

Fundamentals of Psychobiology I

Code: 102607
ECTS Credits: 6

2025/2026

Degree	Type	Year
Psychology	FB	1

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Teaching groups languages

You can view this information at the [end](#) of this document.

Prerequisites

There are no prerequisites.

Objectives and Contextualisation

Objectives and Contextualisation

This subject is considered a basic and compulsory component of the Psychology Degree at the UAB. The course aims to provide students with the foundational knowledge of neuronal physiology and neurochemistry necessary to study the relationship between behavioural processes and their biological substrates in subsequent Psychobiology subjects.

The goal is for students to be able to understand and correctly use the relevant terminology, and to demonstrate knowledge of:

1. Neurons and glial cells.

2. Nerve impulses and their conduction.
3. Synaptic transmission and neurotransmitters.
4. The plasticity of the nervous system.

Competences

- Identify, describe and relate the biology of human behaviour and psychological functions.
- Students must have and understand knowledge of an area of study built on the basis of general secondary education, and while it relies on some advanced textbooks it also includes some aspects coming from the forefront of its field of study.
- Use different ICTs for different purposes.
- Work in a team.

Learning Outcomes

1. Discover the main components of nerve tissue and explain the basic structural, ultrastructural and molecular characteristics of nerve cells and different types of synapses.
2. Explain the characteristics of the nerve impulse and its conduction.
3. Explain the main characteristics of synaptic transmission and the best-known systems of substance transmission.
4. Explain what psychobiology is and how it is related to the rest of psychology.
5. Students must have and understand knowledge of an area of study built on the basis of general secondary education, and while it relies on some advanced textbooks it also includes some aspects coming from the forefront of its field of study.
6. Use different ICTs for different purposes.
7. Work in a team.

Content

- UNIT 1. The Cells of the Nervous System.
 UNIT 2. Excitability and Neuronal Conductivity.
 UNIT 3. Synaptic Transmission.
 UNIT 4. Neural Plasticity.
 UNIT 5. Transmitter substances.

Activities and Methodology

Title	Hours	ECTS	Learning Outcomes
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Type: Directed			
Lectures (whole group)	31.5	1.26	1, 2, 3, 4, 5
Practical sessions (1/2 group)	16	0.64	1, 2, 3, 4, 5, 7
Workshops (1/4 group)	4	0.16	1, 2, 3, 4, 5, 7
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Type: Supervised			
Tutoring sessions	11	0.44	1, 2, 3, 4, 5

Type: Autonomous

Neurotransmitters unit preparation	9	0.36	3, 5
Reading of texts, monographs and papers	10	0.4	5
Search of information on journals, books and internet	10.5	0.42	1, 2, 3, 4, 5, 6
Self-evaluation exercises	2	0.08	1, 2, 3, 5
Study	53.5	2.14	1, 2, 3, 4, 5

The teaching methodology is based on different training activities. Depending on the case, master classes (1/1), practical sessions (1/2), workshops (1/4), supervised and autonomous activities will be performed.

Type: directed

- Master classes (whole group): weekly sessions where the contents of the subject will be explained
- Classes in small groups (1/2 and 1/4): sessions with a reduced number of students to work on the contents of the subject through different activities such as problem-solving or practical exercises.

Type: supervised

- Tutoring sessions (online and classroom attendance) to solve doubts.

Type: autonomous

- Search for documentation and preparation of the basic and complementary material of the subject (study materials available through the virtual campus, textbooks of the subject, monographs and articles).
- Self-assessment exercises.
- Preparation of a part of the syllabus corresponding to neurotransmitters.
- Study of basic concepts of the subject (creation of scripts, concept maps, synthesis, etc.).

