

## PHYSIOLOGICAL PSYCHOLOGY – Code 800159

Academic Year 2022-23

### COURSE INFORMATION

**Undergraduate Studies:** 0812 – Degree in Psychology (Studies Plan 2009-10)

**Type:** Compulsory

**ECTS:** 6.0

**Module:** Basic psychological training

**Area:** Biological bases of behaviour

**Year:** Second

**Semester:** 2

### INSTRUCTOR INFORMATION

**Name:** KORA MAREEN KATHARINA BUHLER

**Mail:** kobuhler@ucm.es

**Office number:** 2013

**Office hours:** upon appointment

**Name:** IGNACIO OBESO MARTÍN

**Mail:** iobeso@ucm.es

**Office number:** 2013

**Office hours:** 2006F

### SYNOPSIS

#### COMPETENCIES

##### General competencies

GC4: Know and understand the biological foundations of human behaviour and psychological functions

##### Transversal competencies

TC1: Analysis and synthesis.

TC2: Preparation and defence of properly reasoned arguments.

TC5: Be able to interpret relevant data within the Psychobiology area to pass judgements that include a reflection about relevant social, scientific or ethic items.

TC6: Work in team and collaborate with other professionals

TC7: Critical thinking and, in particular, capability for self-criticism

TC8: Learning abilities needed to undertake posterior studies with high independence and, in particular, to the development and updated maintenance of professional, competences, skills and knowledge.

TC9: Transmission of information, ideas, problems and solutions to a specialized and non-specialized audience.

##### Specific competencies

SC4: Be able to describe and measure variables (personality, intelligence and other aptitudes, attitudes, etc.) and cognitive, emotional, psychobiological and behavioural processes).

##### Bilingual group competences

CTB10: Efficient access to specialized information in English

CTB11: capability to transmit specialized information in English

CTB12: Work in team and collaboration with English speaking professionals

CTB13: Developing learning abilities to continue future studies in an international network

#### TEACHING ACTIVITIES

### ECTs break-down

TEACHING ACTIVITIES	Hours	% of total credits	Attendance
Class sessions	45	30%	100%
Lab sessions	7	5%	100%
Tutorials	4	2.5 %	50%
Students' work (class assignments and time of study)	90	60%	0%
Assessment activities	4	2.5%	100%

### BRIEF DESCRIPTION:

This subject is subdivided in four different sections. Section I is an introductory section about the conceptualization of Physiological Physiology, method, subjects and variables of study. Section II is dedicated to sensorial integration (vision, audition and somatosenses) and sensorimotor integration, and each unit will be related to complex process such as attention and consciousness, language and music, or pain, respectively. Section III is about homeostasis, including sleep-wake behaviour, ingestive behaviour or reward. Section IV is dedicated to social behaviours, and includes neurobiological bases of sexual and parental behaviours, emotion and stress, and learning and memory.

### PRE-REQUISITES

The subjects Foundations of Psychobiology I and Foundations of Psychobiology II will help the student to understand better the contents of this subject.

### OBJECTIVES

1. To learn the conceptual and historical framework of Physiological Psychology
2. Interpretation of experimental results obtained by using psychobiological techniques.
3. Analysis of human behaviour as a result of different levels of organization in the nervous system (NS)
4. Analysis of the processing and integration of information by the NS and the response and adaptation of different brain mechanisms to the environment.
5. Understanding of visual and auditory processing of information by the NS as a general model of complex sensory processing.
6. Fundamentals of brain lateralization, speech, attention and consciousness.
7. To know the mechanisms of sleep/wake behaviour and other biological rhythms.
8. The knowledge of the biological mechanisms underlying the homeostasis in relation with the ingestive behaviour and the understanding of the mechanisms that regulate sexual, parental and social behaviours.
9. To know the reinforcement process, the brain reward systems and the neurobiological basis of the addictive behaviour.
10. Understanding of the physiological systems that regulate normal and altered emotional responses as well as the stress response.
11. Understanding of the neurobiological mechanisms underlying learning and memory.

### TOPICS

- The Nature of Physiological Psychology
- Visual integration, attention and consciousness
- Auditory integration and speech
- Sensorimotor integration.
- Biological rhythms. Sleep and wakefulness
- Homeostasis. Ingestive behaviour.
- Reward and drug addiction.

- Sexual, parental and social behaviours.
- Emotional behaviour and stress.
- Learning and memory

## ASSESSMENT

The subject Physiological Psychology comprises lectures, practical classes, seminars, student presentations, on-line activities and homework. There will be also complementary face-to-face and on-line tutorials available.

The evaluation of the above mentioned activities will be distributed as follows:

a) The acquired knowledge (lectures and seminars) will be evaluated by multiple-choice exams. The exams will score 70-80% of the total mark.

Recoverable in the extraordinary call (July).

b) The attendance to practices will be mandatory and a requirement to take the final exam. Knowledge acquired during the practices will be evaluated by a specific exam and/or notebook of practices. As a requirement to evaluate practices, the student must attend, at least, to 70% of them (i.e., 5 of 7 practices); otherwise, the student will score 0 in this section.

Recoverable in the extraordinary call: students who do not attend to the minimum of practices during the course must hang over the notebooks of practices to the professor AND take a practical exam in the extraordinary call.

c) The attendance to the practices, the participation in seminars and other activities, and the elaboration (originality, synthetic and analytical abilities) and presentation of the materials (student presentations, on-line activities and homework) will be positively evaluated. Such activities will score 20-30% of the final mark.

Non recoverable.

According to the law "artículo 5 del Real Decreto 1125/2003", the results obtained by the student will be grade from 0 to 10 (including one decimal) following a qualitative qualification:

0-4,9: Suspenso (SS). Fail

5,0-6,9: Aprobado (AP). Pass

7,0-8,9: Notable (NT). Outstanding

9,0-10: Sobresaliente (SB). Excellent

10: Matrícula de Honor (MH). With distinction

## RESOURCES

### Recommended manuals:

- **Breedlove, Watson and Rosenzweig.** *Biological Psychology: an introduction to behavioural, cognitive, and clinical neuroscience.* Sinauer Associates, Inc. Publishers, Sunderland, Massachusetts (2010, 6<sup>th</sup> edition).

**Carlson, N. R.** *Physiology of Behavior.* Pearson International Edition (2013, 11<sup>th</sup> edition). (E-book link, edition from 2014 <https://ucm.on.worldcat.org/oclc/955583665>)

- **Kalat, J.W.** *Biological Psychology.* Wadsworth Cengage Learning. Belmont, CA (2019, 13<sup>th</sup> edition)
- **Kolb B. & Whishaw I.Q.** *An introduction to Brain and Behavior.* Worth publishers. New York. (2011, 3<sup>rd</sup> edition)
- **Pinel J.P.J. & Barnes, S.** *Biopsychology.* Pearson Education, Boston (2021; 11<sup>th</sup> edition)

### Other manuals:

- **Bear, M.F., Connors, B.W. & Paradiso, M.A.** *Neuroscience: exploring the brain.* Walters Kluwer, Philadelphia (2015, 4<sup>rd</sup> edition)
- **Kandel, E.; Schwartz, J.H.; Jesseli, T.M., Siegelbaum, S.A., Hudspeth, A.J.** *Principles of Neural Science.* McGraw Hill. New York (2012, 5<sup>th</sup> edition)

- **Kolb B. & Whishaw I.Q.** *Fundamentals of Human Neuropsychology*. W.H. Freeman (2015, 7<sup>th</sup> edition)
- **Purves, D. et al.** *Neuroscience*. OUP, USA (2018, 6th edition)