF-SITE]	Self-study	CB01 CB02 CB03 CB04 CB05 CE06 CG02 CG03 CG04 CT01 CT02 CT03 CT04	3	75	N	-	
Practicum and practical activities report writing or preparation [OFF-SITE]	Self-study	CB01 CB02 CB03 CB04 CB05 CE06 CG02 CG03 CG04 CT01 CT02 CT03 CT04	0.4	10	Y	N	
Group tutoring sessions [ON-SITE]	Group tutoring sessions	CB01 CB02 CB03 CB04 CB05 CE06 CG02 CG03 CG04 CT01 CT02 CT03 CT04	0.1	2.5	N	-	
Analysis of articles and reviews [OFF-SITE]	Self-study	CB01 CB02 CB03 CB04 CB05 CE06 CG02 CG03 CG04 CT01 CT02 CT03 CT04	0.2	5	N	-	
Formative Assessment [ON-SITE]	Assessment tests	CB01 CB02 CB03 CB04 CB05 CE06 CG02 CG03 CG04 CT01 CT02 CT03 CT04	0.2	5	Y	Y	
Workshops or seminars [ON-SITE]	Problem solving and exercises	CB01 CB02 CB03 CB04 CB05 CE06 CG02 CG03 CG04 CT01 CT02 CT03 CT04	0.2	5	Y	Y	
		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
Mid-term tests	70.00%	70.00%	
Laboratory sessions	20.00%	20.00%	
Theoretical papers assessment	10.00%	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).

9. Assignments, course calendar and important dates

Not related to the syllabus/contents

Hours	hours
Class Attendance (theory) [PRESENCIAL][Combination of methods]	35
Laboratory practice or sessions [PRESENCIAL][Practical or hands-on activities]	17.5
Study and Exam Preparation [AUTÓNOMA][Self-study]	75
Practicum and practical activities report writing or preparation [AUTÓNOMA][Self-study]	10
Group tutoring sessions [PRESENCIAL][Group tutoring sessions]	2.5
Analysis of articles and reviews [AUTÓNOMA][Self-study]	5
Formative Assessment [PRESENCIAL][Assessment tests]	5

Global activity

Activities	hours
Class Attendance (theory) [PRESENCIAL][Combination of methods]	35

Laboratory practice or sessions [PRESENCIAL][Practical or hands-on activities]	17.5
Formative Assessment [PRESENCIAL][Assessment tests]	5
Practicum and practical activities report writing or preparation [AUTÓNOMA][Self-study]	10
Analysis of articles and reviews [AUTÓNOMA][Self-study]	5
Group tutoring sessions [PRESENCIAL][Group tutoring sessions]	2.5
Study and Exam Preparation [AUTÓNOMA][Self-study]	75
Total horas:	150

10. Bibliography and Sources

Author(s)	Title/Link	Publishing house	Citv	ISBN	Year	Description
Ana Martín González et al.	Microbiología Esencial	Editorial Médica PANAMERICANA		9788498357868	2019	
	https://www.medicapanamericana.com/libro/microbiologia-esencial-incluye-version-digital?gclid=CjwKCAjwk93rBRBLEiwAcMapUdvDmFNsUNICnMtevXKZplG6GEJljjbEmlc5kxFKWB_NHNHAfomZ9xoCfHIQAvD_BwE					
M.T. Madigan	Brock. Biología de los Microorganismos.	Pearson		9788490352793	2015	
W.J. Thieman, M.A. Palladino	Introduccion a la Biotecnologia	Pearson		9788478291175	2010	
M.J. (Jr.) Pelczar	Elementos de Microbiologia	McGraw-Hill / Interamericana de España		9788485240760	1984	
P.R. Murray, K.S. Rosenthal & M.A. Pfaller	Microbiología Médica	Elsevier		9788491138082	2021	
G. Prats	Microbiologia clínica	Editorial Médica Panamericana		9788479039714	2006	