Information about the subject

Degree: Bachelor of Science Degree in Psychology

Faculty: Faculty of Psychology

Code: 291103 **Name:** Fundamentals of Neuroscience

Credits: 6,00 **ECTS Year:** 1 **Semester:** 2

Module: BIOLOGICAL BASIS OF BEHAVIOR

Subject Matter: PHYSIOLOGY **Type:** Basic Formation

Field of knowledge: Health Sciences

Department: Basic, Social, and Neuropsychology

Type of learning: Classroom-based learning / Online

Languages in which it is taught: Spanish

Lecturer/-s:

1122P	María Del Carmen Moret Tatay **(Responsible Lecturer)**	mariacarmen.moret@ucv.es
291A	Ana Perez Villalba **(Responsible Lecturer)**	anaperez@ucv.es
291B	Ana Perez Villalba **(Responsible Lecturer)**	anaperez@ucv.es
291C	María Del Carmen Moret Tatay **(Responsible Lecturer)**	mariacarmen.moret@ucv.es
291D	Jose Maria Tormos Muñoz **(Profesor responsable)**	jm.tormos@ucv.es

Module organization

BIOLOGICAL BASIS OF BEHAVIOR

Subject Matter	ECTS	Subject	ECTS	Year/semester
PHYSIOLOGY	12,00	Fundamentals of Neuroscience	6,00	1/2
		Psychophysiology	6,00	2/1
BIOLOGY	6,00	Biology of Human Behaviour	6,00	1/1

Recommended knowledge

It is recommended to have a medium level of English B2 in order to have access to articles in English

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 Knowing the interactions between nervous system, cell communication and their relationship with human behavior.

R2 Using the specialized vocabulary of the field and expressing oneself adequately.

R3 Understanding the neuronal communication processes that support the processing of information of the Nervous System.

R4 Deducing, interpreting and critically assessing experimental results from scientific reading or informative science.

R5 Using the documental resources available for the training in scientific knowledge as well as maintaining a scientific attitude as regards the presentation of questions and the search for answers.

R6 Knowing and relating macroanatomy of the NS with its functionality and some physiological characteristics.

R7 Knowing and relating microanatomy and molecular biology of the NS with their 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):

SPECIFIC		Weighting			
		1	2	3	4
CE4	Analyzing and measuring variables (personality, intelligence and other aptitudes) and cognitive, emotional, psychobiological and behavioral processes .				x

TRANSVERSAL		Weighting			
		1	2	3	4
CT1	Capacity to analyze and synthesize.				x
CT4	Command of a foreign language.		x		
CT7	Problem solving.				x
CT35	Being able to develop audio-visual presentations.			x	
CT36	Being able to collect information using different kinds of sources.				x

Assessment system for the acquisition of competencies and grading system

In-class teaching

Assessed learning outcomes	Granted percentage	Assessment method
R1, R2, R3, R4, R6, R7	60,00%	Oral and/or written tests employed in initial, training and/or summative student assessment.
R2, R5, R6, R7	30,00%	Presentation of practical activities.
R2, R5	10,00%	Attendance and active participation: lessons, group assignments and tutoring sessions. It will be monitored and registered by the teacher.

Observations

Students may be assessed using two possible systems:
I. Progressive assessment. Competencies and learning progress are assessed through various tests and activities proposed by the instructor throughout the course, which will include exam assessments during regular sessions. This assessment is characterized by: • The instructor may not assess students who do not adequately participate in the activities proposed for continuous assessment. • Methodological activities will be carried out according to the schedule and will follow the following general guidelines: − Brief presentation of a topic in class through an experimental scientific article where the student becomes familiar with the systems for searching and reading scientific literature. − Active participation in class: class exercises and discussion of scientific articles. − Progressive assessment activities (20%) will be added to the grade for the course exams (60% theory exam, 20% practical exam). In subsequent assessments (group S), the course grade will consist solely of the theory exam score (75%) and practical activities, which will be assessed with independent activities and practical exercises in the exam (25%).
II. Single Assessment. The single assessment is an exceptional assessment for those students who, for proven and justified reasons, cannot meet the minimum attendance requirement. This option must be requested by the student to the subject instructor in writing and will receive a response to their request in the same manner. It includes the final exam, which is required by current legislation. It will be held in two sessions: June and July. The final exam will consist of an objective multiple-choice test (multiple-choice question), in which incorrect answers will deduct points according to the following marking formula: NT = A - (E/n-1), where NT stands for the theory grade, A for correct answers, E for errors, and n for the number of question options. All theoretical topics have, in principle, the same importance for the exam. The final exam characteristics (number of questions, duration, etc.) will be indicated in the corresponding exam notice. In the final assessment, students must pass both the theoretical and practical exams to pass the course. The grade for the course will consist solely of the grades for the theory exam (75%) and practical

