

Fundamentals of Psychobiology II

Code: 102606
ECTS Credits: 9

2025/2026

Degree	Type	Year
Psychology	FB	1

Contact

Name: Sílvia Fuentes García

Email: silvia.fuentes@uab.cat

Teachers

Margalida Coll Andreu

Roser Nadal Alemany

Meritxell Torras Garcia

Jordi Silvestre Soto

Soleil Garcia Brito

Ignacio Javier Marin Blasco

Maria Pons Vizcarra

Elena Martin Garcia

Sílvia Fuentes García

Teaching groups languages

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

Prerequisites

There are no prerequisites, but the knowledge acquired in the first semester (Foundations of Psychobiology I) is assumed.

Objectives and Contextualisation

Psychology is an incredibly rich discipline, including aspects related to health, society, education, work, justice, etc. Knowledge of behaviour and the mind requires, among others, an understanding of the biological bases that support them. This is the aim of Psychobiology in general and of those compulsory subjects in the 2nd year (Physiological Psychology I and Physiological Psychology II), as well as several optional subjects in the 4

th year. In order to be able to understand the biological substrate of behaviour and mental processes it is necessary to previously understand the components and functioning of the nervous and endocrine systems, as well as the fundamental genetic mechanisms.

Objectives

At the end of the course the student will:

- Understand how genes and environment act to influence the behaviour and the different psychopathologies.
- Recognize and distinguish between different types of inheritance. Interpret and draw conclusions from data provided through graphics, histograms, etc.
- Use the knowledge acquired to apply it to genetic counselling, justifying the actions in each case presented.
- Describe the main features of the organization of the nervous system in invertebrates and vertebrates.
- Understand the main aspects of the morphological and histological development of the nervous system.
- Demonstrate knowledge of the main milestones of nervous system maturation throughout childhood and adolescence, and their relationship with behavioural and mental capacities.
- Understand the significance of some aspects of the development of the nervous system being dependent on experience.
- Describe the main mechanisms of degeneration of the nervous system and explain the anatomical and functional regenerative capacities of the central and peripheral nervous system.
- Describe the structure and organization of the main subdivisions of the nervous system.
- Relate the different parts of the central and peripheral nervous system with the functional aspects more directly linked to each one of them.
- Locate, on maps, models, three-dimensional computer images, etc., the main regions of the brain and the spinal cord.

Competences

- Identify and describe the processes and stages in psychological development through the life cycle.
- Identify, describe and relate the biology of human behaviour and psychological functions.
- Recognise the determinants and risk factors for health and also the interaction between people and their physical and social environment.
- Use different ICTs for different purposes.
- Work in a team.

Learning Outcomes

1. Explain the key features of the anatomical and functional organization of the human nervous and neuroendocrine systems and their phylogenetic and ontogenetic evolution of the person and his physical and social environment.
2. Explain the mutual interaction between the physical and social environment of the person and the genetic, hormonal and neural factors.
3. Identify, discover and relate genetic bases of behaviour.
4. Identify molecular and cell bases of inheritance and the main chromosome anomalies.
5. Relate the highlights of the development, maturation and aging of the nervous system with the main stages of psychological development system.
6. Use different ICTs for different purposes.
7. Work in a team.

Content

SECTION A. GENETIC BASES OF BEHAVIOUR

Unit A1. What is Behavioural Genetics?

Unit A2. How do genes work?

Unit A3. How do environments exert their influence on behaviour?

Unit A4. How is genetic research on behaviour conducted?

Unit A5. How mental disorders emerge? (I) Mendelian or monogenic inheritance

Unit A6. How mental disorders emerge? (II) Multifactorial inheritance

Unit A7. How mental disorders emerge? (III) Chromosomal abnormalities

Unit A8. How can we apply all this information?: The case of genetic counselling

SECTION B. NEUROANATOMY

Unit B1. Phylogenetic development of the nervous system

Unit B2. Gross anatomy and systems of protection of the nervous system

Unit B3. Spinal cord

Unit B4. Brainstem

Unit B5. Cerebellum

Unit B6. Diencephalon

Unit B7. Nuclei of the cerebral hemispheres

Unit B8. Cerebral cortex

Unit B9. Sensomotor pathways and centers

Unit B10. Homeostasis control systems

Unit B11. Ontogenetic development of the nervous system

Unit B12. Degeneration and regeneration of the nervous system

Activities and Methodology

Title	Hours	ECTS	Learning Outcomes
<hr/>			
Type: Directed			
Master classes (whole group)	48	1.92	1, 3, 4, 5
Practical sessions	23	0.92	2, 1, 3, 4, 5, 7
Workshops (OE group)	6	0.24	1, 6
<hr/>			
Type: Supervised			
Tutorials (on line and one-to-one)	15	0.6	2, 1, 3, 4, 5, 6

