

Teaching Guide						
	Identifying Data 2015/16					2015/16
Subject (*)	Bioloxía				Code	750G02005
Study programme	Grao en Podoloxía					1
		Desc	riptors			
Cycle	Period	Ye	ear		Туре	Credits
Graduate	1st four-month period	Fi	rst		FB	6
Language	SpanishGalicianEnglish					
Teaching method	Face-to-face					
Prerequisites						
Department	Bioloxía Celular e Molecular					
Coordinador	Folgueira Otero, Mónica		E-mail		m.folgueira@udc.e	es
Lecturers	Folgueira Otero, Mónica E-mail m.folgueira@udc.es			es		
Web						
General description	This subject is taught during the	first term of the	Podiatry Degre	e, studyi	ng the complex wor	Id of the cell and its higher
levels of organization. In this sense, it sets the basic knowledge for understanding other subjects, such as Physiology and						
	Anatomy.					

	Study programme competences / results
Code	Study programme competences / results
A2	Adquirir coñecementos sobre a bioloxía celular e tisular. Composición e organización da materia dos seres vivos. Histoloxía. Xenética.
A5	Coñecer a anatomía patolóxica. Patoloxía celular. Reparación tisular. Alteracións do crecemento celular. Nomenclatura e clasificación das neoplasias.
B1	Aprender a aprender.
B5	Traballar de forma colaborativa.
B8	Coñecer e apreciar a diversidade e a multiculturalidade.
C1	Expresarse correctamente, tanto de forma oral coma escrita, nas linguas oficiais da comunidade autónoma.

Learning outcomes				
Learning outcomes			Study programme	
	competences /			
	results			
To know and understand the composition and organization for the different life forms.	A2	B1		
To know the main characteristics of animal tissues and their biology.	A2	B1		
	A5	B8		
To identify cell and histological structures in photographies, schematics and drawings.	A2	B1		
	A5	B8		
To know the basis of molecular biology and genetic inheritance.	A2	B1	C1	
		B8		
To establish the correlation between non infectious patologies and their genetic and/or cell basis.	A5	B1	C1	
		B5		
To know the role of cell cycle, cell differentiation and stem cells in tissue repair and pathological cell growth.	A5	B1		
To identify and name the type of tumor based on the tissue from which originates.	A5			
To comunicate clearly using the right terminology and language in cell biology, histology and genetics.			C1	

 Contents

 Topic
 Sub-topic



BLOCK I. COMPOSITION AND ORGANIZATION OF LIVING	1. Introduction to Biology. Cell theory. Levels of organization of living organisms.
ORGANIMS.	Biomolecules: glucids, lipids, proteins and nucleic acids.
BLOQUE II. CELL BIOLOGY.	2. The cell membrane: structure and composition. Functions of cell membrane.
	Endocitosis. Exocitosis.
	3. The nucleus: general structure of the interfasic nucleus. Cromatine y cromosomes.
	Cell transcription and translation. Regulation of gene expression.
	4. The cytoplasm. Structure and function of the citosol. Cytoscheleton and cell motility.
	Structure and function of the endomembranous system: endoplasmic reticulum, golgi
	apparatus and lysosomes. Peroxisomes. Mitochondria structure and function.
	5. The cell and its context: cell communication and signalling. Types of cell
	communication. General stages in cell communication.
	6. Cell cycle and its regulation. DNA replication. Mitosis and Meiosis. Cell death.
	Apoptosis.
	7. Tumors and cancer. Nomenclature. Origen and development. Properties of cancer
	cells.
BLOCK III. GENETICS: INHERITANCE.	8. Cellular and molecular basis of inheritance. Mendelian inheritance. Changes in
	genetic material (mutations) and Evolution Theory.
BLOQUE IV. ANIMAL TISSUES	9. Introduction to animal tissues. Concept of tissue. Cells and extracellular matrix. Cell
	adhesion. General characteristics, functions and classification of animal tissues.
	10. Histogenesis and cell differentiation. Embryologic origin of animal tissues.
	11. Epithelial tissue. General characteristics and functions. Classification. Covering
	epithelia. Glandular epithelia.
	12. Connective tissue. General characteristics. Types and extracellular matrix.
	Varieties. Adipose tissue: general characteristics and types. Cartilaginous tissue:
	general characteristics, histogenesis and varieties. Bone: general characteristics,
	microscopic structure and histogenesis. Blood: general characteristics and
	hematopoiesis.
	13. Muscle. General characteristics. Types. Skeletal muscle. Organization and
	structure. Miofibers. Structure of cardiac muscle. Structure and distribution of smooth
	muscle.
	14. Nervous tissue. General characteristics and functions of the nervous tissue.
	Neuron. Glia. Fibers structure and types. Synapses: general characteristics. Types of

	Planning					
Methodologies / tests	Competencies /	Teaching hours	Student?s personal	Total hours		
	Results	(in-person & virtual)	work hours			
Guest lecture / keynote speech	A2 A5 B15 C8	21	42	63		
Seminar	A2 A5 B1 B2 B3 B5	11	22	33		
	B8 B16 B19 C1					
Directed discussion	A2 A5 B2 B3 B8 B19	7	0	7		
	C1 C6 C8					
Mixed objective/subjective test	A2 A5 B1 B2 B3 B19	2	28	30		
	C1					
Oral presentation	B8 B12 B19 C1	1	0	1		
Laboratory practice	A2	1	0	1		
Supervised projects	A2 A5 B4 B5 B12 B19	0	11	11		
	C1					