activities (25%).
III. Assessment of the practical sessions: Fundamentals of Neuroscience practical sessions will be intensively conducted in the laboratory, and attendance is mandatory. Since the practical session dates will be announced in advance, the only reasons for not attending a practical session are those explicitly stated in the UCV regulations (justified health reasons, legal reasons, and a prior employment contract). Students who cannot attend the lab sessions for these reasons must inform the tutor at the beginning of the course. Failure to do so or provide justification for their attendance will result in the loss of their percentage for that lab session. For example, if four lab sessions are completed and the student misses two without justification, their lab exam will be worth 10% instead of 20% of the grade. If they miss any lab session without justification, their exam will be worth a maximum of 5% of the total grade. The lab guide is designed to assist with the development and understanding of the lab sessions; it is not a document to be submitted to the instructor, as the lab sessions are assessed through an exam. The lab exam will consist of exercises similar to those performed in the lab sessions: neuroanatomy, cell typology, and electrophysiology. The practical exam will last approximately 25 minutes and will contribute up to 2 points (20%) of the total weighted grade for the course. IV. Criteria for awarding Honors: The tutor will award Honors to students who demonstrate evidence of excellence in all competencies and learning outcomes. The number of Honors distributed to each group will be indicated by the Dean of the Faculty of Psychology.
Ethical Use of AI: Citation and Attribution Criteria: All use of AI tools must be explicitly stated in the submitted document (for example, in a footnote or appendix). The name of the tool, the purpose of use (e.g., grammar check, organization of ideas, writing sample), and the part of the work in which it was used must be indicated. Responsible use of AI will be assessed as part of the criteria for originality and academic honesty. Students may use AI to answer questions about training activities, assisted learning (alternative explanations or self-assessment exercises), search for alternative resources and references for study, organize ideas, provide feedback on the clarity or coherence of their own text, review grammar and improve the writing of written documents, and any other activities agreed upon with the faculty. Students may not use AI to record or transcribe, in whole or in part, any classroom activity, in order to obtain summaries or notes created by AI, or to present AI-generated work as their own.

Online teaching

Assessed learning outcomes	Granted percentage	Assessment method
R1, R2, R3, R4, R6, R7	70,00%	Final evaluation consisting of essay questions and hypothetical scenarios.
	5,00%	Submitted tasks
R1, R3, R4, R6, R7	5,00%	Periodical assessment through questionnaires
R1, R2, R3, R4, R5, R6, R7	20,00%	Attendance and participation in synchronic communication activities.

Observations

Students may be assessed using two possible systems:
I. Progressive assessment. Competencies and learning progress are assessed through various tests and activities proposed by the instructor throughout the course, which will include exam assessments during regular sessions. This assessment is characterized by: • The instructor may not assess students who do not adequately participate in the activities proposed for continuous assessment. • Methodological activities will be carried out according to the schedule and will follow the following general guidelines: − Brief presentation of a topic in class through an experimental scientific article where the student becomes familiar with the systems for searching and reading scientific literature. − Active participation in class: class exercises and discussion of scientific articles. Progressive assessment activities (20%) will be added to the grade for the course exams (60% theory exam, 20% practical exam). In subsequent assessments (group S), the course grade will consist solely of the theory exam score (75%) and practical activities, which will be assessed with independent activities and practical exercises in the exam (25%).
II. Single Assessment. The single assessment is an exceptional assessment for those students who, for proven and justified reasons, cannot meet the minimum attendance requirement. This option must be requested by the student to the subject instructor in writing and will receive a response to their request in the same manner. It includes the final exam, which is required by current legislation. It will be held in two sessions: June and July. The final exam will consist of an objective multiple-choice test (multiple-choice question), in which incorrect answers will deduct points according to the following marking formula: NT = A - (E/n-1), where NT stands for the theory grade, A for correct answers, E for errors, and n for the number of question options. All theoretical topics have, in principle, the same importance for the exam. The final exam characteristics (number of questions, duration, etc.) will be indicated in the corresponding exam notice. In the final assessment, it is necessary to pass both the theoretical and practical exams to pass the course. The grade for the course will consist solely of the grade for the theory exam (75%) and the practical activities (25%).
III. Assessment of the practical sessions: The Fundamentals of Neuroscience practical sessions will be intensively conducted in the laboratory, and attendance is mandatory. Since the practical sessions dates will be announced in advance, the only reasons for not attending a practical session are those explicitly stated in the UCV regulations (justified health reasons, legal reasons, and a prior employment contract). Students who cannot attend the lab sessions for these reasons must inform the tutor at the beginning of the course. Failure to do so or provide proof of attendance will result in the loss of the percentage for that lab session. For example, if four lab sessions are completed and the student misses two without justification, their lab exam will be worth 10% instead of 20% of the grade. If they miss any lab session without justification, their exam will be worth a maximum of 5% of the total grade. The lab guide is designed to assist with the development and understanding of the lab sessions; it is not a document to be submitted to the instructor, as the lab sessions are assessed through an exam. The lab exam will consist of exercises similar to those performed in the lab sessions: neuroanatomy, cell typology, and electrophysiology. The practical exam will last approximately 25 minutes and will contribute up to 2

