

**Behavioural Physiology**

Code: 100805  
ECTS Credits: 6

| Degree          | Type | Year | Semester |
|-----------------|------|------|----------|
| 2500250 Biology | OT   | 4    | 0        |

**Contact**

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**Use of Languages**

Principal working language: spanish (spa)  
Some groups entirely in English: No  
Some groups entirely in Catalan: No  
Some groups entirely in Spanish: Yes

**Prerequisites**

Have approved the subject of Neurophysiology and Endocrinology

**Objectives and Contextualisation**

Know the basic concepts of ethology and the theoretical basis of different aspects of behavior in animals and humans

Know the neurobiological substrate that regulates behavior in animals and humans

Identify the keys of the behavior and understand the physiological mechanisms of regulation of the same

Train the student to understand the biological basis of behavioral alterations in animals and humans

Acquire the practical skills necessary to understand, program and carry out experiments related to the physiological regulation of behavior.

**Competences**

- Analyse and interpret the origin, evolution, diversity and behaviour of living beings.
- Be able to analyse and synthesise
- Be able to organise and plan.
- Develop critical thinking and reasoning and communicate ideas effectively, both in the mother tongue and in other languages.
- Develop independent learning strategies.

**Learning Outcomes**

1. Be able to analyse and synthesise.
2. Be able to organise and plan.
3. Develop critical thinking and reasoning and communicate ideas effectively, both in the mother tongue and in other languages.
4. Develop independent learning strategies.

5. Identify, enumerate, describe, interpret, explain and summarise the neuro-endocrine bases of animal behaviour.

## **Content**

1. The study of behavior and its biological bases: historical aspects.
2. The plasticity of the behavior at ontogenetic and phylogenetic level. Instinct versus learning.
3. Hormones and behavior: bidirectional relationships between the nervous system and the endocrine system. Conceptual aspects.
4. Biological rhythms: physiological bases and implications.
5. General concept of motivation and reinforcement. Thirst.
- 6-8. Food intake behavior. Endocrine and neurobiological substrate. Pathological alterations of feeding behavior (obesity, anorexia and bulimia).
- 9-10. Social behavior and intra-specific interactions: general aspects. Territoriality Relationships of hierarchy and dominance.
11. Neurobiological bases of inter-specific and intra-specific aggression.
- 12-14. Behavior and reproduction. Parental behavior. Physiological bases.
- 15-18. Emotions. Concept and types of emotions. The expression of emotions and emotional behavior. Integration of emotion and motivation. The contribution of physiology to the conceptual study of emotions.
- 19-20. Physiological response to emotional situations and stress. Physiological and pathological implications.
- 21-23. Learning and memory concept. Types of learning and factors that modify it.
- 24-25. Biological bases and nervous circuits involved in different types of learning.
- 26-30. Biological bases of psychiatric pathology (seminars).

## **Methodology**

Theoretical classes:

Systematized exposition of the content of the subject, giving special relevance to the concepts related to the behavior (since they constitute the basis of what will be regulated), to the evolutionary flexibility of the behavior and to the biological mechanisms and areas of the nervous system involved in the regulation of normal and pathological behavior.

Seminars and problems:

Preparation and discussion of topics related to psychiatric pathologies

Practices:

Understanding and realization of various animal models (in rodents) with translational value in psychiatry. The experimental results obtained will be analyzed and discussed.

Tutorials:

They will be done in a personalized way in the teacher's office (hours to be arranged) or collectively at scheduled times. Their objectives are to clarify doubts and concepts.

## Activities

| Title                                   | Hours | ECTS | Learning Outcomes |
|---|-------|------|-------------------|
| Type: Directed                          |       |      |                   |
| Laboratory Practices                    | 12    | 0.48 | 4, 3, 5, 1, 2     |
| Seminars                                | 8     | 0.32 | 4, 3, 5, 1, 2     |
| Theoretical classes                     | 32    | 1.28 | 4, 3, 5, 1, 2     |
| Type: Supervised                        |       |      |                   |
| Tutorial                                | 5     | 0.2  | 4, 3, 1, 2        |
| Type: Autonomous                        |       |      |                   |
| Problem resolution and analysis of data | 28    | 1.12 |                   |
| study                                   | 60    | 2.4  | 4, 3, 5, 1, 2     |

## Assessment

The evaluation will be based on theoretical tests (questions to be developed), seminars and practical classes. Th

Theory, seminars and practices will be evaluated separately. Of theory two partial will be made that will have to b

In the final exam: (a) if it is submitted to a part of the subject, it must be approved independently of the grade obtained in the other part; (b) if presented at all, the overall score will be taken into account.

Attendance at practical sessions is mandatory. The students would obtain the grade of "Not Valuable" when their absence is superior to 20% of the programmed sessions.

To participate in the recovery, students must have been previously evaluated in a set of activities the weight of which equals a minimum of two thirds of the total grade of the subject or module. Therefore, the students will obtain the "Not Valuable" qualification when the evaluation activities carried out have a weight lower than 67% in the final grade.

## Assessment Activities

| Title                | Weighting | Hours | ECTS | Learning Outcomes |
|----------------------|-----------|-------|------|-------------------|
| Laboratory Practices | 15%       | 1     | 0.04 | 4, 3, 1, 2        |
| Seminars             | 15%       | 2     | 0.08 | 4, 3, 1, 2        |

**Bibliography**

Eibl-Eibesfeldt I: Etología: introducción al estudio comparado del comportamiento, Ediciones Omega, Barcelona, 1979

Carlson NR and Birkett MA: Physiology of Behavior, 12 ed., Pearson, 2017

Kalat JM: Biological Psychology, 10 ed., Wadsworth, 2009

Breedlove SM, Watson NV, Rosenzweig MR: Biological Psychology: an introduction to behavioral, cognitive and clinical neuroscience, 10 ed., Sinauer Assoc., 2010

Squires LR et al: Fundamentals Neuroscience, Elsevier, 2012.

Kandel ER et al: Principles of neural science, McGraw Hill, 2013