Teaching Guide			
Identifying Data			2020/21
Subject (*)	Introduction to molecular biology	Code	614522004
Study programme	Mestrado Universitario en Bioinformática para Ciencias da Saúde		

Descriptors				
Cycle	Period	Year	Type	Credits
Official Master's Degree	Yearly	First	Optional	6

Language	Spanish		
Teaching method	Face-to-face		
Prerequisites			
Department	Bioloxía		
Coordinador	Lamas Maceiras, Mónica	E-mail	monica.lamas@udc.es
Lecturers	Gonzalez Siso, Maria Isabel Lamas Maceiras, Mónica Rodriguez Belmonte, Esther Rodriguez Torres, Ana Maria	E-mail	isabel.gsiso@udc.es monica.lamas@udc.es esther.belmonte@udc.es ana.rodriguez.torres@udc.es
Web			
General description	This course tries to show the basic principles of molecular biology, i.e., the basis of the information of the hereditary material, transmission, analysis and evolution.		
Contingency plan	1. Modifications to the contents 2. Methodologies *Teaching methodologies that are maintained *Teaching methodologies that are modified 3. Mechanisms for personalized attention to students 4. Modifications in the evaluation *Evaluation observations: 5. Modifications to the bibliography or webgraphy		

Study programme competences / results	
Code	Study programme competences / results
A8	CE8 - Understanding the basis of the information of the hereditary material, its transmission, analysis and evolution
B1	CB6 - Own and understand knowledge that can provide a base or opportunity to be original in the development and/or application of ideas, often in a context of research
B2	CB7 - Students should know how to apply the acquired knowledge and ability to problem solving in new environments or little known within broad (or multidisciplinary) contexts related to their field of study
B5	CB10 - Students should possess learning skills that allow them to continue studying in a way that will largely be self-directed or autonomous.
B6	CG1 -Search for and select the useful information needed to solve complex problems, driving fluently bibliographical sources for the field
B7	CG2 - Maintain and extend well-founded theoretical approaches to enable the introduction and exploitation of new and advanced technologies
B8	CG3 - Be able to work in a team, especially of interdisciplinary nature
C1	CT1 - Express oneself correctly, both orally writing, in the official languages of the autonomous community
C2	CT2 - Dominate the expression and understanding of oral and written form of a foreign language

C3	CT3 - Use the basic tools of the information technology and communications (ICT) necessary for the exercise of their profession and lifelong learning
C7	CT7 ? To maintain and establish strategies for scientific updating as a criterion for professional improvement.
C8	CT8 - Rating the importance that has the research, innovation and technological development in the socio-economic and cultural progress of society

Learning outcomes			
Learning outcomes	Study programme competences / results		
Understanding the basis of the information of the hereditary material, its transmission, analysis and evolution.	AJ8	BJ1 BJ2 BJ5 BJ6 BJ7 BJ8	CJ1 CJ2 CJ3 CJ7 CJ8

Contents	
Topic	Sub-topic
Nucleic acids	Nucleic acids characteristics Replication Transcription Translation
Proteins	Proteins: structure and levels of organization Processing of proteins
Principles of Regulation	Regulation of gene expression in eukaryotes and prokaryotes
General principles of cellular signalling	Introduction to the molecular mechanisms of cell communication

Planning				
Methodologies / tests	Competencies / Results	Teaching hours (in-person & virtual)	Student?s personal work hours	Total hours
Guest lecture / keynote speech	A8 B1 B7 C7 C8	20	0	20
Problem solving	B2 B5 B6 B8 C1 C3	29	33	62
ICT practicals	B2 B6 B8 C2 C3	30	30	60
Personalized attention		8	0	8
(*)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	Theoretical description of the basic principles of the molecular biology
Problem solving	Application of acquired knowledge in the solution of real problems
ICT practicals	Using computer programs for analysis of nucleotide and proteins sequences, related to basic principles of transmission of the genetic information and its regulation

Personalized attention	
Methodologies	Description
Problem solving ICT practicals	Students can request personalized tutorials to answer any questions

Assessment			
Methodologies	Competencies / Results	Description	Qualification
Problem solving	B2 B5 B6 B8 C1 C3	Evaluation of the capacity of the student to solve problems on molecular biology by exercises and/or in a test	50
ICT practicals	B2 B6 B8 C2 C3	Evaluation of the capacity of the student to use computer programs for nucleotide and protein sequence analysis	50

Assessment comments
According to regulations of Qualifications and Proceedings, the Faculty?s Commission of Quality agreed that the recommendation of the Honours will be given to the students who obtain the highest marks in the first evaluation. NO PRESENTED will be applicable when the student do not take the objective test. Exceptionally, in the case of those students that, by justified reasons, could not realize all the proofs of evaluation, the professor will adopt the measures that he would consider opportune.

Sources of information	
Basic	- Harvey Lodish ... [et al.] (2015). Biología celular y molecular. Buenos Aires ; Madrid : Médica Panamericana - Karp, Gerald (2014). Biología celular y molecular : conceptos y experimentos. México D.F. : McGraw-Hill - Nancy Craig ... [et al.] (2014). Molecular biology : principles of genome function. Oxford : Oxford University Press - Whitford, David. (2005). Proteins : structure and function. Chichester (England) : John Wiley & Sons - Marks, Friedrich (2009). Cellular signal processing : an introduction to the molecular mechanisms of signal transduction. Friedrich Marks, Ursula Klingmèuller, Karin Mèuller-Decker.
Complementary	

Recommendations
Subjects that it is recommended to have taken before
Subjects that are recommended to be taken simultaneously
Genetics and molecular evolution/614522005
Subjects that continue the syllabus
Genomics/614522006
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.