Type: Autonomous				
Documentation	13	0.52	2, 1, 5, 6	
Section A Project	21	0.84	3, 4	
Software for nervous system visualization	13	0.52	1	
Study	70.5	2.82	2, 1, 3, 4, 5, 6	
Unit B9 preparation	11	0.44	1	

The teaching methodology is based on different types of learning activities. Depending on the case, master classes, seminars, laboratory practices, supervised and autonomous activities will be performed. Different activities based on students-focused active learning methodologies involving problem solving are also proposed.

With the aim of ensuring coherence and transparency in the use of artificial intelligence (AI) and specific assessable activities:

"In this subject, the use of artificial intelligence (AI) technologies is not allowed at any stage. Any work that includes AI-generated content will be considered a breach of academic integrity and may result in a partial or total penalty in the grade for the activity, or more serious sanctions in severe 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

Continous Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Evidence 1a. Continuous Project in Behavioural Genetics, classroom	17%	0	0	3, 4, 7
Evidence 1b. Exam of the first block of Behavioral Genetics. Individual, written, face to face	8.5%	1	0.04	2, 3, 4
Evidence 1c. Exam of the second t block of Behavioral Genetics. Individual, written, face to face	8.5%	1	0.04	2, 3, 4
Evidence 2a. Exam of the first block of neuroanatomy (individual, written, face to face)	25%	1	0.04	2, 1, 5, 6
Evidence 2b. Neuroanatomy exam (individual, written, face to face)	41%	1.5	0.06	2, 1, 5, 7, 6

Assessment (learning evidences)

The subject will be assessed based on the following learning evidences:

EV1. There are three evidences, corresponding to a 34% of the final grade, and include contents of Behavioural genetics (Section A). The evidences are:

EV1a (17% of the final grade): Continuous work to solve Behavioural genetics cases corresponding to Section A. This work will be carried out both individually and as a group throughout several sessions in the classroom (½ group seminars), as well as autonomously outside the classroom. Timing: Continuously throughout the semester, with ongoing close interactions between the whole group classes (master classes) and the ½ group seminars of this section.

EV1b (8.5% of the grade): Individual written exam. This will assess knowledge of Block B content taught up to that point, using multiple-choice and open-ended questions. Timing: First evaluation week.

EV1c (8.5% of the grade): Individual written exam. This will assess knowledge of Block B content taught up to that point, using multiple-choice and open-ended questions. Timing: Second evaluation week.

The EV1a grade (ongoing work) will only be taken into account if the combined grade of EV1b and EV1c is at least 4.5 out of 10. If this requirement is met, the overall grade for Block A will be calculated using the weighted sum of EV1a + EV1b + EV1c.

Return of EV1a, EV1b, and EV1c:

- EV1a: Feedback will be provided continuously during the practical sessions.
- EV1b: Classroom tutorial. Week 10 (EV1b)
- EV1c: Tutorial. Week 26 (EV1c)

EV2. It includes 2 evidences, with a global weight of 66% of the final grade, and it corresponds to Section B of Neuroanatomy. The evidences are:

- EV2a (25% of the grade): Individual written exam. This will assess knowledge of Block B content taught up to that point, using multiple-choice and open-ended questions. Timing: First evaluation week.
Return of EV2a: In the large group class session after the assessment has been completed and once it has been graded. Week 10

EV2b (41% of the grade): Individual written exam. This will assess comprehension and integration of the full content of Block B, using multiple-choice and open-ended questions. Timing: Second evaluation week. Return of EV2b: During a tutorial after the grades have been published. Week 26

The overall grade for Block B will be calculated using the weighted average of the grades from EV2a and EV2b.

Definition of "Passed Subject" and Final Grade Calculation

A student will be considered to have passed the subject when both of the following conditions are met:

- a) They have achieved a minimum score of 5 out of 10 in the weighted average of both blocks.
- b) They have obtained a minimum of 4.5 out of 10 in both Block A and Block B.

If both conditions are met, the final grade will be the weighted sum of both blocks.

If condition (b) is not met, the final grade will also be calculated using the weighted sum of both blocks, but with an upper limit of 4.5 (i.e., if the weighted average exceeds 4.5, the final grade will be 4.5 instead of the actual result).

Definition of Non-Assessable

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 NA (Non-Assessable).

Resit Exams

All resit-related information applies equally to students who followed continuous assessment and those who opted for single assessment.