Online forum	A2 A3 A5 B8 B11 B19	0	1	1
	C1 C3			
Workbook	A2 A5 B3 B9	0	2	2
Personalized attention		1	0	1

(*)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 /	There will be 14 lectures of 90 minutes. The teacher will present and explain the contents of the subject using both electronic
keynote speech	resources and blackboard. Active participation from students is also expected. The teacher will also answer students
	questions.
	Students should take notes during the class. This material should be used later for studying and reviewing. Students will have
	in moodle reviewing questions to help to focus in the main concepts and for deeper learning.
	Prior to the class, it is advised that students get familiar with the material of next lecture.
	One of the classes will be used for a test.
Seminar	There will be 14 seminars to which students will attend in small groups (about 20 students). Under the supervision of the
	teacher, students will perform different activities related with the contents of the subject (collaborative learning, problem
	solving, identification of structures in photographies, etc.)
Directed discussion	There will be 7 tutorials of 50 minutes. Questions and themes related with the contents of the subject will be discussed in the
	class in small groups (of about 10 students). In addition, they will apply theorical knowledge for solving different problems.
Mixed	During the course, students will be evaluated through various written tests. This will show students progress and, if necessary,
objective/subjective	it will allow identifying any problem and take actions to improve the development of the course. There will be a theoretical
test	exam within the term, and a final exam at the end of the term.
Oral presentation	Students will present in the class an assay related with the contents of the course. This assay will be prepared in small groups
	(2/3 students)
Laboratory practice	There will be a laboratory practical in which students will use a microscope to observe and study histological sections.
Supervised projects	Students will write an assay in small groups (2/3 students). In this assay, they will explain the cell or genetic basis of a non
	infectious disease. It is recommended to ask the teacher if there is any doubt on the theme of the assay. The progress in the
	assay will be followed by using Moodle and email.
Online forum	There will be discussions in Moodle.
Workbook	During the term, students will read in the class texts related with the contents of the subject.

	Personalized attention
Methodologies	Description
Oral presentation	Students can ask questions during lectures, seminars and tutorials. They can also solve their doubts they may have in a one
Directed discussion	to one mode (see available time on Moodle). Students will also recieve personalized attention during certain seminars (e.g.
Seminar	oral presentation) and directed discussions.

		Assessment	
Methodologies	Competencies /	Description	Qualification
	Results		
Oral presentation	B8 B12 B19 C1	Students will present in the class an report related with the subject.	5
Mixed	A2 A5 B1 B2 B3 B19	There will be an written exam during the term and a final exam at the end of the term.	70
objective/subjective	C1	Exams will consist of different question types (e.g. multiple choise, true/false	
test		questions, short answer questions) about contents of lectures, seminars and tutorials.	
		In addition, students can pass the subject in the opportunity of July.	
Seminar	A2 A5 B1 B2 B3 B5	Active participation in seminars and tutorials, as well as performing the requested	15
	B8 B16 B19 C1	activities.	



Supervised projects	A2 A5 B4 B5 B12 B19	Student must writte a project regarding the cellular or genetic basis of a non infectious	10	
	C1	dissease.		
Assessment comments				
To calculate the final grade, students must get a minimum of 5 in the written exam/s, both at the end of the term and in July.				
At the end of the term and in order to calculate the final grade, the teacher will take into account the exam/s and participation in the different activities				

of the class. Part time students must present a document containing the evaluable activities, including the assay. The deadline for presenting this material will be the day of the final exam (first opportunity). In the early and second oportunity (July), students (part or full time) must pass a written exam (75% of the final grade) and submit an assay (25% of final grade).

?No presentado? will be applied to students that did not participate in any activity that is part of the evaluation process.

?Matricula de Honor? will be awarded preferentially within students that pass at the end of the term, rather than in July.

	Sources of information
Basic	- Curtis, H; Barnes, NS; Schnek, A; Massarini, A (2008). Biología. Ed. Médica Panamericana
	- Freeman, S. (2010). Fundamentos de Biología. Pearson
	- Paniagua, R; Nistal, M; Sesma, P; Álvarez-Uria, M; Anadón, R; Fraile, B; Sáez, FJ. (2007). Citología e Histología
	Vegetal y Animal. Ed. Interamericana McGraw-Hill
	- Geneser, F (2006). Histología. Ed. Médica Panamericana
	- Junqueira, LC; Carneiro, J. (2010). Histología Basica. Texto y atlas Elsevier
	- Ross, MH; Pawlina W. (2007). Histología. Texto y Atlas Color con Biología Celular y Molecular. Ed. Médica
	Panamericana
	- Welsch, U (2008). Histologia. Ed. Médica Panamericana
	- Young, B; Heath, JW (2000). Wheater's Histología Funcional. Texto y Atlas en color Ed. Elsevier
Complementary	- ()

Recommendations		
Subjects that it is recommended to have taken before		
Subjects that are recommended to be taken simultaneously		
Fisioloxía xeral/750G02003		
Sistemas de Información e Comunicación en Ciencias da Saude/750G02010		
Subjects that continue the syllabus		
Anatomía humana xeral/750G02001		
Anatomía específica do membro inferior/750G02002		
Fisioloxía de sistemas/750G02004		
Microbioloxía e parasitoloxía/750G02007		
Patoloxía xeral/750G02008		
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.