COURSE GUIDE

Neuroscience

1st Year

Academic Year 2023-2024

Course of the Subject: Neuroscience

		ECTS
SUBJECT: Neuroscience		6
Module: Scientific Foundations		12
Type: Compulsory	**CURSO**: 1º **Semestre**: 2º	
Lecturer(s): Dr. Esteve Martín, Alfredo Dr. Gómez Pérez, Ignacio	**Department:** **E-mail:** alfredo.esteve@ucv.es Ignacio.gomez@ucv.es	

MODULE ORGANIZATION

NEUROSCIENCE	ECTS 6
Duration and location within the study plan: It is part of the "Scientific Foundations" module, which consists of 12 ECTS credits and contains two subjects: Biology, is offered in the 1st semester of the 1st year; Neuroscience, is offered in the 2nd semester of the 1st year.	

Subject Matter and Subjects

Subject Matter	ECTS	Subject	ECTS	Year/ semester
Biology	6	Biology	6	1/1
Psychology	6	Neuroscience	6	1/2

BASIC AND GENERALCOMPETENCIES	Weighting			
	1	2	3	4
1. Organization and planning			X	
3. Problem-solving				X
4. Decision making				X
5. Interpersonal skills		X		
8. Ability to work in multicultural and international enviroments	X			
12. Ability to adapt to new situations and generate new ideas				X

SPECIFIC COMPETENCIES	Weighting			
	1	2	3	4
21. To become acquainted with some central paradigms of scientific thinking				X
23. To write philosophical essays and show evidence of analytical and synthetic skills		X		
25. To be able to understand and evaluate philosophical arguments		X		
26. To be able to construct philosophical arguments		X		
34. To know and assess scientific methodologies in their different scopes			X	
37. To use specialized philosophical terminology and recognize categorical errors				X

LEARNING OUTCOMES	COMPETENCIES
RA1. The student knows and reasons the most important scientific paradigms.	**CG:** 1, 5 **CE:** 21, 23
RA2. The student learn the basics of neuroscience.	**CG:** 3 **CE:** 34
RA3. The student understands the relationship between anthropological philosophy and biology and neuroscience.	**CG:** 8, 12 **CE:** 25, 26
RA4. The student has discovered the feedback link between philosophy and science.	**CG:** 4 **CE:** 34, 37

LEARNING ACTIVITIES THROUGH SYNCHRONOUS COMMUNICATION			
ACTIVITY	**Teaching-Learning Methodology**	**Relation to Learning Outcomes**	**ECTS [1]**
VIRTUAL SESSION	Presentation of the content by the teacher, analysis of competencies, explanation and demonstration of skills, abilities and knowledge in the virtual classroom.	1, 2, 3, 4	0,7
PRACTICAL SESSION	Group work sessions through chat moderated by the teacher. Case studies, both true and fictitious, for the construction of knowledge through the interaction and activity of the student, critical analysis of values and social commitment.	1, 2, 3, 4	0,3
SEMINAR AND VIDEO-CONFERENCE	Monographic sessions throughout the course, oriented to current aspects and applications of the subject.	3, 4	0,2
VIRTUAL EVALUATION	Set of written or oral tests, used in the initial, formative or summative evaluation of the student.	1, 2, 3, 4	0,1
		TOTAL	**1,30**

[1] La asignatura y/o materia se organiza en **DOCENCIA VIRTUAL** y en TRABAJO AUTÓNOMO DEL ALUMNO, con un porcentaje estimado en ECTS. Una adecuada distribución es la siguiente: **40%** para las Actividades Formativas **DOCENCIA (60 horas)** y 60% para las de Trabajo Autónomo tutorizado (90 horas) para **una asignatura de 6 créditos.**

LEARNING ACTIVITIES THROUGH ASYNCHRONOUS COMMUNICATION			
ACTIVITY	**Teaching-Learning Methodology**	**Relation to Learning Outcomes**	**ECTS**
INDIVIDUAL ACTIVITIES	Preparation of the final evaluation: student study, individual preparation of readings, essays, problem solving, assignments, reports, etc. for discussion or delivery in electronic format.	1, 2, 3, 4	2,3
INDIVIDUAL TUTORSHIP	Individual attention for monitoring and guidance of the learning process, carried out by a tutor with the aim of reviewing and discussing the materials and topics, seminars, readings, carrying out assignments, etc.	1, 2, 3	0,1
CONTINUOUS EVALUATION ACTIVITIES	**Group work**: group preparation of readings, essays, problem solving, seminars, papers, reports, etc. for discussion or delivery. **Discussion forums**: participation and contributions to discussion forums related to the subject, moderated by the professor of the subject. Resolution of problems, comments, reports to deliver in installments throughout the course, making videos individually or cooperatively, answering questionnaires.	1, 2, 3, 4	2,3
		TOTAL	**4,70**

EVALUATION SYSTEM FOR THE ACQUISITION OF COMPETENCIES AND GRADING SYSTEM		
Evaluation Instrument	**EVALUATED LEARNING OUTCOMES**	**Granted percentage**
Attendance and participation in synchronous communication activities	1, 2, 3, 4	10%
Carrying out deliverable activities and Periodic evaluation through questionnaires	1, 2, 3, 4	50%
Final Evaluation	2, 3, 4	40%

CONTENTS DESCRIPTION	COMPETENCIES
• Introduction to neuroscience • Structure and functions of the nervous system • Nerve cells, The neuron. • Brain plasticity • Philosophical aspects of human physiology • Nervous system, learning and memory • The reinforcement system • Behavior and emotions	**CG:** 3, 4, 12 **CE**: 21, 37

BIBLIOGRAPHY

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Complementary bibliography:

- Mtui E., Gruener,G. y Dockery P. (2022). *Neuroanatomía y neurociencia*. Madrid: Elsevier.
- LeDoux, J. (1999). *El cerebro emocional*. Barcelona: Ariel.
- Gómez-Domínguez, D. (2020). *Neurociencia Estructura y funciones del cerebro.* Ed. Libsa: Alcalá de Henares (Madrid)
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- Rizzolatti, G. (2006). *Las neuronas espejo: los mecanismos de la empatía emocional*. Barcelona: Paidós.
- Damasio, A. (2011). *El error de Descartes*. Barcelona: Destino.
- Sanmartín Esplugues, J. (2013). *La violencia y sus claves*. Barcelona: Ariel.
- Rof Carballo, J. (2001). *Cerebro interno y mundo emocional*. Lugo: Asociación Gallega de Psiquiatría.
- Delgado, J. M. R. (1996). *Mi cerebro y yo*. Madrid: Temas de Hoy.
- Kandel, E.C. (2021). *La era del inconsciente*. Barcelona: Paidós.

TEMPORAL ORGANIZATION OF LEARNING

	CONTENT BLOCK/DIDACTIC UNIT	NR. OF SESSIONS
1.	Introduction to Neuroscience	1
2. Structure and functions of the cells of the nervous system.	2.1. Cells of the nervous system. 2.2. Interneuron communication.	1
3. Structure of the nervous system.	3.1. The central nervous system. 3.2. The peripheral nervous system	2
4.	Brain plasticity	1

5. Philosophical aspects of human physiology.	5.1. The genesis of the brain. 5.2. Learning and memory. 5.3. The booster system.	3
6. Physiological introduction to the emotional process	6.1. Historical-theoretical approach. 6.2. Historical-physiological approach. Joseph Ledoux. 6.3. Affective memory	4
7. Emotional and behavioral aspects in the human species	7.1. The affective warp 7.2. Aggressiveness and violence, stress and anxiety disorders	2