Use of Artificial Intelligence

In this subject, the use of Artificial Intelligence (AI) technologies is allowed as an integral part of the development of the work, provided that the final result reflects a significant contribution of the student in the analysis and personal reflection. The student must clearly identify which parts have been generated with this technology, specify the tools used and include a critical reflection on how these have influenced the process and the final result of the activity. The lack of transparency in the use of AI will be considered a lack of academic honesty and may lead to a penalty in the grade of the activity, or greater sanctions in serious cases.

Annotation: Within the schedule set by the centre or degree programme, 15 minutes of one class will be reserved for students to evaluate their lecturers and their courses or modules through questionnaires.

Assessment

Continuous Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
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Learning evidence 1	40%	1	0.04	1, 2, 3, 4
Learning evidence 2	10%	0	0	1, 2, 3, 4, 6
Learning evidence 3	50%	1.5	0.06	1, 2, 3, 4, 5, 7, 6

Assessment activities

The evaluation is continuous and is based on 3 learning evidences. The final grade will be obtained based on the weighted average of the learning evidences:

- Learning evidence 1. EV1:

- Open questions about the nervous system cells and the physiology of the neuron. Unit 1, 2 and 3.
- Timing: First assessment period.
- Feedback in the classroom week 10.

- Learning evidence 2, EV2:

- Assessment activities to be delivered via moodle or in paper.
- Depending on the activity, they will be group or individual.
- Schedule will be established for every group
- Feedback through Moodle or in tutorials between 2 and 3 weeks after the end of the activity

- Learning evidence 3, EV3:

- Test and open questions of all the units (unit 1, 2, 3, 4 i 5).
- Timing: Second assessment period.
- Feedback in tutorials week 10.

A student is considered to have passed the subject when they meet the following two conditions: a) Having obtained a minimum grade of 5 points (out of 10) in the continuous assessment, b) having obtained a minimum score of 5 points (out of 10) in evidence 3. In the event of not meeting these requirements, the grade on the academic transcript will be the lower value between 4.5 points and the weighted average of the grades in the continuous assessment.

Single assessment

The request for a single evaluation implies the waiver of the continuous evaluation. To access the single assessment, you must submit a reasoned request to the center within the set deadlines.

A single exam of open questions and/or multiple choice will be held in which all the contents of the subject will be
The single assessment will be held on the same day and place as the co

Reassessment tests

All the information regarding reassessment is valid both for students who have followed the continuous assessment and for those who have followed the single assessment.

Reassessment test can be done only by those students who:

- have not achieved the established criteria to pass the subject and have a score greater than or equal to 3.5 points. That is, the final grade must be less than 5 and equal or equal to 3.5 points.
- have previously been evaluated in activities whose weight equals to a minimum of 66.6% parts of the total grade of the subject.

- **Reassessment test:**

- Individual and written test.
- Open questions to assess the comprehension and integration of all the units (unit 1, 2, 3, 4 and 5)
- Timing: resit examination period.
- Passing this test (minimum of 5 points out of 10) will allow the student to pass the subject with a 5.

Definition of "Not-assessable student"

Students who have not performed any of the assessment tests or have completed learning evidences with a weight lower than 40% for the whole subject will be marked as "Not evaluable"

Students registered for the subject for the second (or more) time

No unique final synthesis test for students who enroll for the second time or more is anticipated.

At this link the assessment guidelines of the Faculty of Psychology can be checked:

<https://www.uab.cat/web/estudiar/graus/graus/avaluacions-1345722525858.html>

Bibliography

Mark F. Bear, Barry W. Connors, Michael A. Paradiso (2016) Neurociencia: Explorando el cerebro, 4a edición. Barcelona: Wolters Kluwer.

Neil R. Carlson, Melissa A. Birkett (2018). Fisiología de la conducta, 12^a edición. Madrid: Pearson Educación. (Accés online a través biblioteca UAB)

Duane E. Haines, Gregiry A. Mihailoff (2019). Principios de neurociencia: aplicaciones básicas y clínicas. Elsevier (Accés online a través de la biblioteca UAB).

