



## Information about the subject

**Degree:** Bachelor of Science Degree in Speech and Language Therapy

**Faculty:** Faculty of Psychology

**Code:** 1171103 **Name:** Fundamentals of Neuroscience

**Credits:** 6,00 **ECTS Year:** 1 **Semester:** 1

**Module:** Basic Training

**Subject Matter:** Physiology **Type:** Basic Formation

**Field of knowledge:** Health sciences

**Department:** Speech Therapy

**Type of learning:** Classroom-based learning

**Languages in which it is taught:** Spanish

**Lecturer/-s:**

1171A Alma Maria Bueno Cayo (**Responsible Lecturer**)

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## Module organization

### Basic Training

Subject Matter	ECTS	Subject	ECTS	Year/semester
Physiology	12,00	Functional anatomy of the organs of speech and hearing II	6,00	1/2
		Fundamentals of Neuroscience	6,00	1/1
Anatomy	6,00	Functional anatomy of the organs of speech and hearing I	6,00	1/1
Psychology	36,00	Developmental psychology	6,00	1/1
		Language development	6,00	1/2
		Psycholinguistics	6,00	2/1
		Psychology of attention and perception.	6,00	1/2
		Psychology of Learning and Memory	6,00	2/1
		Research Methodology	6,00	2/1
Clinical linguistics	6,00	Linguistics applied to speech and language therapy	6,00	1/1

## Recommended knowledge

No previous knowledge is required



## Learning outcomes

At the end of the course, the student must be able to prove that he/she has acquired the following learning outcomes:

- R1 Describe the interactions between the nervous system, cellular communication and their relationship with human behavior.
- R2 Relate and explain the macroanatomy of the nervous system with its functionality and some physiological characteristics.



## Competencies

Depending on the learning outcomes, the competencies to which the subject contributes are (please score from 1 to 4, being 4 the highest score):

BASIC		Weighting			
		1	2	3	4
CB1	Students must show that they have and understand knowledge in a field of study that is based on general secondary education on a level that, although supported by advanced textbooks, includes also some aspects that involve knowledge belonging to the vanguard of their field of study			X	
CB2	Students can apply their knowledge to their work or vocation in a professional manner and possess the skills typically demonstrated through devising and sustaining arguments and solving problems within their field of study			X	
CB3	Students have the ability to gather and interpret relevant data usually within their field of study to inform judgments that include reflection on relevant social, scientific or ethical				X
CB4	Students can communicate information, ideas, problems and solutions to both specialist and non-specialist				X
CB5	Capacity to develop those learning skills needed to undertake further studies with a high degree of autonomy				X
GENERAL		Weighting			
		1	2	3	4
CG1	Analysis and synthesis				X
CG2	Organize a work plan being able to carry it out within a specified period				X
CG3	Find, evaluate, organize and manage information systems				X
CG4	Speaking and writing fluently, appropriately and with the necessary consistency to meet the academic standards of correctness in the language of instruction				X



CG5 Make decisions and being responsible for them

X

SPECIFIC		Weighting			
		1	2	3	4
CE1	Understand and integrate the biological foundations of Speech: Anatomy and Physiology				X
CE2	Understand and integrate the psychological foundations of Speech: language development, psychological development, Neuropsychology of language, basic processes and Psycholinguistics				X
CE3	Understand and integrate the linguistic foundations of Speech: Phonetics and phonology, morphosyntax, semantics, pragmatics, and sociolinguistics	X			
CE4	Understand and integrate the educational foundations of speech therapy: teaching and learning processes	X			
CE29	To acquire practical training in individual, group, cooperative and mediation facilitator contexts				X
CE32	Using information technology and communication			X	
CE33	Final project involving transversally applicable material; to be carried out in association with different subjects	X			
CE37	Master the terminology that allows one to interact effectively with other professionals				X
CE38	To design and carry out speech therapy treatments, both individual and collective, establishing objectives and stages, with the most effective and appropriate methods, techniques and resources, and taking into account the different evolutionary stages of the human being.	X			
CE48	Being familiar with communication disorders, language, speech, hearing, speech and nonverbal oral functions			X	
CE51	Communicate orally and in writing one's observations and conclusions to the patient, their families and other professionals involved in treatment, adapting to the sociolinguistic characteristics of the environment	X			
CE54	Manage communication technologies and information			X	



