Teaching Guide					
Identifying Data					2018/19
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	Folgueira Otero, Mónica		E-mail	m.folgueira@udc.es	
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
Guest lecture / keynote speech	A2 A5 B8 C1	30	30	60
Seminar	A2 A5 B1 B5 B8 C1	26	26	52
Mixed objective/subjective test	A2 A5 C1	2	16	18
Oral presentation	B5 B8 C1	1	0	1
Supervised projects	B1 B5 B8 C1	0	12	12
Workbook	A2 A5 B1	0	6	6
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 / keynote speech	There will be 14 lectures of 90 minutes. The teacher will present and explain the contents of the subject using both electronic 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.)
Mixed objective/subjective test	During the course, students will be evaluated through various written tests. This will show students progress and, if necessary, it will allow identifying any problem and take actions to improve the development of the course. There will be a theoretical 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). This will be evaluated together with the written assay.
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.
Workbook	During the term, students will read fragments of scientific articles and news related with the contents of the subject.

Personalized attention	
Methodologies	**Description**
Seminar Oral presentation	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**
Supervised projects	B1 B5 B8 C1	Student must writte a project regarding the cellular or genetic basis of a non infectious dissease.	10
Seminar	A2 A5 B1 B5 B8 C1	Active participation in seminars and tutorials, as well as performing the requested activities.	15
Mixed objective/subjective test	A2 A5 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.	70
Oral presentation	B5 B8 C1	Students will present in the class an report related with the subject.	5

Assessment comments

To calculate the final grade, students must get a minimum of 5 in the written exam/s and in their assay, 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	- 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

lthough there are no prerequisites to study the subject, it is recommended that the student has basic knowledge of cell biology and biochemistry. It is also advisable to have the ability to analyze and synthesize, manage information, as well as skills for planning time, problem solving and teamwork. It is recommended that students entering through advanced vocational training or vocational training courses have completed sanitary branches. </P> <p> Briefness in time entails the danger that students are not yet adapted to the system of education. study and own work of the university studies. This could lead to failure if the process of adaptation and mentalization is not done properly. In this sense, constant study and periodic reviews are important as the subject progresses. It is strongly recommended to read or work on the subject of master classes / seminars / guided discussions (tutorials) as well as to take notes or notes during them. It is recommended that students find a special difficulty in following the classes or in addressing the topics that make up the program of the subject using individualized tutoring in the time reserved for it (see schedule on moodle platform).

1.- The delivery of the documentary works that are made in this subject:
It will be done through Moodle, in digital format without the need to print them
To be made on paper:
- Plastics will not be used.
- Double-sided prints will be made.
- Recycled paper will be used.
- Draft erasers will be avoided.
2.- The sustainable use of resources and the prevention of negative impacts on the environment must be carried out
natural
3. The complete integration of students will be provided regardless of gender or their physical, sensory, psychic or
sociocultural background