Teaching Guide					
Identifying Data					2019/20
Subject (*)	Biology			Code	750G02005
Study programme	Grao en Podoloxía				
Descriptors					
Cycle	Period	Year		Type	Credits
Graduate	1st four-month period	First		Basic training	6
Language	SpanishGalicianEnglish				
Teaching method	Face-to-face				
Prerequisites					
Department	Bioloxía				
Coordinador	Folgueira Otero, Mónica		E-mail	m.folgueira@udc.es	
Lecturers			E-mail		
Web	moodle.udc.es				
General description	This subject is taught during the first term of the Podiatry Degree, studying the complex world of the cell and its higher levels of organization, histology and geneticas, as well as cell pathology and mechanisms of tissue repair. In this sense, it sets the basic knowledge for understanding other subjects, such as Physiology, Microbiology, Farmacology 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 the main characteristics of animal tissues and their biology.	A2 A5		
To know and understand the composition and organization for the different life forms.	A2		
To know the basis of molecular biology and genetic inheritance.	A2		
To identify cell and histological structures in photographies, schematics and drawings.	A2 A5		
To identify and name the type of tumor based on the tissue from which originates.	A5		
To establish the correlation between non infectious patologies and their genetic and/or cell basis.	A2 A5	B1	
To know the role of cell cycle, cell differentiation and stem cells in tissue repair and pathological cell growth.	A5		
To comunicate clearly using the right terminology and language in cell biology, histology and genetics.		B1 B5 B8	C1

Contents	
Topic	Sub-topic

BLOCK I. COMPOSITION AND ORGANIZATION OF LIVING ORGANIMS.	1. Introduction to Biology. Cell theory. Levels of organization of living organisms. Biomolecules: glucids, lipids, proteins and nucleic acids.
BLOQUE II. CELL BIOLOGY.	2. The cell membrane: structure and composition. Functions of cell membrane. Endocitosis. Exocitosis. Cell pathology anc clinical correlations. 3. The nucleus: general structure of the interfasic nucleus. Cromatine y cromosomes. Cell transcription and translation. Regulation of gene expression. Epigenetics and clinical correlation. 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. Clinical correlation. 5. The cell and its context. Extracellular matrix. Cell adhesion. Cell communication and signalling. Types of cell communication. General stages in cell communication. Clinical correlation. 6. Cell cycle and its regulation. DNA replication. Mitosis and Meiosis. Cell death. Apoptosis. Mechanisms of tissue repair. 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. General characteristics, functions and classification of animal tissues. 10. Histogenesis and cell differentiation. Stem cells. 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 synapses. Neurotransmitters.

Planning				
Methodologies / tests	Competencies / Results	Teaching hours (in-person & virtual)	Student?s personal work hours	Total hours
Mixed objective/subjective test	A2 A5 B1 B5 B8 C1	2	138	140
Personalized attention		10	0	10
(*)The information in the planning table is for guidance only and does not take into account the heterogeneity of the students.				

Methodologies	
Methodologies	Description

Mixed objective/subjective test	Exam

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

Assessment			
Methodologies	**Competencies / Results**	**Description**	**Qualification**
Mixed objective/subjective test	A2 A5 B1 B5 B8 C1	There will be an written exam during the term and a final exam at the end of the term. Exams will consist of different question types (e.g. multiple choise, true/false questions, short answer questions) about contents of lectures, seminars and tutorials. In addition, students can pass the subject in the opportunity of July.	100

Assessment comments

Sources of information	
Basic	- Welsch, U (2008). Histologia. Ed. Médica Panamericana - Curtis, H; Barnes, NS; Schnek, A; Massarini, A (2008). Biología. Ed. Médica Panamericana - Junqueira, LC; Carneiro, J. (2010). Histología Basica. Texto y atlas.. Elsevier - 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 - Ross, MH; Pawlina W. (2007). Histología. Texto y Atlas Color con Biología Celular y Molecular. Ed. Médica Panamericana - Freeman, S. (2010). Fundamentos de Biología. Pearson - Young, B; Heath, JW (2000). Wheater´s Histología Funcional. Texto y Atlas en color.. Ed. Elsevier - Geneser, F (2006). Histología. Ed. Médica Panamericana Recursos web:Animaciones de Biología Celular:http://highered.mcgraw-hill.com/sites/dl/free/0072437316/120060/ravenanimation.htmlhttp://bcs.whfreeman.com/thelifewire/content/chp00/00020.html Videos y leccioneshttp://ed.ted.com/ Texto y Atlas de Biología Celular e Histología:http://www.webs.uvigo.es/mmegias/inicio.html Atlas de Histología:http://fai.unne.edu.ar/biologia/cel_euca/index.htmhttp://www.kumc.edu/instruction/medicine/anatomy/histoweb/http://www.meddean.luc.edu/lumen/MedEd/Histo/frames/histo_frames.htmlhttp://www.udel.edu/Biology/Wags/histopage/histopage.htmhttp://escuela.med.puc.cl/publ/Histologia/Indice.html
Complementary	- (). . BIBLIOGRAFÍA COMPLEMENTARIA

Recommendations
Subjects that it is recommended to have taken before
Subjects that are recommended to be taken simultaneously
General Physiology/750G02003 Information and Communication Systems in Health Science/750G02010

Subjects that continue the syllabus
General Human Anatomy /750G02001
Specific Anatomy of the Lower Limb/750G02002
Physiology of Systems/750G02004
Microbiology and Parasitology/750G02007
General Pathology/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.