TRANSVERSAL		Weighting			
		1	2	3	4
CT1	Use the techniques of verbal and nonverbal communication in order to optimize relevant communicative situations				X
CT2	Critically evaluate own job performance and that of other professionals to improve results				X
CT7	Having an open and flexible attitude to lifelong learning				X



## Assessment system for the acquisition of competencies and grading system

Assessed learning outcomes	Granted percentage	Assessment method
R1, R2	70,00%	Oral and/or written tests: exams, reports, resolution of internships.
R1, R2	5,00%	Attendance, participation, continued work.
R1, R2	15,00%	Performance and/or presentation of individual theoretical and practical activities.
R1, R2	10,00%	Performance and/or presentation of theoretical and practical group activities.

### Observations

#### Final Exam

This will consist of a written exam in which students can demonstrate that they have achieved the learning outcomes for the course. This exam may include objective questions, short essay questions, and neuroanatomical diagrams.

#### Training Practices and Practical Assessment

Students must complete a series of mandatory training practices, both in the classroom and independently outside of class time. Submitting all practices by the established deadlines is an **essential requirement for the assessment of the practical part of the course**, and their grade will be included in the final grade.

#### Attendance

In justified cases in which the student cannot meet the **40% attendance requirement**, they should consult the current regulations and request a single assessment from the instructor, who will adapt the activities and assessment criteria. Important: To pass the course, students must separately complete the different assessment systems (attendance, training practices, and exam).

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#### ALTERNATIVE ASSESSMENT

Students who, for justified reasons, cannot regularly attend in-person sessions must notify the instructor at any time during the academic year. They must request in writing to join the alternative assessment option, which will guarantee the acquisition of the planned practical skills. This alternative assessment will consist of substitute activities with the same workload and level of challenge as those requested for the in-person group. These activities may be completed with



class materials, without the need to attend class.

## HONOURS WITH DISTINCTION

In accordance with the regulations governing the assessment and grading of subjects in force at UCV, the distinction of "Matrícula de Honor" (Honours with Distinction) may be awarded to students who have achieved a grade of 9.0 or higher. The number of "Matrículas de Honor" (Honours with Distinction) may not exceed five percent of the students enrolled in the group for the corresponding academic year, unless the number of enrolled students is fewer than 20, in which case a single "Matrícula de Honor" (Honours with Distinction) may be awarded.

Exceptionally, these distinctions may be assigned globally across different groups of the same subject. Nevertheless, the total number of distinctions awarded will be the same as if they were assigned by group, but they may be distributed among all students based on a common criterion, regardless of the group to which they belong.

The criteria for awarding "Matrícula de Honor" (Honours with Distinction) will be determined according to the guidelines stipulated by the professor responsible for the course, as detailed in the "Observations" section of the evaluation system in the course guide.

## CITATION AND ATTRIBUTION CRITERIA

- Any use of Artificial Intelligence (AI) tools must be explicitly stated in the submitted document (for example, in a footnote or an appendix).
- The name of the tool, the purpose of its use (e.g., grammar check, organization of ideas, writing sample), and the section of the work where it was used must be indicated.
- Responsible use of AI will be evaluated as part of the criteria for originality and academic honesty.

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## Learning activities

The following methodologies will be used so that the students can achieve the learning outcomes of the subject:

- M1 Participative lectures: strategies focused on the transmission of information from teachers to students. Student participation is promoted with hybrid methodologies, in order to consolidate knowledge and encourage critical thinking.
- M2 Practical Class. Classroom practice, laboratory practice and/or simulations: methodologies based on student interaction with problems, technologies, samples or analysis equipment, in order to incorporate experimentation to knowledge.