Students will be eligible to sit the resit exam(s) if they meet both of the following conditions:

- They have completed assessment activities accounting for at least 66.7% of the total grade. Students who complete between 40% and 66.6% will be assessable but not eligible for resits.
- They did not meet the passing criteria but achieved a grade equal to or above 3.5 and below 5 out of 10 in the overall subject.

There will be two types of resit exams, one for Block A and one for Block B. Students who meet the above criteria must take the resit for the block(s) in which they scored below 4.5/10.

Students who did not pass the subject despite having scores equal to or above 4.5 in both blocks may choose to take the resit exam for one or both blocks.

- Block A Resit: A written exam consisting of general content questions, including multiple-choice and open-ended questions from the entire Block A.
- Block B Resit: A written exam on the entire content of Block B, including multiple-choice and open-ended questions.

The requirements for passing the subject and the final grade calculation after the resits are the same as in the "Definition of Passed Subject and Final Grade Calculation" section, except that if the subject is passed in the resit, the final grade recorded will be a 5.

Single Assessment

Requesting a single assessment implies waiving the right to continuous assessment.

The single assessment will be held on the same day and in the same location as the second evaluation period exam, and it will cover all content of the subject. It will consist of two written exams: one covering all content from Block A (EV1; 34% of the grade), and another covering all content from Block B (EV2; 66% of the grade). Duration: 3 hours and 30 minutes, with a 15-minute break between the two exams.

The final grade will be calculated as described in the "Definition of Passed Subject and Final Grade Calculation" section.

The single assessment must be requested online (e-form, more information on the faculty website) during the designated period.

It is recommended that students contact the subject coordinator at least two weeks before the single assessment.

Students registered 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 evaluation guidelines of the Faculty of Psychology can be checked:

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

Language note

Written exams will be conducted primarily in Catalan. The translated version of the in-person assessment tests will be provided if the requirements set out in Article 263 are met and the request is submitted online (E-Form) during week 4.

Bibliography

Basic bibliography for section A (Genetic bases of behaviour)

Darbra i Marges, Sònia i Martín-García, Elena (2017). Mecanismos de la herencia humana: modelos de transmisión genética y anomalías cromosómicas. En D. Redolar (Ed.), Fundamentos de Psicobiología. Madrid: Editorial Panamericana.

Martí Carbonell, M^a Assumpció i Darbra, Sònia. Genètica del Comportament. (2006) Servei de Publicacions UAB.

Basic bibliography for section B (Neuroanatomy)

In Spanish:

Bear, Mark F; Connors, Barry W; Paradiso, Michael A. (2016). Neurociencia. La exploración del cerebro (4^aedición). Barcelona: Wolters Kluwer. (Capítols 7 i 23)

Carlson, Neil R.; Birkett, Melissa A. (2018). Fisiología de la Conducta (12a edició). Madrid: Pearson Educación. (Capítol 3) (paperback and online:

https://www-ingebbookom.are.uab.cat/ib/NPcd/IB_BooksVis?cod_primaria=1000187&codigo_libro=7811

Crossman, Alan R. i Neary, David (2019). Neuroanatomía: texto y atlas en color. Elsevier. (online: <https://www-clinicalkey-com.are.uab.cat/student/content/toc/3-s2.0-C2019000684X>) (en paper, edició del 2015)

Felten, David L; O'Banion, M Kerry; Maida, Mary E. (2016). Netter. Atlas de Neurociencia (3^a edició). Barcelona: Elsevier. (Paperback and online 2017:

<https://www-clinicalkey-com.are.uab.cat/student/content/toc/3-s2.0-C20160001870>

Nolte, Jack (2009) El encéfalo humano en fotografías y esquemas (3^a edició). Barcelona: Elsevier.

García-Porrero Pérez, Juan A. i Hurlé González, Juan M. (2015). Neuroanatomía humana. Editorial Médica Panamericana. (online:

<https://www-medicapanamericana-com.are.uab.cat/VisorEbookV2/Ebook/9788498358575#{%22Pagina%22:%22%22}>

In English:

Bear, Mark F.; Barry W. Connors; Paradiso, Michael A. (2016) Neuroscience: exploring the brain (4th edition). Philadelphia: Wolters Kluwer.

Carlson, Neil R.; Birkett, Melissa A. (2017) Physiology of Behavior (12th edition). Harlow, Essex: Pearson Education (online: <https://ebookcentral-proquest-com.are.uab.cat/lib/UAB/detail.action?docID=5186462>)

Felten, David L, M. Kerry O'Banion, Mary Summo Maida. (2016). Netter's atlas of Neuroscience (3rd edition) Philadelphia: Elsevier. (online:

<https://www-sciencedirect-com.are.uab.cat/book/9780323265119/netters-atlas-of-neuroscience>

Nolte, Jack (2010). Essentials of the human brain. Philadelphia, PA: Mosby/Elsevier.

