UNIVERSIDADE DA CORUÑA

Teaching Guide					
Identifying Data					2014/15
Subject (*)	Neurobioloxía			Code	610441007
Study programme	Mestrado Universitario en Bioloxía Molecular , Celular e Xenética				
Descriptors					
Cycle	Period	Year		Type	Credits
Official Master's Degree	2nd four-month period	First		Optativa	3
Language	Spanish				
Prerequisites					
Department	Bioloxía Celular e Molecular				
Coordinador	Díaz Prado, María Luz		E-mail	luz.diaz@udc.es	
Lecturers	Díaz Prado, María Luz Folgueira Otero, Mónica		E-mail	luz.diaz@udc.es m.folgueira@udc.es	
Web					
General description	Coñecemento dos mecanismos biolóxicos básicos polos cales o sistema nervioso regula o comportamento, a interacción entre os sistemas sensitivos e motores e a integración dos diferentes circuítos nerviosos.				

Study programme competences	
Code	Study programme competences
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.
A10	Skills of modifying genes, proteins and chromosomes with biotechnological applications
A11	Skills of understanding the structure, dynamics and evolution of genomes and to apply tools necessary to his study.
B3	Skills of decision making for the problem solving: that are able to apply theoretical knowledges and practical acquired in the formulation of biological problems and the looking for solutions.
B5	Correct oral and written communication on scientific topics in the native language and at least in another International diffusion language.
B9	Skills of preparation, show and defense of a work.
C1	Skills of expressing correctly, so much of oral form as written, in the official languages of the autonomous region.
C2	Skills of dominating the oral form expression and compression and written of a foreign language.
C7	Assuming as a professional and citizen the importance of the apprenticeship over the life.
C8	Considering the importance that the investigation has, the innovation and the technological development in the socioeconomic advance and cultural of the society.

Learning outcomes			
Subject competencies (Learning outcomes)	Study programme competences		
Students will acquire knowledge on the basic mechanisms by which the nervous system regulates behaviour, interaction between motor and sensory systems and integration of the different neural circuits.	AR6 AR7 AR8	BR3 BR5 BR9	CC1 CC2 CC7 CC8

Contents	
Topic	Sub-topic
1) Neuron Doctrine: historical introduction to modern neurobiology	Reticular Theory Golgi?s technique and Santiago Ramón y Cajal?s studies Neuron Doctrine

2) Neuron organization and signalling	Basic structure of the neuron Types of neurons Electrical synapse Chemical synapse
3) The changing brain	Early development of the nervous system Formation of neural circuits Modification of neural circuits and synaptic plasticity
4) Anatomic organization of the nervous system	Anatomy of the central nervous system Anatomy of the peripheral nervous system Basic notions on comparative neuroanatomy
5) Neural basis of sensory perception	Somatic sensory system Visual system Chemosensory system Auditory and vestibular system Pain
6) Neural control of motor activity and its coordination	General organization of the systems involved in motor control
7) Complex encephalic functions	Learning and memory Emotions
8) The neurobiology of the 21st century	Connectomes Blue Brain Project Transgenics and Brainbow Optogenetics Brain-Machine Interface

Planning			
Methodologies / tests	Ordinary class hours	Student?s personal work hours	Total hours
Guest lecture / keynote speech	10	20	30
Laboratory practice	10	10	20
Document analysis	6	15	21
Objective test	2	0	2
Personalized attention	2	0	2
(*)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	Lectures will be sixty minutes long. Teachers will discuss the contents of the syllabus. Students are advised to read in advance about some fundamental aspects of the class in the recommended texts.
Laboratory practice	They will consist on identifying different regions of the nervous system, learning about the use of model systems to study the nervous system both in normal and pathological conditions, using interactive webpages and on line neuroanatomical atlases.
Document analysis	Each student will read a recent article that has been designated by the teacher and complements contents of lectures. Students will present a brief summary of their article, followed by a discussion with the rest of the class.
Objective test	It will be an exam about the contents reflected on the syllabus of the subject. The exam will consist of multiple choice, true/false and/or questions to be answered briefly.

Personalized attention	
Methodologies	Description

Assessment		
Methodologies	Description	Qualification
Document analysis	The teacher will assess clarity of presentation and level of understanding of the article by the students. The teacher will also assess any graphics used for the presentation and students participation in other discussions in the class. In this activity, the acquisition of the B3, B5, B9 skills are valued.	30
Objective test	It will consist of any of the following types of questions: multiple choice, gap-filling, matching, ordering answers, and short answers.In this activity, the acquisition of specific skills A9, A10 and A11 will be evaluated.	70
Others		

Assessment comments
Students on flexible learning system (attending classes and working from home) can substitute ?Document analysis? for an assay regarding any content of the syllabus. The second opportunity of the year (exam of July) will consist of test that will be marked for the 100% of the rating for all students. "Matricula de Honor" distinction will be awarded to students taking the exam on the first opportunity of the academic year.

Sources of information	
Basic	
Complementary	

Recommendations
Subjects that it is recommended to have taken before
Citoloxía/610212103 Histoloxía Vexetal e Animal/610212104 Organografía Microscópica/610212628
Subjects that are recommended to be taken simultaneously
Subjects that continue the syllabus
Other comments
Students are advised students to study making use of all material available, including the recommended bibliography and web sources.