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Students may use AI to answer questions about training activities, assisted learning (alternative explanations or self-assessment exercises), search for alternative resources and references for study, organize ideas, provide feedback on the clarity or coherence of their own text, review grammar and improve the writing of written documents, and any other activity agreed upon with the teaching staff. Students may not use AI to record or transcribe, in whole or in part, any classroom activity for the purpose of obtaining summaries or notes created by AI, or to present AI-generated work as their own.

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.

Learning activities

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

M1 Teacher presentation of contents, competency analysis, explanation and demonstration of capacities, abilities and knowledge in the classroom (presential modality).

M2 Teacher-supervised groupwork sessions: case studies, diagnostic tests, problems, fieldwork, IT room, visits, data searches, libraries, web, Internet, etc. Building knowledge significantly through interaction and student activities (presential modality).

M3 Supervised monographic sessions with shared participation.

M4 Application of interdisciplinary knowledge.

M5 Activities developed in spaces with specialized equipment.

M6 Personalized attention in small groups. Training and/or orientation period by a teacher aimed at revising and discussing the materials and topics presented in the lessons, seminars, lectures, assignments, etc.

M7 Set of oral and/or written tests employed in initial, training or summative assessment of the student.

M8 Group preparation of readings, essays, problem resolution, seminars, assignments, reports, etc. to be presented or handed in during theory lessons, practical lessons and/or tutoring sessions in small groups. Tasks done on the platform or other virtual spaces.

M9 Students' independent study: individual preparation of readings, essays, problem resolution, seminars, assignments, reports, etc. to be presented or handed in during theory lessons, practical lessons and /or small-group tutoring sessions. Tasks on the platform or other virtual spaces.

M11 Teacher presentation of contents, competencies analysis, explanation and demonstration of capacities, abilities and knowledge on the virtual classroom.

M12 Group work sessions via chat moderated by the teacher. Case studies –both real and fictional– aimed at building knowledge through interaction and students' activities. Critical analysis of values and social commitment.

M13 Monographic sessions throughout the course, focused on current aspects and applications of the subject.

M14 Set of oral and/or written tests employed in initial, training or summative assessment of the student.

M15 Student's individual study: individual preparation of readings, essays, problem resolution, seminars, assignments, reports, etc. to be discussed or turned in in electronic format.

M16 Individualized attention for the monitoring and orientation in the learning process, performed by a tutor in order to revise and discuss the materials and topics, seminars, readings and assignments, etc.

M17 Group preparation of readings, essays, problem resolution, seminars, assignments, reports, etc. to be discussed or handed in.

M18 Participation and contributions to discussion forums related to the subject and moderated by the module's teacher.

M19 Problem resolution, comments, reports to be handed in according to the deadlines throughout the course.

IN-CLASS LEARNING

IN-CLASS LEARNING ACTIVITIES

	LEARNING OUTCOMES	HOURS	ECTS
ON-CAMPUS CLASS Teacher presentation of contents, analysis of competences, explanation and in-class display of skills, abilities and knowledge. M1, M2	R1, R2, R3, R4, R5	25,00	1,00
PRACTICAL CLASSES Group work sessions supervised by the professor. Case studies, diagnostic tests, problems, field work, computer room, visits, data search, libraries, on-line, Internet, etc. Meaningful construction of knowledge through interaction and student activity. M2, M5	R1, R2, R6, R7	12,50	0,50
SEMINAR Supervised monographic sessions with shared participation. M3	R1, R2, R3, R5	5,00	0,20
GROUP WORK EXHIBITION Application of multidisciplinary knowledge. M3, M7	R1, R2, R3, R4, R5	5,00	0,20
LABORATORY Activities carried out in spaces with specialized equipment. M1, M2, M5, M6	R1, R2, R3, R6, R7	5,00	0,20
OFFICE ASSISTANCE Personalized and small group attention. Period of instruction and/or orientation carried out by a tutor to review and discuss materials and topics presented in classes, seminars, papers, etc. M6	R1, R2, R3, R4, R5, R6, R7	5,00	0,20
ASSESSMENT Set of oral and/or written tests used in initial, formative or additive assessment of the student. M7	R1, R2, R3, R6, R7	2,50	0,10
TOTAL		**60,00**	**2,40**

