UNIVERSIDAD DE CASTILLA - LA MANCHA

GUÍA DOCENTE

1. General information

Course: CLINICAL BIOANALYTICS
Code: 13333
Type: ELECTIVE
ECTS credits: 4.5
Degree: 341 - UNDERGRADUATE DEGREE PROGRAMME IN BIOCHEMISTRY
Academic year: 2021-22
Center: 501 - FACULTY OF ENVIRONMENTAL SCIENCES AND BIOCHEMISTRY
Group(s): 40
Year: 4
Duration: First semester
Main language: Spanish
Second language:
Use of additional languages:
English Friendly: Y
Web site:
Bilingual: N

Lecturer: **MARIA JIMENEZ MORENO** - Group(s): **40**

Building/Office	Department	Phone number	Email	Office hours
Sabatini/0.8	Q. ANALÍTICA Y TGIA. ALIMENTOS	926051710	maria.jimenez@uclm.es	

Lecturer: **NURIA RODRIGUEZ FARIÑAS** - Group(s): **40**

Building/Office	Department	Phone number	Email	Office hours
Sabatini/0.9	Q. ANALÍTICA Y TGIA. ALIMENTOS	5459	nuria.rodriguez@uclm.es	Mondays, Tuesdays and Wednesdays from 12.00 to 14.00 upon appointment.

2. Pre-Requisites

Not established

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

This subject covers advanced analytical aspects of particular interest in the field of clinical biochemistry. Contents of other subjects, especially "Methodology and Instrumentation in Biochemistry" and "Clinical Biochemistry" are extended in relation to data treatment and advanced instrumental techniques. New concepts and devices, such as (bio)sensors, autimatization, and miniaturization are introduced.

4. Degree competences achieved in this course

Course competences

Code	Description
E01	Express themselves correctly in basic biological, physical, chemical, mathematical and computer terms.
E13	Correct handling of different computer tools
G03	Be able to collect and interpret relevant data, information and results, draw conclusions and issue reasoned reports on relevant social, scientific or ethical issues in connection with advances in Biochemistry and Molecular Biology.
G06	Acquire skills in the handling of computer programs including access to bibliographic, structural or any other type of databases useful in Biochemistry and Molecular Biology.
T01	Proficiency in a second foreign language, preferably English, at level B1 of the Common European Framework of Reference for Languages
T08	Ability to work as a team and, where appropriate, exercise leadership functions, encouraging entrepreneurship

5. Objectives or Learning Outcomes

Course learning outcomes

Description

The professional profile "molecular biomedicine" includes the application of biochemistry in the health sector, so that the student receives a strong biomedical and clinical orientation and also acquires the skills to carry out a professional activity in the field of teaching and research.

Additional outcomes

The student will be able to design an analytical strategy for non-routinely clinical determinations.

The student will identify automatic and automatized systems of measurement and assess their pros and cons.

The studend will apply experimental design techniques and multi-variate statistical analysis to interpret slinical problems.

The student will discriminate the adequacy of bioanalytical techniques according to the clinical problem to be faced.

6. Units / Contents

Unit 1: Chemometrics

Unit 2: Advanced Analytical Techniques

Unit 3: Sensors and Biosensors

Unit 4: Automatization in laboratories of clinical analysis

Unit 5: Laboratory practice

7. Activities, Units/Modules and Methodology

Training Activity	Methodology	Related Competences (only degrees before RD	ECTS	Hours	As	Com	Description

		822/2021)					
Class Attendance (theory) [ON-SITE]	Lectures	E01 E13 G03	1.12	28	N	-	
Study and Exam Preparation [OFF-SITE]	Self-study	E01 E13 G03	2.4	60	N	-	
Laboratory practice or sessions [ON-SITE]	Practical or hands-on activities	E13 G03	0.48	12	Y	Y	This activity is compulsory and not recoverable.
Progress test [ON-SITE]	Assessment tests	E01 E13	0.04	1	Y	N	
Final test [ON-SITE]	Assessment tests	E01 E13	0.04	1	Y	Y	
Writing of reports or projects [OFF-SITE]	Group Work	E13 G03	0.08	2	Y	Y	
Analysis of articles and reviews [OFF-SITE]	Self-study	G06	0.22	5.5	N	-	
Group tutoring sessions [ON-SITE]	Group Work	G03	0.04	1	N	-	
Final test [ON-SITE]	Assessment tests	E01 E13	0.08	2	Y	Y	
		Total:	**4.5**	**112.5**			
		Total credits of in-class work: 1.8					**Total class time hours: 45**
		Total credits of out of class work: 2.7					**Total hours of out of class work: 67.5**

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
Laboratory sessions	10.00%	10.00%	Result sheets and reports about lab sessions in due time. Only for students who attended lab sessions.
Final test	60.00%	70.00%	Written exam. Questions about theory and numerical problems.
Progress Tests	10.00%	0.00%	Multiple choice test.
Test	20.00%	20.00%	Written exam about lab sessions. Multiple choice test and problems. Only for students who attended lab sessions. A 4/10 is required to include this part in the final grade.
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:

The final grade will be the weighted average of all assessable activities. The student will pass the exam if the following occurs:
1) Final grade is 5/10 or higher and
2) Lab session's grade is 4/10 or higher.
The student will not pass if they have missed one single lab session without justification.

Non-continuous evaluation:

The final grade will be the weighted average of all assessable activities. The student will pass the exam if the following occurs:
1) Final grade is 5/10 or higher and
2) Lab session's grade is 4/10 or higher.
The student will not pass if they have missed one single lab session without justification.

Specifications for the resit/retake exam:

The final grade will be the weighted average of all assessable activities. The student will pass the exam if the following occurs:
1) Final grade is 5/10 or higher and
2) Lab session's grade is 4/10 or higher. Otherwise, the student will take a new test.
The student will not pass if they have missed one single lab session without justification.
Laboratory sessions sessions will be assessed again in this resit exam.

Specifications for the second resit / retake exam:

The student will take a written exam (100 % grade). The student will only sit this exam if they have had attended all lab sessions. The overall grade will be that of the written exam.

9. Assignments, course calendar and important dates

Not related to the syllabus/contents	
Hours	**hours**

10. Bibliography and Sources

Author(s)	Title/Link	Publishing house	Citv	ISBN	Year	Description
Cruces Blanco, Carmen	Electroforesis capilar	Universidad, Servicio de Publicaciones		84-8240-109-2	1998	
Eggins, Brian R.	Chemical sensors and biosensors	John Wiley & Sons		0-471-89914-3	2007	
Miller, James N.	Estadística y quimiometría para química analítica	Pearson Educación		978-84-205-3514-2	2008	

Ramis Ramos, Guillermo	Quimiometría	Síntesis	84-7738-904-7	2001
Ríos Castro, Angel y otros	Técnicas espectroscópicas en Química Analítica (vol II)	Síntesis	978-84-995893-1-2	2012
Valcárcel, Miguel y Cárdenas, M.Soledad	Automatización y miniaturización en Química Analítica	Springer Verlag	84-07-00510-4	2000
	Electrochemical sensors, biosensors, and their biomedical ap	Academic Press	978-0-12-373738-0	2008
	Electroforesis capilar : aproximación según la técnica de de	Universidad de Granada	84-338-3649-8	2005
Cela, R.	Técnicas de separación en química analítica	Síntesis	84-9756-028-0	2002