



Universitat de Lleida

# DEGREE CURRICULUM **FURTHER ADVANCED TECHNICAL ANALYSIS**

Coordination: ERAS JOLI, JORDI

Academic year 2022-23

## Subject's general information

Subject name	FURTHER ADVANCED TECHNICAL ANALYSIS					
Code	101644					
Semester	ANUAL CONTINUED EVALUATION					
Typology	Degree			Course	Character	Modality
	Bachelor's Degree in Biotechnology			3	OPTIONAL	Attendance-based
Course number of credits (ECTS)	3					
Type of activity, credits, and groups	Activity type	PRALAB		PRAULA		TEORIA
	Number of credits	0.5	1.2	0.4		0.9
	Number of groups	4	2	1		1
Coordination	ERAS JOLI, JORDI					
Department	CHEMISTRY					
Important information on data processing	Consult <a href="#">this link</a> for more information.					

Teaching staff	E-mail addresses	Credits taught by teacher	Office and hour of attention
EGEA NAVARRO, JOAQUIM	joaquim.egea@udl.cat	2,2	
ERAS JOLI, JORDI	jordi.eras@udl.cat	2,3	
GUILLEN MARTINEZ, PEDRO	pere.guillen@udl.cat	,4	
VILARO JORDANA, FRANCISCA	francesca.vilaro@udl.cat	,8	

## Subject's extra information

Laboratory practices are of utmost importance in this course, so they are mandatory, i.e., to pass the course it is a requirement to have performed the practices and submit the corresponding report.

## Learning objectives

This optional subject is aimed at students of the last Degree courses that already have theoretical-practical knowledge of instrumental analysis techniques. It intends to provide the student with a practical knowledge of specific techniques of special relevance in the field of Biotechnology.

- Have a methodological knowledge for each chosen instrumental technique.
- Know how to manipulate the samples and instruments associated with each technique correctly.
- Know how to interpret the information provided by each instrumental technique.

## Competences

CG1 Be able to selectively search and use sources of information necessary to achieve the training objectives.

CG4 Know and properly use the scientific and technical vocabulary typical of the different areas of Biotechnology.

CG5 Work in the laboratory applying quality criteria and good practice.

CG7 Use the scientific method to analyze data and design experimental strategies with biotechnological applications.

CG11 Acquire criteria for choosing the most appropriate analytical techniques for each specific practical case.

CE26 Be able to use experimental techniques for analysis at the molecular, cellular and physiological level.

CE27 Know and know how to apply techniques for the analysis of molecular structures and for the detection and quantification of metabolites and macromolecules.

CE28 Know and know how to apply the techniques of omic analysis and interpretation of the results.

CE35 Know the operation and be able to work in a biotechnology laboratory.

## Subject contents

Using confocal microscopy

Determination of metabolites by GC-MS.

NMR experiments in the study of chemical reactions and plant metabolites.

Determination of metabolites by HPLC-MS.

## Methodology

Due to the exceptionality at the beginning of the 2020-2021 academic year, the methodology will be adapted to the guidelines set by the academic authorities. Thus, a significant part of the contact hours of the theory part can be done in non-contact mode. As for the problem and practice sessions, it is initially envisaged that they will be carried out in person. In the event that circumstances do not make it possible, alternatives would be implemented in a non-contact mode.

Assessment Type of activity Student work	Classroom activity		Student Non-present		Objectives
	Total time	Description			
	Hours	Hours			
	Hours	ECTS	Hours	Hours	
Laboratory	Laboratory	Laboratory (Medium Group)	Execution of the practice:		
understand phenomena, measure ...	15	15	Study and Make memory		
15	2	50			
Computer room	Computing classroom practice (Medium group)	Execution of the practice:			
understanding phenomena, measuring ...	13	13	Studying and Realizing Memory		
			10		
Guided activities	Student work (individual or group)	Carry out a bibliographic, practical			
work, etc.	75		3		
Totals					
28	45	75			

The approach of the subject is basically practical, the weight of the theory sessions is minimal and it is reduced to a few explanations about the analytical technique that will be used.

The sessions will be carried out in the laboratory, when the preparation of the sample is necessary. In the room of the analysis equipment to obtain and / or observe the results, and in the computer room to process the results with the appropriate software.

## Evaluation

The evaluation tests can be face-to-face, semi-face-to-face or mixed. The modalities in case of non-face-to-face tests will be the appropriate ones among those that are included in the section of Test and questionnaires of the Virtual Campus.

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Type of activity rating	Evaluation activity		Weight (%)
	Procedure	Number	
Laboratory	Delivery of memos, written or oral tests	1	25
Computer room	Delivery of memos, written or oral tests	1	25
Guided activities	Delivery of work	1	50
Total			100