Vanderah, Todd W. i Gould, Douglas (2015). Nolte's The human brain. An introduction to its functional anatomy (7th edition) Philadelphia, USA: Elsevier. (online:

<https://ebookcentral-proquest-com.are.uab.cat/lib/uab/detail.action?pq-origsite=primo&docID=2036217>

Vanderah, Todd W (2020). Nolte's The human brain in photographs and diagrams. (5th Edition) Philadelphia, PA: Elsevier. (paperback, Science and technology library, UAB)

Complementary Bibliography (Spanish and English)

Del Abril, Águeda, Ambrosio, Emilio, Caminero, Ángel A, García, Carmen, de Blas M^a del Rosario, de Pablo, Juan M., Higuera, Alejandro (2016) Fundamentos de Psicobiología. Madrid. Sanz y Torres.

Diamond, Marian C i Scheibel, Arnold B. (2014). El cerebro humano: libro de Trabajo. Barcelona: Ariel.

Haines, Duane E. (2013). Principios de Neurociencia. Aplicaciones básicas y clínicas. (4^a edició). Barcelona: Elsevier. (paperback and online:
<https://cienciasbasicas-lwwhealthlibrary-com.are.uab.cat/book.aspx?bookid=2873>)

Kiernan, John A. i Rajakumar, Raj (2014). Barr. El Sistema Nervioso Humano (10ena edició). Barcelona: Wolters Kluwer Health España.

Kolb, Bryan; Whishaw, Ian Q. (2017). Neuropsicología humana. (7^a edició). Madrid: Editorial Médica Panamericana.

Purves, Dale (2016). Neurociencia. Editorial Médica Panamericana. (online:
<https://www-medicapanamericana-com.are.uab.cat/VisorEbookV2/Ebook/9788498359831#%22Pagina%22%22%22>)

Software

N/A

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	second semester	morning-mixed
(PAUL) Classroom practices	12	Catalan	second semester	morning-mixed
(PAUL) Classroom practices	21	Catalan	second semester	morning-mixed
(PAUL) Classroom practices	22	Catalan	second semester	morning-mixed
(PAUL) Classroom practices	31	Catalan	second semester	morning-mixed
(PAUL) Classroom practices	32	Catalan	second semester	morning-mixed
(PAUL) Classroom practices	41	Catalan/Spanish	second semester	morning-mixed
(PAUL) Classroom practices	42	Catalan	second semester	morning-mixed
(PAUL) Classroom practices	51	Catalan	second semester	morning-mixed
(PAUL) Classroom practices	52	Catalan	second semester	morning-mixed
(PLAB) Practical laboratories	111	Catalan	second semester	morning-mixed
(PLAB) Practical laboratories	112	Catalan	second semester	morning-mixed
(PLAB) Practical laboratories	113	Catalan	second semester	morning-mixed
(PLAB) Practical laboratories	114	Catalan	second semester	morning-mixed

(PLAB) Practical laboratories	211	Catalan	second semester	morning-mixed
(PLAB) Practical laboratories	212	Catalan	second semester	morning-mixed
(PLAB) Practical laboratories	213	Catalan	second semester	morning-mixed
(PLAB) Practical laboratories	214	Catalan	second semester	morning-mixed
(PLAB) Practical laboratories	311	Catalan	second semester	morning-mixed
(PLAB) Practical laboratories	312	Catalan	second semester	morning-mixed
(PLAB) Practical laboratories	313	Catalan	second semester	morning-mixed
(PLAB) Practical laboratories	314	Catalan	second semester	morning-mixed
(PLAB) Practical laboratories	411	Catalan	second semester	morning-mixed
(PLAB) Practical laboratories	412	Catalan	second semester	morning-mixed
(PLAB) Practical laboratories	413	Catalan	second semester	morning-mixed
(PLAB) Practical laboratories	414	Catalan	second semester	morning-mixed
(PLAB) Practical laboratories	511	Catalan	second semester	morning-mixed
(PLAB) Practical laboratories	512	Catalan	second semester	morning-mixed
(PLAB) Practical laboratories	513	Catalan	second semester	morning-mixed
(TE) Theory	1	Catalan	second semester	morning-mixed
(TE) Theory	2	Catalan	second semester	morning-mixed
(TE) Theory	3	Catalan	second semester	morning-mixed
(TE) Theory	4	Catalan	second semester	morning-mixed
(TE) Theory	5	Catalan	second semester	morning-mixed