COURSE DATA

DATA SUBJECT

Code: 40146
Name: Cognitive and affective neuroscience
Cycle: Master's Degree
ECTS Credits: 15
Academic year: 2026-27

STUDY (S)

Degree	Center	Acad. year	Period
2074 - Master's Degree in Basic and Applied Neurosciences	Facultat de Ciències Biològiques	1	Second quarter

SUBJECT-MATTER

Degree	Subject-matter	Character
2074 - Master's Degree in Basic and Applied Neurosciences	Specialty in cognitive and affective neuroscience	ELECTIVES

COORDINATION

COSTA FERRER RAQUEL

CANO LOPEZ IRENE

SUMMARY

In the second four-month period, students can choose between the two alternative itineraries proposed, which share the same academic period. The subject of Cognitive and affective neuroscience allows students to delve more deeply into the aspects of neuroscience applicable to psychology. In this pathway, those aspects with the clearest application to the training of a psychologist will be highlighted, enabling them to know, understand and explain the basic principles of diagnosis, measurement and psychological intervention and to carry out research with the knowledge of appropriate techniques. This training can be of great use to psychology professionals who subsequently carry out their work in different fields, such as research, hospitals or clinics.Cognitive and affective neuroscience includes principles, contents and techniques from three large blocks: A) Psychophysiology, Psychoneuroendocrinology and Psychoneuroimmunology, B) Neuropsychology and C) Principles of intervention for health.This itinerary includes the main advances made in recent years in behavioural neurosciences, taking into account different disciplinary approaches, which allows us to analyse the range of future possibilities by approaching cutting-edge aspects of neuroscience, taking into account the use of electrophysiological, biochemical and neuroimaging techniques, mainly to tackle current issues such as stress, its consequences and dysfunctions, anxiety and affective disorders, as well as neuropsychological dysfunctions associated with development and specific syndromes, mental disorders and those derived

from acquired brain damage, among others. The aim is to address normal and pathological behaviour.

PREVIOUS KNOWLEDGE

RELATIONSHIP TO OTHER SUBJECTS OF THE SAME DEGREE

There are no specified enrollment restrictions with other subjects of the curriculum.

OTHER REQUIREMENTS

COMPETENCES / LEARNING OUTCOMES

2074 - Master's Degree in Basic and Applied Neurosciences

Adquirir destrezas en el manejo de los diseños y metodologías empleados en la neurociencia cognitiva y afectiva, en el registro y evaluación de actividades y procesos, así como en el empleo de programas informáticos para la obtención y análisis de los datos en neurociencias y para la exposición de los resultados

Comprender las relaciones entre ciencia y sociedad, la ubicación de la neurociencia en el contexto de la ciencia actual así como el papel del especialista en neurociencia cognitiva y afectiva en el contexto científico y social.

Conocer los principios éticos y legales de la investigación científica en neurociencia cognitiva y afectiva.

Conocer y comprender los principios básicos de la aplicación de las principales técnicas de intervención paliativa y psicoeducativa para la salud física y mental

Entender las bases biológicas de la atención, la ritmicidad del comportamiento y las diferencias individuales.

Entender las interacciones entre sistema endocrino y sistema nervioso y su papel en la función mental, el dimorfismo sexual, el desarrollo y la senescencia y las respuestas adaptativas y maladaptativas al estrés

Poseer el espíritu crítico requerido para distinguir la información científica rigurosa de la pseudociencia así como comprender las aproximaciones experimentales y sus limitaciones e interpretar resultados científicos en neurociencia cognitiva y afectiva

Poseer iniciativa y autonomía en la resolución de problemas neurocientíficos

Saber aplicar el método científico a los estudios en neurociencia cognitiva y afectiva

Saber aplicar las principales técnicas de observación de la conducta, de evaluación y diagnóstico psicofisiológico y neuropsicológico, así como psiconeuroendocrinológico y psiconeuroinmunológico.

Saber comunicar el conocimiento sobre neurociencia cognitiva y afectiva y sus implicaciones a públicos especializados y no especializados de un modo claro y sin ambigüedades, incluyendo su comunicación en inglés, es decir, saber transmitir y divulgar la información científica en diferentes ámbitos.

