



Universitat de Lleida

DEGREE CURRICULUM **NEUROSCIENCE**

Coordination: MEDINA HERNÁNDEZ, LORETA MARÍA

Academic year 2023-24

Subject's general information

Subject name	NEUROSCIENCE			
Code	100576			
Semester	2D SEMESTER - DEGREE - JUN/SET			
Typology	Degree	Course	Character	Modality
	Bachelor's Degree in Medicine	4	OPTIONAL	Attendance-based
Course number of credits (ECTS)	3			
Type of activity, credits, and groups	Activity type	PRALAB	PRAULA	TEORIA
	Number of credits	0.8	0.4	1.8
	Number of groups	1	1	1
Coordination	MEDINA HERNÁNDEZ, LORETA MARÍA			
Department	EXPERIMENTAL MEDICINE			
Teaching load distribution between lectures and independent student work	<p>Training activity Hours devoted to the training activity (*) Percentage of face-to-face activities</p> <p>Seminaries 4 100*</p> <p>Lab practices 8 100*</p> <p>Individualized Tutoring 5 100*</p> <p>Student's work 45 0</p> <p>* If possible (depending on the Covid19-related situation), all or most activities will be face-to-face. However, if the situation turns worst, we may preferentially use a mixed format.</p>			
Important information on data processing	Consult this link for more information.			
Language	Spanish, Catalan, English			
Distribution of credits	<p>Lectures: 18 hours</p> <p>Seminaries: 4 hours</p> <p>Laboratory practices: 8 hours</p>			

Teaching staff	E-mail addresses	Credits taught by teacher	Office and hour of attention
AYALA JOVE, MARIA VICTORIA	victoria.ayala@udl.cat	,8	
MEDINA HERNÁNDEZ, LORETA MARÍA	loreta.medina@udl.cat	1	
PIÑOL RIPOLL, GERARD	gerard.pinol@udl.cat	,4	
TARABAL MOSTAZO, OLGA	olga.tarabal@udl.cat	,8	

Subject's extra information

It is assumed that students already have basic knowledge of Neurobiology, Neuroembryology, Neuroanatomy and Neurophysiology, which must be demonstrated by a certificate of university studies showing that they have passed a subject(s) with this content. The subject of 'Neuroscience' aims to address more advanced knowledge about frontier research in this field.

Learning objectives

Based on the fact that students have previously learned the basics of neurobiology (knowledge of neurohistology, neuroanatomy and neurophysiology), this course aims to offer novel aspects and frontier research in the field of neuroscience, highlighting the implications it may have in the medical field. Special emphasis will be put on the implication of research advances to understand the mechanisms underlying neurodevelopmental disorders, mental disorders, neurodegenerative diseases and ageing.

Competences

CG1 Recognize the essential elements of the medical profession, including ethical principles and legal responsibilities.

CG7. Understand and recognize the normal structure and function of the human body, at the molecular, cellular, tissue, organic and systems levels, at different stages of life.

CE23. To know the morphology, structure and function of the central and peripheral nervous system.

CE24. Growth, maturation and ageing of the various systems

CE29. Recognize with macroscopic and microscopic methods and imaging techniques the morphology and structure of tissues, organs and systems.

Subject contents

Syllabus

The content will be distributed in five thematic blocks or Topics.

Lectures and Seminars:

Topic 1. Advances in research on prenatal development of the Nervous System (NS) and NS malformations. Prof. Loreta Medina

Topic 2. Advances in research on epigenetics in postnatal development and the plasticity of the nervous system, and its relationship with mental disorders Prof. Ester Desfilis

Topic 3. Advances in basic research on neurodegenerative diseases affecting motor neurons (MNs). Prof. Olga Tarabal

Topic 4. Advances in clinical research on neurological diseases. Prof. Gerard Piñol

Topic 5. Advances in ageing research of NS. Prof. M. Victoria Ayala

Laboratory practices:

- Practical class 1 and 2: Recordings of intracellular calcium for the study of excitotoxicity in motor neurons. 4 h. Prof. Olga Tarabal

- Practical class 3 and 4: Analysis of the composition of fatty acids in the CNS. 4 h. Prof. M. Victoria Ayala

Methodology

Theoretical classes, seminars and practices will be held. To facilitate the study, and when possible, teaching materials will be posted on Sakai (including powerpoint or pdf of the classes, and scientific articles relevant to each topic for comment and discussion in class).

Evaluation

A. Criteria for passing:

- Continuous evaluation and class attendance: Attendance and participation in class will be monitored, considering each content block separately (see the blocks in the contents section and in point B below). Overall, attendance and participation in 80% or more of classes will correspond to a "B" (8 out of 10); attendance and participation in 60-79% of classes will correspond to a "C" (6 out of 10). Below this participation, an exam must be taken to demonstrate that sufficient knowledge has been achieved.

- Exam: Anyone who has not attended class (less than 60%) or who wishes to improve their rate must take an exam on the contents of the affected block or blocks. In this case, the exam must be passed with a minimum of 5 (out of 10). If the exceptional situation created by the Covid19 pandemic persists, the exam will be taken online.

B. Percentages of each block: It will be proportional to the classes carried out in each block with respect to the total number.

1. Neurodevelopment: 20%
2. Epigenetics: 20%
3. Motoneurons: 25%
4. Neurologic Diseases: 10%
5. Aging: 25%

Bibliography

Scientific articles and updated reviews on the different topics