UNIVERSIDADE DA CORUÑA

Teaching Guide					
Identifying Data					**2018/19**
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		Optional	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	Coordina María Esperanza Cerdán Villanueva (esper.cerdan@udc.es) PENDIENTE DE INCLUIR POR LOS SERVICIOS DE GADU LOS SIGUIENTES PROFESORES DEL INIBIC: Dr. Fco. Javier Blanco García (Francisco_Blanco@canalejo.org) Dra. Cristina Ruis Romero (crisruiz@canalejo.org) Dra. Valentina Calamia En esta materia se pretende formar al alumno para .-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	
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 adquired.	AR1 AR3 AR9	BR1 BR3	

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 B3 B1	9	0	9
Objective test	A1 A3 A9 B1 B3	2	37	39
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

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 B3 B1	Attendance and participation	15
Objective test	A1 A3 A9 B1 B3	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	
Basic	Se especifican en Moodle junto co resto dos materiais a utilizar. Se especifican en Moodle junto co resto dos materiais a utilizar.
Complementary	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