



Teaching Guide				
Identifying Data				2015/16
Subject (*)	Proteómica	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 Celular e Molecular			
Coordinador	Cerdan Villanueva, María Esperanza	E-mail	esper.cerdan@udc.es	
Lecturers	Blanco García, Francisco Javier Calamia , Valentina Cerdan Villanueva, María Esperanza Ruiz Romero, Cristina	E-mail	fblagar@sergas.es valentina.calamia@sergas.es esper.cerdan@udc.es cristina.ruiz.romero@correo.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"> .-Comprender las técnicas básicas de trabajo en proteómica .-Obtener y manejar muestras de proteínas .-Conocer las técnicas para la separación y detección masiva de las proteínas .-Comprender métodos de análisis de datos proteómicos a gran escala .-Conocer las aplicaciones de la proteómica en investigación básica, aplicada y clínica .-La lectura y comprensión crítica de publicaciones científicas del campo de la proteómica 			

Study programme competences / results	
Code	Study programme competences / results
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 / results



In this course knowledge and skills about the extraction, purification and characterization of proteins from biological systems is acquired.	AR1 AR3 AR9	BR1 BR3	
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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 / Results	Teaching hours (in-person & virtual)	Student?s personal work hours	Total hours
Guest lecture / keynote speech	A9	15	15	30
Laboratory practice	A1 A3 A9	15	0	15
Objective test	A1 A3 A9	1	15	16
Seminar	A9 B3 B1	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	

Assessment



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

Assessment comments