Saber diseñar estrategias experimentales multidisciplinares en el ámbito de las neurociencia comportamental, cognitiva y afectiva para la resolución de problemas biológicos complejos

Saber elaborar y redactar informes en el ámbito de la investigación.

Saber trabajar de manera responsable y rigurosa en el laboratorio, considerando los aspectos de seguridad, manipulación y eliminación de residuos así como del correcto uso de los animales de experimentación y los principios éticos para la investigación en humanos.

Saber trabajar en equipos multidisciplinares y diseñar estrategias experimentales multidisciplinares en el ámbito de las neurociencias para la resolución de problemas biológicos complejos

Ser capaz de aplicar las técnicas de búsqueda, identificación, selección y recogida de información científica especializada, así como de los métodos que se han de tener en cuenta a la hora de examinar críticamente cualquier clase de fuentes y documentos científicos.

Students should apply acquired knowledge to solve problems in unfamiliar contexts within their field of study, including multidisciplinary scenarios.

Students should be able to integrate knowledge and address the complexity of making informed judgments based on incomplete or limited information, including reflections on the social and ethical responsibilities associated with the application of their knowledge and judgments.

Students should communicate conclusions and underlying knowledge clearly and unambiguously to both specialized and non-specialized audiences.

Students should demonstrate self-directed learning skills for continued academic growth.

Students should possess and understand foundational knowledge that enables original thinking and research in the field.

DESCRIPTION OF CONTENTS

1. BLOCK A.

Basic research principles in Psychophysiology, Psychoneuroendocrinology, and Psychoneuroimmunology. • Psychophysiological, endocrinological, and immunological techniques. • Stress, anxiety, and cognition.• Aggression and violence.

BLOCK B• Neuropsychological assessment techniques • Functional neuroanatomy and neuroimaging techniques for diagnosis and research • Etiology of the main neuropsychological disorders. • Neuropsychological dysfunctions due to acquired brain injury.• Neuropsychological dysfunctions in mental disorders.

BLOCK C• Principles of intervention for physical and mental health. Physical activity. • Psychological intervention in neurological patients. • Other intervention techniques.• Design and application of multidisciplinary experimental strategies

WORKLOAD

PRESENCIAL ACTIVITIES

Activity	Hours
Theory	57,00
Laboratory	33,00
Total hours	**90,00**

NON PRESENCIAL ACTIVITIES

Activity	Hours
Attendance at other activities	0,00
Individual or group project	30,00
Independent study and work	225,00
Preparation of lessons	30,00
Preparation for assessment activities	0,00
Resolution of case studies	0,00
Total hours	**285,00**

TEACHING METHODOLOGY

Masterclass with active participation through discussion of the most complex aspects and the resolution of doubts and questions. Laboratory practices with handling of samples, problem solving, practical scenarios, preparation of practice reports, etc. Discussion, reflection, and preparation of reports on practical tasks.

EVALUATION

The assessment of the knowledge and skills achieved by students will take into account all the activities carried out, on an ongoing basis, throughout the subject. Assessment tasks include: written tests/examination, activities primarily aimed at the assessment of practical skills and seminars. In order to provide a numerical grade for the degree of knowledge and skills achieved by the student, the weighting of each of these assessment tasks for the final grade is as follows:- Theoretical-practical exam: 50 %.- Reports and activities of the practical sessions: 30%.- Seminars (presentation and material): 20%The reports, activities and presentations made in the classroom are 30% of the final grade and will not be recoverable.In order to consider the marks for reports, activities and seminars, it will be necessary to obtain a mark of 40% or higher in the theoretical-practical exam.In the second examination, the notes of the practical activities and work presented throughout the course will be preserved, as long as the characteristics of the same allow it.

Copying or plagiarism of any assignment that forms part of the assessment will make it impossible to pass the course, and the student will be subject to the appropriate disciplinary procedures. Please note that, in accordance with article 13. d) of the University Student Statute (RD 1791/2010, 30 December), it is a student's duty to refrain from using or cooperating in fraudulent procedures in assessment tests, in the work carried out or in official university documents.

REFERENCES

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