# COURSE DATA

## Data Subject

| | |
|---|---|
| **Code** | 33338 |
| **Name** | Neuropsychology |
| **Cycle** | Grade |
| **ECTS Credits** | 4.5 |
| **Academic year** | 2023 - 2024 |

## Study (s)

| Degree | Center | Acad. year | Period |
|---|---|---|---|
| 1319 - Degree in Psychology | Faculty of Psychology and Speech Therapy | 4 | Second term |

## Subject-matter

| Degree | Subject-matter | Character |
|---|---|---|
| 1319 - Degree in Psychology | 37 - Neuropsychology | Optional |

## Coordination

| Name | Department |
|---|---|
| ESPERT TORTAJADA, RAUL | 268 - Psychobiology |

# SUMMARY

Neuropsychology is a scientific discipline mainly clinical, converging between neurology and psychology. Neuropsychology studies the effects of injury, damage or malfunction in the central nervous system structures on cognitive, psychological or emotional processes. These effects or deficits can be caused by head trauma, stroke, brain tumors, neurodegenerative diseases (eg Alzheimer's, multiple sclerosis, Parkinson's, etc..) or neurodevelopmental diseases (epilepsy, autism spectrum disorders, cerebral palsy, a condition attention deficit / hyperactivity disorder, etc..). These etiologies discussed above can affect various cognitive domains such as language, attention, memory, gnosis, praxis, abstract reasoning, or intelligence, among others. For the diagnosis of these conditions the neuropsychologist use a battery of neuropsychological or structural/functional neuroimaging, in order to design specific programs of rehabilitation or cognitive stimulation to try to recover or replace lost cognitive function after injury.

# PREVIOUS KNOWLEDGE

## Relationship to other subjects of the same degree

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

## Other requirements

It is recommended that students have passed the subjects of Physiological Psychology I and
II.

# COMPETENCES (RD 1393/2007) // LEARNING OUTCOMES (RD 822/2021)

## 1319 - Degree in Psychology

- Be able to make a diagnosis according to professional criteria

- Know how to analyse and interpret the results of assessment.

- Know how to provide appropriate feedback to patients.

- Know the different neuropsychological disorders, the techniques for their diagnosis and their main etiologies.

- Be able to conduct an abbreviated neuropsychological assessment on a real volunteer.

- Be able to write a neuropsychological report of a real clinical case.

- Know the mechanics for administering neuropsychological tests.

# LEARNING OUTCOMES (RD 1393/2007) // NO CONTENT (RD 822/2021)

Identify, apply and understand data from the different techniques in Neuropsychology

Identify the various neuropsychological etiologies

Diagnose neuropsychological syndromes

Apply techniques and neuropsychological tests for patients with brain injuries that affect cognition and /or behavior

Make a report based on neuropsychological assessment

# DESCRIPTION OF CONTENTS

## 1. History and methods

-Historical Introduction

-Methods of Neuropsychology: Macroscopic and microscopic analysis. CT. MRI. Morphometry. Asymmetries in vivo. Ventriculometry. ROIs (regions of interest). Brain electrical stimulation. TMS. Wada technique. Separate visual fields. Dichotic listening. Reaction time. Donders subtractive method. Electroencephalography (EEG) and evoked potentials (EP). Magnetoencephalography (MEG). Positron emission tomography (PET) and single photon emission computed tomography (SPECT). Digital optical topography. Functional MRI (fMRI). Magnetic resonance spectroscopy(MRS).

## 2. Main Etiologies in Neuropsychology

Ictus (isquemia and bleeding)
Cerebral tumors
Traumatic brain injuries (classification, etiopatogenia and neuropsychology)
Cerebral infections

## 3. Amnesia and memory dysfunctions

Introduction: Memory Location
Types of amnesia
Memory impairment in aging and in neurological diseases

## 4. Language disorders

Neural basis of language (model)
Semiology of aphasia
Alexias and agrafias
Aprosodias

## 5. Agnosia

Concept and types
Visual agnosia: Separation Systems
Dissociation of perception: Dorsal and ventral stream
Visuoperceptives disturbances
Visuospatial disturbances
Visuoconstructive disturbances
Auditory agnosia
Somatognosia

## 6. Apraxias

Concept and background
The diagnosis of apraxia
Ideomotor apraxia
Neural models
Basal ganglia and apraxia
Other apraxias

## 7. Frontal lobe dysfunctions

Introduction
Anatomy of the frontal lobes
Functions
Frontal lobe syndromes

## 8. Ageing, dementia and other neurodegenerative processes

Normal aging: brain and cognitive changes
Mild cognitive impairment
Dementias: General background
Alzheimer's type Dementia

# WORKLOAD

| ACTIVITY | Hours | % To be attended |
|---|---|---|
| Theoretical and practical classes | 45,00 | 100 |
| Development of individual work | 10,00 | 0 |
| Study and independent work | 25,00 | 0 |
| Readings supplementary material | 10,50 | 0 |
| Preparation of practical classes and problem | 10,00 | 0 |
| Resolution of case studies | 12,00 | 0 |
| TOTAL | 112,50 | |

# TEACHING METHODOLOGY

Scheduled tutoring individual or group to supervise practical work, guidance and resolution of doubts.

Individual learning activities and group practical activities.

Lectures with audiovisual presentations and new techniques and technologies on major diseases in clinical neuropsychology.

Practices about how to use neuropsychological assessment tests and scales, watching videos and clinical case studies of real patients on various neurological conditions, including the realization of a real neuropsychological assessment.

