Teaching Guide					
Identifying Data					2021/22
Subject (*)	Proteomics			Code	610441014s
Study programme	Máster Universitario en Bioloxía Molecular, Celular e Xenética (semipresencial)				
Descriptors					
Cycle	Period	Year		Type	Credits
Official Master's Degree	2nd four-month period	First		Optional	3
Language	SpanishGalicianEnglish				
Teaching method	Hybrid				
Prerequisites					
Department	BioloxíaDepartamento profesorado máster				
Coordinador	Cerdan Villanueva, Maria Esperanza		E-mail	esper.cerdan@udc.es	
Lecturers	Calamia , Valentina Cerdan Villanueva, Maria Esperanza Fernández Puente, Patricia Ruiz Romero, Cristina		E-mail	valentina.calamia@sergas.es esper.cerdan@udc.es patricia.fernandez.puente@udc.es crisruiz@canalejo.org	
Web					
General description	It is coordinated by María Esperanza Cerdán Villanueva (esper.cerdan@udc.es) and is taught by INIBIC teachers (contact: cristina.ruiz.romero@sergas.es) The aim of this subject is to train the student to: .-Understand the basic techniques of working in proteomics .-Obtain and manage protein samples .-Know the techniques for the separation and massive detection of proteins .-Understand large-scale proteomic data analysis methods .-Know the applications of proteomics in basic, applied and clinical research .-The critical reading and understanding of scientific publications in the field of proteomics				
Contingency plan	In case of a new closure due to covid19: 1. There will be no changes in the contents. 2. All classes and activities will be replaced by online activities in Moodle or Teams 3. The mechanisms for personalized attention to students will be through email, videoconference or chat implemented in TEAMS. 4. The evaluation will be online, but there will be no changes in the percentages assigned to the exam, practical exercises and activities. 5. Bibliography in Moodle				

Study programme competences / results	
Code	Study programme competences / results
A2	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
C2	Ability to know and use appropriately the technical terminology of the field of knowledge of the master, in the native language and in English, as a language of international diffusion in this field

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 adquired.	AR2 AR3 AR9	BR1 BR3	CC2

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 B1 B3	9	18	27
Laboratory practice	A2 A3 C2	9	0	9
Objective test	A2 A9 B1 B3 C2	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 / Results	Description	**Qualification**
Guest lecture / keynote speech	A9 B1 B3	Attendance and participation	25
Laboratory practice	A2 A3 C2	Attendance and participation	25
Objective test	A2 A9 B1 B3 C2	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

(*)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.