## IN-CLASS LEARNING ACTIVITIES

	LEARNING OUTCOMES	HOURS	ECTS
THEORETICAL CLASSES. Lectures, expository and participative classes. They focus on the approach, analysis and development of competences: explanation and orientation towards the acquisition of the necessary knowledge, instruction in the derived skills and acquisition of professional aptitudes. M1	R1, R2	30,00	1,20
PRACTICAL CLASSES. Individual or group work sessions supervised by the teacher. Analysis of materials related to the subjects: reports, statistics, scientific literature, tests and evaluation tests, problem solving, visualization of clinical histories, simulation of cases, etc. M2	R1, R2	15,00	0,60
LABORATORY PRACTICES: Laboratory activities for obtaining, analyzing and interpreting samples. Learning of measurement techniques by means of instruments. Learning of safety measures. M2	R1, R2	10,00	0,40
TUTORIALS: Individual or small group meetings to personalize any aspect of the teaching-learning process M1, M2	R1, R2	3,00	0,12
EVALUATION: Set of tests in oral, written, or other audiovisual media. It includes the final exams (exams and presentation of work) and all the elements of continuous evaluation that contribute in a weighted way to the final grade (presentation of work, scheduled activities, questionnaires, etc.) The public presentation of the Final Degree Project is included. M1, M2	R1, R2	2,00	0,08
<b>TOTAL</b>		<b>60,00</b>	<b>2,40</b>



## LEARNING ACTIVITIES OF AUTONOMOUS WORK

	LEARNING OUTCOMES	HOURS	ECTS
GROUP WORK: Group preparation of readings, essays, problem solving, seminars, papers, reports, etc. to be presented or delivered in theory classes, practical classes or small group tutorials. M1, M2	R1, R2	20,00	0,80
AUTONOMOUS WORK: Personal study of the student. Individual preparation of readings, essays, problem solving, seminar material, papers, reports, etc. to present or deliver in class, complete their training activity and prepare their evaluation tests. M1, M2	R1, R2	70,00	2,80
<b>TOTAL</b>		<b>90,00</b>	<b>3,60</b>



## Description of the contents

Description of the necessary contents to acquire the learning outcomes.

### Theoretical contents:

Content block	Contents
1. Introduction to Neurosciences	DU 1. Introduction to the study of Neurosciences 2. Methods of study and research in Neurosciences
2. Cells of the Nervous System	DU 3. Neuron and neuroglia DU 4. Neuronal communication: synaptic transmission
3. Anatomy and Funcionality of the Nervous System	DU 5. Fundamental organisation of the Nervous System DU 6. Phylogenesis and ontogenesis of the Nervous System DU 7. Structures of the Nervous System DU 8. The cerebral cortex DU 9. The cerebrovascular system DU 10. Cerebral Asymmetries DU 11. Brain left-handedness and brain dimorphisms

### Temporary organization of learning:

Block of content	Number of sessions	Hours
1. Introduction to Neurosciences	6,00	12,00
2. Cells of the Nervous System	6,00	12,00
3. Anatomy and Funcionality of the Nervous System	18,00	36,00



## References

- Carlson, N. R. (2014). **Fisiología de la conducta**. Madrid: Prentice Hall.
- Clark, D.L., Boutros, M.F. y Méndez, M.F. (2012). **El cerebro y la conducta. Neuroanatomía para Psicólogos** (2ª ed.). México: Manual Moderno.
- Cuetos, F. (2012). **Neurociencia del Lenguaje. Bases neurológicas e implicaciones clínicas**. Madrid: Panamericana.
- Felten, D.L. y Shetty, A.N. (2010). **Netter: Atlas de Neurociencia**. Barcelona: Elsevier-Masson.
- Felten, D.L. y Summo, M. (2019). **Netter: Cuaderno de Neurociencia para colorear**. Barcelona: Elsevier-Masson.
- Haines, D.E. y Mihailoff, G.A. (2019). **Principios de neurociencia: Aplicaciones básicas y clínicas** (5ª ed.). Madrid: Elsevier.
- Kandel, E.R., Schwartz, J.H. y Jessell, T.M. (2001). **Principios de neurociencia**. Madrid: McGraw Hill-Interamericana.
- Kolb, B. y Whishaw, I. Q. (2017). **Cerebro y conducta: una introducción**. Madrid: McGraw-Hill
- Maestú, F., Ríos Lago, M., y Cabestrero, R. (2008). **Neuroimagen: Técnicas y Procesos Cognitivos**. Barcelona: Masson-Elsevier.
- Muñoz Marrón, E., & Periañez, J. A. (2012). **Fundamentos del aprendizaje y del lenguaje**. Barcelona: Editorial UOC.
- Obler, L.K. y Gjerlow, K. (2001). **El lenguaje y el cerebro**. Madrid: Cambridge University Press.
- Redolar, D. (2021). **Neurociencia cognitiva**. Madrid: Editorial Médica Panamericana.
- Waxman, S.G. (2010). **Neuroanatomía clínica** (26ª ed.). Madrid: McGraw-Hill.