

**Physiological Psychology II**

Code: 102546  
ECTS Credits: 6

Degree	Type	Year	Semester
2502443 Psychology	OB	2	2

### Contact

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### Use of Languages

Principal working language: catalan (cat)

Some groups entirely in English: No

Some groups entirely in Catalan: Yes

Some groups entirely in Spanish: No

### Teachers

Laura Aldavert Vera

Margarita Martí Nicolovius

Ignacio Morgado Bernal

Marta Portero Tresserra

Carles Soriano Mas

### Prerequisites

There are no prerequisites, but the knowledge acquired in the subjects Foundations of Psychobiology I and II is assumed.

### Objectives and Contextualisation

The general objective of the subject is learn about the biological bases of sleep and waking, motivated behaviours, emotions, and learning and memory processes.

At the end of the course, students will be able to do the following.

1. Describe the neurobiological bases of sleep and waking, sleep functions and some disorders of sleep.
2. Explain the neurobiological bases and the functions of the reward system, and identify the neurobiological changes underlying addiction.
3. Describe the neural and hormonal control of different motivated behaviours such as ingestive behavior and sexual and parental behaviours.
4. Explain the neurobiological bases of emotions and their functions.
5. Describe the neurobiological bases of the learning and memory processes.

### Competences

- Analyse scientific texts written in English.

- Develop critical thought and reasoning and be able to communicate them effectively, both in your own language and second or third languages.
- Develop strategies for autonomous learning.
- Identify, describe and relate the biology of human behaviour and psychological functions.
- Identify, describe and relate the structures and processes involved in basic psychological functions.
- Maintain a favourable attitude towards the permanent updating through critical evaluation of scientific documentation, taking into account its origin, situating it in an epistemological framework and identifying and contrasting its contributions in relation to the available disciplinary knowledge.
- 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. Analyse scientific texts written in English.
2. Analyse the influence of the determinant physical and social factors on neurobiology of mental processes for the purpose of understanding the bases of health psychology.
3. Describe the changes in the in sleep-wake rhythms in relation to changes in the underlying neurophysiological and neurohormonal mechanisms.
4. Describe the neuronal circuits, the neurophysiological, neurochemical and hormonal mechanisms in motivated behaviours.
5. Describe the neuronal circuits, the neurophysiological, neurochemical and hormonal mechanisms involved in emotions.
6. Describe the neuronal circuits, the neurophysiological, neurochemical and hormonal mechanisms involved in learning from memory.
7. Describe the neuronal circuits, the neurophysiological, neurochemical and hormonal mechanisms involved in the rhythms of sleep and wakefulness.
8. Develop critical thought and reasoning and be able to communicate them effectively, both in your own language and second or third languages.
9. Develop strategies for autonomous learning.
10. Evaluate the contributions of a psychobiological approach to advancing understanding of the rhythms of sleep and wakefulness.
11. Evaluate the contributions of a psychobiological approach to advancing understanding of the rhythms of the neurobiological basis of learning and memory.
12. Evaluate the contributions of a psychobiological approach to advancing understanding of the rhythms of the neurobiological basis of motivated behaviours (hunger, thirst, sexual and parental behaviour).
13. Evaluate the contributions of psychobiological approach to advancing understanding of neurobiological basis of emotion.
14. Evaluate the interrelationship between the neurobiological, educational and social approaches to explaining normal and pathological human behaviour.
15. Identify and recognise the mutual interaction between the physical and social environment of the person and the genetic, hormonal and neural factors that affect health.
16. Maintain a favourable attitude towards the permanent updating through critical evaluation of scientific documentation, taking into account its origin, situating it in an epistemological framework and identifying and contrasting its contributions in relation to the available disciplinary knowledge.
17. Relate neuroanatomical, neurophysiological and neurohormonal alterations with disorders of sleep-wakefulness rhythms.
18. Relate neuroanatomical, neurophysiological and neurohormonal alterations with motivated behavioural disorders.
19. Relate neuroanatomical, neurophysiological, neurohormonal, and genetic alterations with emotional disorders.
20. Relate neuroanatomical, neurophysiological, neurohormonal, and genetic alterations with learning and memory disorders.
21. Relate sleep-wake rhythms to their neuronal bases and neurophysiological, hormonal and genetic underlying mechanisms.
22. Use different ICTs for different purposes.
23. Work in a team.

