

Approval date: 27/06/2023

COURSE GUIDE

**Cognitive Neuroscience (26411A4)**

<b>Grado (Bachelor's Degree)</b>	Grado en Psicología	<b>Branch</b>	Health Sciences				
<b>Module</b>	Neurociencias y Comportamiento	<b>Subject</b>	Neurociencia Cognitiva				
<b>Year of study</b>	4 <sup>o</sup>	<b>Semester</b>	1 <sup>o</sup>	<b>ECTS Credits</b>	6	<b>Course type</b>	Elective course

**PREREQUISITES AND RECOMMENDATIONS**

Teaching will be in English in the morning teaching group (M) and in Spanish in the evening teaching group (T). Students should have some knowledge about psychological processes (e.g. Perception and Attention, Learning, Memory, Language, Thinking and Reasoning, etc.). Thus, it is recommended to take the course during the last years of the degree. The lecturer may recommend specific readings to those students lacking enough psychological background. General computer skills, e-mail, and internet proficiency are required. Medium-high level of written and spoken English is required for students taking the course in English.

**BRIEF DESCRIPTION OF COURSE CONTENT (According to the programme's verification report)**

Convergent methodology in Cognitive Neuroscience. Mind-Brain interaction in core psychological processes: Perception, Attention, Learning and Memory, Language, Emotion, Consciousness and Executive Processes, Social cognitive neuroscience: Emotion and Social cognition.

**SKILLS**

**GENERAL SKILLS**

- CG01 - Que los graduados y graduadas posean y comprendan los conocimientos que definen y articulan a la Psicología como disciplina científica, incluyendo sus teorías, métodos y áreas de aplicación, en un nivel que se apoya en libros de texto avanzados e incluye algunos conocimientos procedentes de la vanguardia de este campo de estudio.
- CG02 - Que sepan aplicar estos conocimientos al trabajo profesional en el ámbito de la Psicología, identificando, valorando y resolviendo los problemas y demandas que se les presenten, elaborando y defendiendo argumentos relevantes en los que fundamenten su



actuación. Es decir, que estén capacitados para el desempeño profesional como psicólogos generalistas, no especializados, así como para incorporarse a estudios de Master y/o Doctorado que les proporcionen una formación avanzada, dirigida a la especialización académica, profesional o investigadora en el ámbito de la psicología.

- CG03 - Que tengan la capacidad de reunir e interpretar datos relevantes relativos al área de estudio de la Psicología (comportamiento humano individual y social, y al contexto en que se produce) para emitir juicios fundamentados en criterios sociales, científicos y éticos, sobre problemas y situaciones de índole psicológica.

### SUBJECT-SPECIFIC SKILLS

- CE01 - Conocer las características, funciones, contribuciones y limitaciones de los distintos modelos teóricos en Psicología.
- CE02 - Conocer los fundamentos biológicos de la conducta humana y de las funciones psicológicas, así como las leyes básicas de los distintos procesos psicológicos.
- CE03 - Conocer los distintos métodos y diseños de investigación y las técnicas de análisis e interpretación de datos propios de la Psicología y relevantes para el trabajo profesional.
- CE04 - Conocer los principios y procesos básicos del funcionamiento de los grupos y organizaciones.
- CE05 - Conocer los principios, etapas y procesos básicos del desarrollo psicológico a lo largo del ciclo vital tanto en sus aspectos de normalidad como de anormalidad.
- CE06 - Conocer los principios y procesos básicos del funcionamiento de la personalidad y de la psico-patología.
- CE07 - Conocer los distintos métodos de evaluación, diagnóstico, intervención y tratamiento psicológicos en los distintos ámbitos de aplicación de la psicología.
- CE08 - Conocer los distintos campos de aplicación de la Psicología y tener los conocimientos necesarios para incidir y promover la calidad de vida en los individuos, grupos, comunidades y organizaciones en los distintos contextos: educativo, clínica y salud, trabajo y organizaciones y comunitario.
- CE09 - Capacidad para identificar las características relevantes del comportamiento de los individuos y las necesidades y demandas de los destinatarios en los diferentes ámbitos de aplicación y establecer las metas de la actuación psicológica.
- CE10 - Capacidad para seleccionar y administrar técnicas e instrumentos propios y específicos de la Psicología.
- CE13 - Capacidad para localizar y distinguir información relevante para la consecución de una meta profesional concreta.
- CE16 - Capacidad para utilizar las diversas tecnologías de la información y la comunicación manejando, a nivel de usuario, el software de uso más frecuente en la práctica profesional y en la investigación científica.
- CE18 - Capacidad de creatividad, de crítica y de autocrítica.
- CE19 - Ser capaz de desarrollar habilidades interpersonales y ser capaz de apreciar y valorar la diversidad cultural y la multiculturalidad de forma positiva.
- CE20 - Capacidad de trabajar en equipo y de valorar aportaciones de otras disciplinas y profesionales afines, de forma que pueda trabajar también en equipos interdisciplinarios.
- CE21 - Tomar conciencia de los propios conocimientos y limitaciones, así como desarrollar procedimientos y estrategias para compensar o superar las limitaciones propias.