Bryan Kolb, Ian Whishaw (2002) *Cerebro y Conducta. Una Introducción*. Madrid: McGraw-Hill/Interamericana.

John P.J. Pinel (2006) *Biopsicología*. Madrid: Pearson Educación.

Dale Purves, George J. Augustine, David Fitzpatrick, William C. Hall, Anthony-Samuel LaMantia, James O. McNamara, S. Mark Williams, 5^a edición (2016). Neurociencia. Madrid: Medica Panamericana. (Accés online a través biblioteca UAB)

Diego Redolar Ripoll (2019) Psicobiología. Madrid: Panamericana.

Mark R. Rosenzweig, S. Marc Breedlove, Neil V. Watson, N.V. (2005) Psicobiología. Una introducción a la Neurociencia Conductual, Cognitiva y Clínica. Barcelona: Ariel

Stephen M. Stahl (2023) Psicofarmacología esencial de Stahl: bases neurocientíficas y aplicaciones prácticas. 5^a ed. Madrid: Aula médica, Formación en Salud.

Software

Neurosim (available in classrooms AI31 to AI35)

Groups and Languages

Please note that this information is provisional until 30 November 2025. You can check it through this [link](#). To consult the language you will need to enter the CODE of the subject.

Name	Group	Language	Semester	Turn
(PAUL) Classroom practices	11	Catalan	first semester	morning-mixed
(PAUL) Classroom practices	12	Catalan	first semester	morning-mixed
(PAUL) Classroom practices	21	Catalan	first semester	morning-mixed
(PAUL) Classroom practices	22	Catalan	first semester	morning-mixed
(PAUL) Classroom practices	31	Catalan	first semester	morning-mixed
(PAUL) Classroom practices	32	Catalan	first semester	morning-mixed
(PAUL) Classroom practices	41	Catalan	first semester	morning-mixed
(PAUL) Classroom practices	42	Catalan	first semester	morning-mixed
(PAUL) Classroom practices	51	Catalan	first semester	morning-mixed
(PAUL) Classroom practices	52	Catalan	first semester	morning-mixed
(PLAB) Practical laboratories	111	Catalan	first semester	morning-mixed
(PLAB) Practical laboratories	112	Catalan	first semester	morning-mixed
(PLAB) Practical laboratories	113	Catalan	first semester	morning-mixed
(PLAB) Practical laboratories	114	Catalan	first semester	morning-mixed
(PLAB) Practical laboratories	211	Catalan	first semester	morning-mixed
(PLAB) Practical laboratories	212	Catalan	first semester	morning-mixed
(PLAB) Practical laboratories	213	Catalan	first semester	morning-mixed
(PLAB) Practical laboratories	214	Catalan	first semester	morning-mixed
(PLAB) Practical laboratories	311	Catalan	first semester	morning-mixed
(PLAB) Practical laboratories	312	Catalan	first semester	morning-mixed
(PLAB) Practical laboratories	313	Catalan	first semester	morning-mixed
(PLAB) Practical laboratories	314	Catalan	first semester	morning-mixed
(PLAB) Practical laboratories	411	Catalan	first semester	morning-mixed
(PLAB) Practical laboratories	412	Catalan	first semester	morning-mixed
(PLAB) Practical laboratories	413	Catalan	first semester	morning-mixed
(PLAB) Practical laboratories	414	Catalan	first semester	morning-mixed

(PLAB) Practical laboratories	511	Catalan	first semester	morning-mixed
(PLAB) Practical laboratories	512	Catalan	first semester	morning-mixed
(PLAB) Practical laboratories	513	Catalan	first semester	morning-mixed
(TE) Theory	1	Catalan	first semester	morning-mixed
(TE) Theory	2	Catalan	first semester	morning-mixed
(TE) Theory	3	Catalan	first semester	morning-mixed
(TE) Theory	4	Catalan	first semester	morning-mixed
(TE) Theory	5	Catalan	first semester	morning-mixed