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 submitted in theoretical lectures, practical and/or small-group tutoring sessions. Work done on the university e-learning platform M8	R3, R4, R5	40,00	1,60
INDEPENDENT WORK Student study: Individual preparation of readings, essays, problem solving, seminars, papers, reports, etc. to be presented or submitted in theoretical lectures, practical and/or small-group tutoring sessions. Work done on the university e-learning platform. M9	R1, R2, R3, R6, R7	50,00	2,00
TOTAL		**90,00**	**3,60**

ON-LINE LEARNING

SYNCHRONOUS LEARNING ACTIVITIES

	LEARNING OUTCOMES	HOURS	ECTS
Virtual session (distance learning) M11, M14	R1, R2, R3, R4, R5, R6, R7	25,00	1,00
Virtual practical session (distance learning) M13, M14, M15	R2, R3, R4, R5	12,50	0,50
In-person or virtual assessment (distance learning) M17	R1, R2, R3, R4, R5, R6, R7	2,50	0,10
Individual tutoring sessions (distance learning) M16	R1, R2, R3, R4, R6, R7	5,00	0,20
Discussion forums (distance learning) M18	R1, R2, R3, R4, R6, R7	5,00	0,20
Continuous assessment activities (distance learning) M14	R1, R2, R3, R4, R5, R6, R7	10,00	0,40
TOTAL		**60,00**	**2,40**

ASYNCHRONOUS LEARNING ACTIVITIES

	LEARNING OUTCOMES	HOURS	ECTS
Individual work activities (distance learning) M15, M17, M19	R3, R4, R5	50,00	2,00
Teamwork (distance learning) M13, M17	R1, R2, R3, R4, R5, R6, R7	40,00	1,60
TOTAL		**90,00**	**3,60**

Description of the contents

Description of the necessary contents to acquire the learning outcomes.

Theoretical contents:

Content block	Contents
UNIT 1: GENERAL ORGANIZATION OF THE NERVOUS SYSTEM	Unit 1: General organization of the Nervous System Unit 2: The neuron Unit 3: Neuroglia Unit 4: Basic Anatomy of the Central Nervous System Unit 5: The blood-brain barrier
UNIT 2: ELECTROPHYSIOLOGY AND NEURONAL COMMUNICATION	Unit 6: The electrical activity of neurons Unit 7: Neurotransmitters
UNIT 3: SENSORY PERCEPTION	Unit 8: Visual perception

Temporary organization of learning:

Block of content	Number of sessions	Hours
UNIT 1: GENERAL ORGANIZATION OF THE NERVOUS SYSTEM	20,00	40,00
UNIT 2: ELECTROPHYSIOLOGY AND NEURONAL COMMUNICATION	8,00	16,00
UNIT 3: SENSORY PERCEPTION	2,00	4,00

References

·References **Basic References:** -Principios de neurociencia. KANDEL, E.R., SCHWARTZ, J.H.y JESSELL, T.M. (ediciones desde 2001 y siguientes) Madrid: Mcgraw Hill-Interamericana. -Neurociencia. Purves. Augustine, G. Groh, J. Huettel, S. LaMantia, A. White, L.. Editorial Panamericana. -Carlson, N. R. (2018). Fisiología de la conducta. Pearson. **Secondary references:** -Principios de Neurociencia. 5º ED. David Haynes. -Biopsychology (11th Edition) John P. J. Pinel and Steven Barnes -The Human Brain Coloring Book. M.C. Diamond.Diamond Books. **Web pages:** http://www.ncbi.nlm.nih.gov/pubmed/ Página de la biblioteca nacional de ciencias médicas de estados unidos donde se encuentran los principales artículos científicos y revistas de prestigio. http://www.ncbi.nlm.nih.gov/sites/entrez?db=Books&itool=toolbar página de acceso a libros científicos con formato electrónico