### TRANSFERABLE SKILLS

- CT01 - Que sean capaces de transmitir información, ideas, problemas y soluciones propias de su ámbito académico y profesional a un público tanto especializado como no especializado.



- CT02 - Que hayan desarrollado aquellas habilidades de aprendizaje necesarias para continuar aprendiendo a lo largo de toda la vida y, en su caso, emprender estudios reglados posteriores con un alto grado de autonomía.
- CT03 - Que tengan capacidad para abordar su actividad profesional y formativa desde el respeto al Código Deontológico del psicólogo, lo que incluye, entre otros principios más específicos, los de: respeto y promoción de los derechos fundamentales de las personas, igualdad, accesibilidad universal a los distintos bienes y servicios, y promoción de los valores democráticos y de una cultura de la paz.

## LEARNING OUTCOMES

### GOALS

- To offer students an introduction to Cognitive Neuroscience as a multidisciplinary science.
- To provide students with experiences that allow them to interpret neuroimaging data in relation to psychological theories.
- To provide students with information on patients with brain lesions or dysfunctions, and its relationship with theories of Psychology and Cognitive Neuroscience.
- To offer students an integrative approach of different subjects in the area of basic psychology.

### LEARNING OUTCOMES

By reaching these goals, the student will know and will be able to:

- Understand the complexities of the relation between the brain and the mind, and how this issue is investigated in Cognitive Neuroscience.
- Interpret research findings in Human Neuroscience using theoretical background from psychological theories.
- Understand the basis of psychological processes from the perspective of Cognitive Neuroscience.

## PLANNED LEARNING ACTIVITIES

### THEORY SYLLABUS

- I. Conceptual and methodological introduction
  1. The brain, the mind, and the relation brain-mind (1)
  2. Convergent methodology in Cognitive Neuroscience (3,4,5)
- II. Cognitive Neuroscience of different Cognitive Processes.
  3. Perception: Object and face recognition (6)
  4. Attention and action (7, 8)
  5. Learning and memory (9)
  6. Executive processes and consciousness (14)
  7. Numeracy and literacy (12, 13)
  8. Emotion and social cognition (15)

### PRACTICAL SYLLABUS

The goal of these seminars is to reinforce the contents studied in class. Several activities will be proposed:

- Visits to labs related to Cognitive Neuroscience research (when possible)



- Online resources related to Cognitive Neuroscience
- Training in the design of experiments employing different neuroimaging techniques
- Readings and discussion of different scientific papers

## RECOMMENDED READING

### ESSENTIAL READING

- WARD, Jamie. (2020). The student's guide to cognitive neuroscience. 4th Edition. New York, NY, US: Psychology Press.

### COMPLEMENTARY READING

- BAARS, BERNARD J., and GAGE, NICOLE M. (2007). Cognition, brain, and consciousness: introduction to cognitive neuroscience. Amsterdam : Elsevier.
- GAZZANIGA, M.S., IVRY, R.B., Y MANGUN, G.R. (2019). Cognitive Neuroscience: The biology of the mind. London: W.W. Norton & Company Ltd. 5th Ed.
- PURVES, DALE, BRANNON, ELIZABETH M., CABEZA, ROBERTO, HUETTEL, SCOTT A., LABAR, KEVIN S., PLATT, MICHAEL L., and WOLDORFF, MARTY G. (2008). Principles of Cognitive Neuroscience. Sinauer Associates.
- REDOLAR RIPOLL, D. (2014) Neurociencia Cognitiva. Ed. Médica Panamericana

