



## Teaching Guide

Identifying Data					2017/18
Subject (*)	Proteomics	Code	610441013		
Study programme	Mestrado Universitario en Bioloxía Molecular , Celular e Xenética				
Descriptors					
Cycle	Period	Year	Type	Credits	
Official Master's Degree	2nd four-month period	First	Optativa	3	
Language	SpanishGalicianEnglish				
Teaching method	Face-to-face				
Prerequisites					
Department	Bioloxía				
Coordinador	Cerdan Villanueva, Maria Esperanza	E-mail	esper.cerdan@udc.es		
Lecturers	Cerdan Villanueva, Maria Esperanza	E-mail	esper.cerdan@udc.es		
Web					
General description	<p>Coordina María Esperanza Cerdán Villanueva (esper.cerdan@udc.es)</p> <p>PENDIENTE DE INCLUIR POR LOS SERVICIOS DE GADU LOS SIGUIENTES PROFESORES DEL INIBIC:</p> <p>Dr. Fco. Javier Blanco García (Francisco_Blanco@canalejo.org)</p> <p>Dra. Cristina Ruis Romero (crisruiz@canalejo.org)</p> <p>Dra. Valentina Calamia</p> <p>En esta materia se pretende formar al alumno para</p> <ul style="list-style-type: none"> <li>.-Comprender las técnicas básicas de trabajo en proteómica</li> <li>.-Obtener y manejar muestras de proteínas</li> <li>.-Conocer las técnicas para la separación y detección masiva de las proteínas</li> <li>.-Comprender métodos de análisis de datos proteómicos a gran escala</li> <li>.-Conocer las aplicaciones de la proteómica en investigación básica, aplicada y clínica</li> <li>.-La lectura y comprensión crítica de publicaciones científicas del campo de la proteómica</li> </ul>				

## Study programme competences

Code	Study programme competences
A1	Skills of using usual techniques and instruments in the cellular, biological and molecular research: that are able to use techniques and instruments as well as understanding potentials of their uses and applications.
A3	Skills of understanding the functioning of cells through the structural organization, biochemistry, gene expression and genetic variability.
A9	Skills of understanding the structure and dynamics of proteins to individual and proteomic level, as well as the techniques that are necessary to analyze them and to study their interactions with other biomolecules.
B1	Analysis skills to understand biological problems in connection with the Molecular and Cellular Biology and Genetics.
B3	Skills of management of the information: that are able to gather and to understand relevant information and results, obtaining conclusions and to prepare reasoned reports on scientific and biotechnological questions

## Learning outcomes

Learning outcomes	Study programme competences		
In this course knowledge and skills about the extraction, purification and characterization of proteins from biological systems is acquired.	AR1	BR1	
	AR3	BR3	
	AR9		

## Contents



Topic	Sub-topic
Proteomics	1.-The concept of proteomics and its applications. 2.-Preparation of protein extracts and protein solubilization. 3.-Proteomics by two-dimensional electrophoresis. 4.-Handling two-dimensional proteomics bioinformatics programs. 5.-Identification and characterization of proteins in micro-scale. Differential expression proteomics: DIGE. 6.-Protein expression and protein chips. 7.-Protein identification by peptide mass fingerprinting. 8.-Tandem mass spectrometry (MS/MS): peptide sequencing. 9.- Databases and search programs for assisted protein identification by MS. 10.-Proteomics differential expression without gel: ICAT, iTRAQ, SILAC. 11.-Applications of proteomics in the field of Biomedicine. 12.-The human proteome.

Planning				
Methodologies / tests	Competencies	Ordinary class hours	Student?s personal work hours	Total hours
Guest lecture / keynote speech	A9	9	18	27
Laboratory practice	A1 A3 A9	9	0	9
Objective test	A1 A3 A9	1	24	25
Seminar	A9 B1 B3	2	12	14
Personalized attention		0		0

(\*)The information in the planning table is for guidance only and does not take into account the heterogeneity of the students.

Methodologies	
Methodologies	Description
Guest lecture / keynote speech	Magistral exposures
Laboratory practice	A guided tour of techniques at the Proteomic unit
Objective test	Questionary about the program content
Seminar	The student has to read about a proteomic problem/technique and prepare a seminar to the class.

Personalized attention	
Methodologies	Description
Guest lecture / keynote speech Laboratory practice	Students with part-time dedication or waiver of presence should contact the teachers of the subject in the early going to establish a schedule of activities to acquire and evaluate in a complementary way the competences.

Assessment			
Methodologies	Competencies	Description	Qualification
Guest lecture / keynote speech	A9	Attendance and participation	15
Laboratory practice	A1 A3 A9	Attendance and participation	15
Seminar	A9 B1 B3	Readings, exposition and discussion	20
Objective test	A1 A3 A9	Multiple options selection/test	50



## Assessment comments

Students with part-time dedication or waiver attendance may choose to be evaluated in a final exam if they do not qualify for continuous evaluation.

## Sources of information

<b>Basic</b>	Se especifican en Moodle junto co resto dos materiais a utilizar. Se especifican en Moodle junto co resto dos materiais a utilizar.
<b>Complementary</b>	Se especificarán en la aplicación de la materia

## Recommendations

### Subjects that it is recommended to have taken before

### Subjects that are recommended to be taken simultaneously

### Subjects that continue the syllabus

### Other comments

(\*)The teaching guide is the document in which the URV publishes the information about all its courses. It is a public document and cannot be modified. Only in exceptional cases can it be revised by the competent agent or duly revised so that it is in line with current legislation.