## **Content**

### Unit 1. SLEEP AND WAKING

1. Circadian rhythms
2. Behavioural and physiological characteristics of sleep and waking
3. Neural mechanisms
4. Functions of sleep

### Unit 2. REWARD

1. Motivational systems
2. Neural mechanisms of reward systems
3. Addiction

### Unit 3. INGESTIVE BEHAVIOR

1. Digestion and metabolism
2. Peripheral regulation of mechanisms of eating
3. Neural control of eating
4. Thirst

### Unit 4. SEXUAL AND PARENTAL BEHAVIOURS

1. Sexual hormones: organizational and activational effects
2. Neural control of sexual behavior
3. Pheromones
4. Parental behaviour

### Unit 5. EMOTION

1. Nature of emotions and feelings
2. Functions of emotions
3. Neural control of emotions

### Unit 6. LEARNING AND MEMORY

1. Nature of learning and memory
2. Synaptic plasticity
3. Implicit learning and memory
4. Explicit learning and memory
5. Working memory

## Methodology

### DIRECTED ACTIVITY (30%)

a) Master Classes (WHOLE GROUP, 11 weeks).

- Master classes with ICT support and questions for debate.
- Practical exercises and problem solving.
- Viewing and discussing short videos.

b) Seminars (GROUP 1/2, 4 weeks).

- Development of cooperative team work.
- Reading of papers and other texts.
- Practical exercises and self-evaluation.
- Problem solving and debates.
- Development of cooperative team work.

c) Workshops (GROUP 1/4, 2 weeks),

- Models of the digestive system, the nervous system: anatomy and physiology activities, and problem solving exercises.
- Small-group exercises on learning and memory.

### SUPERVISED ACTIVITY (5%)

Tutorials. Online and one-to-one.

- Correction and supervision of the key questions of the syllabus.
- Reflections on readings.
- Clarifying doubts.
- Individualized study strategies.

### AUTONOMOUS ACTIVITY (60%)

- Documentation.
- Comprehensive reading of materials (books, scientific papers, outreach articles, webs).
- Study of basic concepts of the subject (conceptual maps, synthesis).
- Team project to create an oral presentation and discussion.
- Exercises and activities for continuous evaluation and self-evaluation.
- Regular participation in communication forums, and other spaces of the Moodle platform, coordinated by the teacher.

### ASSESSMENT ACTIVITY (5%)

- Individual oral and/or written tests (multiple-choice, open questions and/or practical exercises).
- Oral presentation and written abstract.
- Tasks and activities (carried out in class or at home).

## Activities

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Master classes with ICT support	33	1.32	2, 7, 6, 4, 5, 15, 18, 17, 20, 19, 14
Seminars (8h) and Workshops (4h)	12	0.48	1, 7, 6, 4, 5, 9, 8, 18, 17, 20, 19, 23, 22
Type: Supervised			
Tutorials. Online and/or one-to-one	7.5	0.3	9, 16, 23, 22

Type: Autonomous

Comprehensive reading of materials (books, scientific papers, outreach articles, webs)	20	0.8	1, 7, 6, 4, 5, 3, 9, 18, 17, 20, 19, 22, 13, 11, 12, 10
Documentation	12	0.48	1, 9, 22
Exercises and activities	13	0.52	2, 7, 6, 4, 5, 15, 18, 17, 20, 19, 22, 14
Study of basic concepts of the subject (conceptual maps, synthesis)	36.5	1.46	2, 7, 6, 4, 5, 15, 14, 13, 11, 12, 10
Team project to create an oral presentation and discussion	12	0.48	1, 9, 8, 16, 23, 22

## Assessment

The evaluation of the subject is based on a continuous assessment through different tests and activities in which the students have to demonstrate that they have achieved the corresponding competences and learning results. It consists of 4 learning evidences:

1. EV1. Learning Evidence 1 (compulsory). Written or oral individual test (multiple-option, development and/or short questions). Topics of master, seminar and workshop classes on Units 1, 2 and 3 (35% of final grade).
2. EV2. Learning Evidence 2 (compulsory). Written or oral individual test (multiple-option, development and/or short questions). Topics of master, seminar and workshop classes on Units 1, 2, 3, 4, 5 and 6 (40% of final grade).
3. EV3. Learning Evidence 3 (optional, seminars). Teamwork: Short oral presentation, discussion, and written abstract (20% of final grade). In each seminar 3 projects are presented.
4. EV4. Learning Evidence 4 (optional): Exercises and tasks, carried out in class or at home (5% of final grade).