## RECOMMENDED LEARNING RESOURCES/TOOLS

<http://www.psypress.com/ward/>  
<http://www.sciencedirect.com/science/referenceworks/9780080450469>  
<http://braininfo.rprc.washington.edu/>  
<http://www.ted.com/>  
<https://prado.ugr.es/>

## TEACHING METHODS

- MD01 - Lección magistral/expositiva
- MD07 - Seminarios
- MD09 - Análisis de fuentes y documentos
- MD10 - Realización de trabajos en grupo
- MD11 - Realización de trabajos individuales
- MD13 - Tutorías individual/colectiva, Participación (foros del curso, exposiciones públicas), Autoevaluaciones, Presentación y defensa de informes grupales o individuales

## ASSESSMENT METHODS (Instruments, criteria and percentages)

### ORDINARY EXAMINATION DIET

- Continuous evaluation - 20% of the total of the course



Throughout the course, questionnaires and tasks will be proposed in PRADO.

• **Face-to-face activities in small groups - 30% of the total mark.**

The evaluation of this part will be carried out according to these criteria:

- Periodic activities for each class: 15%.
- Completion of an in-depth homework assignment with a final delivery: 15%.
- **Final exam - 50% of the total grade.**

There will be a final exam at the end of the semester either in person. This exam will consist of a series of open-ended questions plus a series of multiple-choice questions.

In the ordinary call, the student will not be entitled to a final exam to replace the assessment established for the seminars.

### EXTRAORDINARY EXAMINATION DIET

Those students who do not pass the subject in the ordinary call could keep the score obtained in the continuous assessment and the face-to-face activities in a small group for the extraordinary call. In this case the exam will be of characteristics and value equal to that of the ordinary call. However, no score will be saved from one academic course to the next.

Students who wish to be excluded from continuous assessment and small group activities will be assessed only by exam. In this case, the theoretical exam will have similar characteristics to the one described above. With this exam students can obtain the maximum rating (10).

### SINGLE FINAL ASSESSMENT (evaluación única final)

Only those students who decline the ordinary evaluation a priori and before the established deadline will be allowed a unique single exam for both theoretical contents and seminars. This simple exam will add to the ordinary exam of the theoretical contents one part for each concept that is evaluated in the seminars, so that the maximum mark of 10 can be obtained.

### ADDITIONAL INFORMATION

• **Participation in research carried out by members of the Department of Experimental Psychology:**

Participation in research is a training activity that allows students to experience first-hand the techniques that contribute to the advancement of science in Psychology, as well as practice the tasks that will be referred to in the contents of the different subjects.

It is important to point out that their participation in this research is completely voluntary, as expressed in the «Guide to good practices and ethical considerations in research involving the participation of students enrolled in subjects taught by professors of the Faculty of Psychology of the University of Granada », approved by the Board of the Center on May 30, 2019.

Each student may obtain a maximum of 0.5 points for her participation in these investigations, which may be added to his/her final grade in the subject. He/She will get 0.1 point for each participation during a time equal to or less than 45 minutes.

In order to preserve his/her anonymity and thus complying with what is stipulated in the "Good Practice Guide" mentioned above, the studies and the choice of department subjects in which to apply these points will be carried out through the platform: <https://ugr-cimcyc.sona-systems.com/>. This platform is designed in such a way that it is not possible for teachers to know whether or not their students have completed any of their studies, nor for students to know what research is the responsibility of the teachers who teach them.

The result of adding the final grade for the course and participation in these investigations may never exceed the limit of the grading system established in article 22.2 of the Regulations for the Evaluation and Qualification of Students of the University of Granada; If this happens, the excess





of the qualification that accredits their participation will be reimbursed to the students who wish it after expressing it in the act of evaluations review, so that it can be applied in another subject of the department that is part of the degree.

Students who do not participate in these investigations may obtain an equivalent score by carrying out alternative activities that will be offered by the Department of Experimental Psychology.

- The teaching methodology and evaluation will be adapted to students with specific needs (NEAE), in accordance with Article 11 of the Regulations for the evaluation and qualification of students of the University of Granada, published in the Official Bulletin of the University of Granada, nº 112, November 9, 2016.