The use of mobile phones, tablets or laptops may be restricted during class.

## EVALUATION

The *evaluation system* will be the same in both 1st and 2nd call.

**ES1**.- *Assessment of theoretical and practical content by means of oral, written or skills fulfillment tests*. This section constitutes 70% of the final mark (7 points).

The performance test on the level of theoretical knowledge reached by the student will be carried out in the form of a multiple-choice exam of 40 items, with multiple choice questions with 3 alternatives.

**ES2**.- *Oral or written presentation of reports, individual or group work, clinical cases, problem solving and management of diagnostic tests*. This section constitutes 30% of the final mark (3 points). A work will be carried out that will consist of a neuropsychological assessment and the preparation of a deliverable report based on the real clinical data of a relative (preferably a grandfather or father/mother) following the guidelines that will be given to the class through an ad hoc neuropsychological protocol. This section can be recovered in the second call by means of a new or improved neuropsychological report, which will be delivered before the official date established.


*Minimum requirements* for both the 1st and 2nd call

- Obtain 3.5 points out of 7 in SA1.

- Obtain a minimum of 5 points out of 10 in the final grade.

The note of the work (neuropsychological report) will be saved for the second call (July) in case of failing the multiple-choice exam or not appearing at the first call. If the student takes the exam, she will not be able to renounce the result obtained in order to raise the grade in the second call. No student will be able to change groups for scheduling reasons once they have been officially enrolled.


*Warning about plagiarism*

The copying or manifest plagiarism of any evaluable activity will mean the manifest impossibility of passing the subject, immediately submitting to the appropriate disciplinary procedures.

It must be taken into account that, in accordance with article 13 d of the university student statute (RD 1791/2010 September 30), students must avoid the use of fraudulent procedures in the evaluation tests, the work they carry out or in the official documents of the University.

In the event of fraudulent practices, the procedure determined by the Protocol for action against fraudulent practices at the University of Valencia (ACGUV 123/2020) will be followed: https://www.uv.es/sgeneral/Protocols/C83sp.pdf

*Grading system*

The evaluation of the subject and the challenge of the grade obtained are subject to the Regulation of Evaluation and Qualifications of the University of Valencia for Bachelor's and Master's degrees (ACGUV108/2017 of May 30)
http://www.uv.es/graus/normatives/2017_108_reglament_avaluacio_qualificacio.pdf

In accordance with this regulation, the numerical expression of grades from 0 to 10 is specified with a single decimal using the following:

 - From 0 to 4.9: suspense

 - From 5 to 6.9: approved

 - From 7 to 8.9: remarkable

 - From 9 to 10: Outstanding or Outstanding with honors.

Honors (1 for every 20 students) will be awarded directly to the best grades (always from 9). In the case of identical grades from the MH candidates, the teacher may carry out an oral test.

The different sections contemplated in the evaluation will only be added when the minimum requirements established for each of them are exceeded.

The grade obtained in the first call will be included in the course report in accordance with the following rules:

- If there is no rating in the evaluation section with the highest weighting, the rating will be NOT SUBMITTED, regardless of the rest.

-If there is a qualification in the evaluation section with the highest weighting and it does not meet the minimum requirements, a FAIL will be given and its numerical grade based on 10 of the qualification of this section.

-If there is a grade in the evaluation section with the highest weighting and it exceeds the established minimum requirements, but the minimum requirements are not met in another section, a FAIL (and its numerical grade based on 10) will be recorded in the section not passed.

The second call will proceed according to the following rules:

  -The NOT PRESENTED option will only be used when the student has not submitted to more than one of the evaluation sections among those with the highest weighting.

-If there are grades in all sections of the evaluation and the minimum requirements are not met in any of them, a FAIL (and the corresponding base ten grade) will be placed in the section not passed. If there were more than one section not passed, the highest grade will be included in the fail.

-If none of the minimum requirements are exceeded or any evaluation section is missing, the student will obtain a FAIL (with their numerical grade), with 0.0 being the part not presented (maximum possible 4.9).

There is a regulation on contesting grades. Consulting and challenging the grade obtained will be subject to the provisions of the rules for challenging grades (ACGUV of April 29, 2008) (http://www.uv.es/=sgeneral/Reglamentacio/Doc/Estudis/C9 .pdf).

*Advance of the call*

Regarding the possibility that a student requests an advance of the call, as established by current regulations, the evaluation will consist of the mandatory completion of an exam on theoretical and practical knowledge (which will represent 70% of the grade) and a final report (which will account for 30% of the final grade).

## REFERENCES

### Basic

- Junqué C. y Barroso J. (2009). Manual de Neuropsicología. Madrid: Síntesis.

  Tirapu, J., Ríos, M, y Maestú, F. (2011). Manual de Neuropsicología. Barcelona: Editorial Viguera (2ª Edición).

  Tirapu-Ustárroz, J, García-Molina J., Rios-Lago, M., Ardila, R. (2012). Neuropsicología de la corteza prefrontal y las funciones ejecutivas

### Additional

- Arnedo, M. (Coord) (2012). Neuropsicología: Casos prácticos. Medica-Panamericana

Kolb B. y Whishaw I.Q. (2006). Fundamentos de Neuropsicología Humana. Madrid: Médica Panamericana.

Peña-Casanova J. (2007). Neurología de la conducta y neuropsicología. Madrid: Médica Panamericana.