The evaluation criteria will be the following.

- a) Provision of compulsory learning evidences, EV1 and EV2.
- b) Students providing learning evidences with a weight equal to or greater than 40% will be considered evaluable.
- c) The final grade will be obtained from the weighted average of all the assessment activities carried out.
- d) The subject will be passed with a weighted average (of all the evidences provided) equal to or greater than 5 points out of 10, with a minimum of 3.5 points (on a scale of 0 to 10) in each of the 2 compulsory evidences (EV1 and EV2). If these requirements in section d are not met, the maximum grade that can be obtained is 4.9 points.
- e) Only those students who have completed the compulsory evidences (EV1 and EV2) but have obtained a continuous assessment grade (EV1 + EV2 + EV3 + EV4) of less than 5 points and equal to or greater than 3.5 points out of 10 can opt for the reassessment test. The test will consist of the repetition of one of the compulsory learning evidences (usually the lower graded one) according to the teacher's criteria. The criterion to pass the reassessment will be the same as for section d, and the grade of the reassessed evidence will be replaced. Thus, a minimum score of 3.5 in the evidence to be reassessed (EV1 or EV2) must be obtained in order to be able to pass the subject (overall grade greater than 5). The highest possible grade will be 7 out of 10. If the established requirements are not fulfilled, the highest grade that may be included in the academic record is 4.9 points.
- f) Students of second or subsequent enrolments may choose, before the date specified at the beginning of the course, to follow the continuous assessment or take an integrative test, which will consist of a written test with questions on the whole subject, with no option to be reassessed.

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Link to the Evaluation Guidelines of the Faculty of Psychology:

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

## Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
EV1. Written or oral individual test (multiple-option, open question and/or short questions)	35%	2	0.08	2, 1, 7, 4, 3, 9, 8, 15, 21, 18, 17, 14, 12
EV2. Written or oral individual test (multiple-option, development and/or short questions)	40%	2	0.08	2, 1, 6, 4, 5, 9, 8, 15, 18, 20, 19, 14, 13, 11, 12
EV3 (Optional). Teamwork: Short oral presentation, discussion, and written abstract	20%	0	0	2, 1, 7, 6, 4, 5, 3, 9, 8, 15, 16, 21, 18, 17, 20, 19, 23, 22, 14, 13, 11, 12
EV4 (Optional). Exercises and tasks, carried out in class or at home	5%	0	0	1, 9, 16, 22, 13, 11, 12, 10

## Bibliography

- Bear, Mark F.; Connors Barry W.; Paradiso, Michael A. (2016) Neuroscience: Exploring the brain (4th ed) Wolters Kluwer.
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- Carlson Neil R.; Birkett, Melissa A. (2019). Fisiología de la conducta (12 edició). Madrid: Pearson.
- Collado Guirao, Paloma; Guillamón Fernández, Antonio; Pinos Sánchez, Helena; Rodríguez-Zafra, Mónica; Claro Izaguirre, Francisco; Carrillo, Beatriz (2017) Psicología Fisiológica. Madrid: UNED.
- Morgado Bernal, Ignacio (2007) Emociones e inteligencia social: las claves para una alianza entre los sentimientos y la razón. Barcelona: Ariel.
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- Morgado Bernal, Ignacio (2017) Emociones corrosivas. Barcelona:Ariel.
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- Purves, Dale; Augustine, George J.; Fitzpatrick, David; Hall, William C.; Lamantia, Anthony-Samuel; White, Leonard E. (2012) Neuroscience (5th ed). Oxford University Press.
- Rosenzweig, Mark R., Breedlove, S.Marc; Watson, Neil V.(2005) Psicobiología. Una introducción a la neurociencia conductual, cognitiva y clínica (2ª edició actualitzada). Barcelona: Ariel.