# PHYSIOLOGICAL PSYCHOLOGY II

## 1. GENERAL

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| **SCHOOL** | SOCIAL SCIENCES | | |
| **DEPARTMENT** | PSYCHOLOGY | | |
| **LEVEL** | Undergraduate | | |
| **COURSE CODE** | Ψ-2402 | **SEMESTER** | 4th |
| **COURSE TITLE** | **PHYSIOLOGICAL PSYCHOLOGY II** | | |
| **COURSE INSTRUCTOR** | **Andreas Kastellakis**<br>Associate Professor of Physiological Psychology | | |
| **TEACHING ACTIVITIES** | | **WEEKLY HOURS** | **ECTS** |
| Lectures, video demonstrations | | **3** | **6** |
| **COURSE TYPE** | Special Background (Compulsory) | | |
| **PREREQUISITES COURSES:** | Introduction to Neurobiology - Genetics | | |
| **INSTRUCTION/EXAM LANGUAGE:** | Greek | | |
| **OFFERED TO ERASMUS STUDENTS** | YES (independent study of English literature under the guidance of the instructor, 3 small essays and1 term paper in English) | | |
| **COURSE WEB PAGE (URL)** | https://elearn.uoc.gr/course/view.php?id=274 | | |

## 2. LEARNING OUTCOMES

**Learning Outcomes**

The primary aim of this course is to present students with the theoretical framework of the physiological determinants (endocrine and nervous system) of behaviour (how and to what extent the malfunction of the above systems plays a role in the occurrence of mental or other disorders. The central goal of this course is to help students to: (i) understand major issues of current theoretical interest within Physiological Psychology, (ii) understand major empirical methods and procedures used in Physiological Psychology, (iii) develop their capacity for critical analysis of research in Physiological Psychology.

After successful completing the course the students should be able to understand:

- The main issues (movement, sleep, eating, sexual behavior, etc.) developed within the framework of the course of Physiological Psychology II (behavioral physiology II) and, above all, understanding the importance of the underlying anatomical background.
- The methods used in the context of biological psychology II (behavioral physiology II)
- The importance of underlying biological processes in behavioral formation.
- The dynamic interaction of genetic and environmental factors in the formation of behaviors or various mental states.

**General Competences**

- Search for, analysis and synthesis of data and information, with the use of the necessary technology

- Working independently
- Respect for difference.
- Criticism and self-criticism (free of reductions and simplistic approaches).
- Production of free, creative and inductive thinking
- Working in an interdisciplinary environment

## 3. COURSE CONTENT

- The control of movement: a) Muscles, b) Reflexive control of movement, c) Control of movement by the brain, d) Disorders of movements
- Homeostasis: a) The principle of feedback control and the effector mechanisms, b) Relationships between hormonal and nervous system, c) The role of hypothalamus in homeostasis
- The organization of the endocrine system of mammals and the cellular mechanisms of hormones
- Hormonal and neuronal control of feeding behavior: a) Metabolism and body weight regulation, b) Factors that influence when we eat, c) Factors that influence when we stop a meal (satiety), d) neuronal mechanisms that regulate feeding, e) eating disorders
- Hormones and sexual behavior: a) Organizational and activating effects of sex hormones, b) Hormonal and neural control of sexual behavior, c) sexual orientation.
- Basic principles of drug action in CNS. Role of learning in drug tolerance. Biopsychological theories of addiction. Reward circuits in the brain. Neural Mechanisms of addiction
- Sleep and waking: a) Stages of sleep, b) The functions of sleep, c) Disorders of sleep, d) Biological clocks, e) Neural control of sleep and waking, f) sleep disorders.
- Learning & memory: a) Neuronal mechanisms of learning in single-cell invertebrates, b) Synaptic plasticity and its mechanisms, c) Neurotransmitters / neuromodulators and memory, d) Disorders of memory.
- Emotion: a) Biopsychological perspectives b) Emotion and the ANS c) Emotion and facial expression d) Fear and aggression
- Stress and health: a) Hormonal, neuronal and immunological mechanisms of stress, b) Brain mechanisms of emotion
- Biopsychology of psychiatric disorders: a) Schizophrenia, b) Affective disorders

## 4. INSTRUCTIONAL AND LEARNING METHODS - EVALUATION

<table>
<tr><td>INSTRUCTION METHOD</td><td colspan="3">In class<br><br>Students will be provided with a lecture handout for each topic, including detailed reading lists.</td></tr>
<tr><td>INFORMATION AND COMMUNICATION TECHNOLOGIES USED</td><td colspan="3">Use of ICT in teaching<br>Support for learning through the E-learn online platform</td></tr>
<tr><td rowspan="2">TEACHING ORGANIZATION</td><td>Activity</td><td>Semester Work load</td><td>ECTS credits</td></tr>
<tr><td>Lectures</td><td>39 (26 X 1,5)</td><td>1,56</td></tr>
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| | Independent study for the 1st progress test | 13 | 0,52 |
| | Independent study for the 2nd progress test | 13 | 0,52 |
| | Independent study for the 3rd progress test | 13 | 0,52 |
| | Participation in progress tests | 0,75 | 0,03 |
| | Independent Study | *75* | *3* |
| | Participation in final exams | *2* | *0,08* |
| | ***Course Total*** | ***155,75*** | ***6,23*** |
| **STUDENT EVALUATION** | The evaluation is in Greek for the students of UoC and in English for the Erasmus students.<br><br>The evaluation will be by means of:<br>I. 3 short progress tests (20%)<br>II. a two-hour written exam at the end of the semester or by means of two exams (non-cumulative; a midterm and a final exam) (80%).<br><br>Evaluation criteria are presented during the 1st lecture of the semester. Moreover, all criteria are available to the students via the UoC e-learn platform. | | |

## 5. BIBLIOGRAPHY


Basic Bibliography:

- Pinel, J.P.J. (2011). *Biopsychology* (7th ed., 1st in Greek, Editors in Greek: A. Kastellakis). Athens: Ion Publications (Greek edition).
- Kolb, B. & Whishaw, I.Q. (2009). *Brain & Behavior* (Vol. I & II, 1st in Greek, Editors in Greek: A. Kastellakis & G. Panagis). Athens: Paschalides Medical Publications (Greek edition).

Additional Reading:

- Breedlove, M., Rosenzweig, M.R., & Watson, N.V. (2011). *Biological Psychology.* Athens: Parisianou Scientific Publications (Greek edition).
- Kandel, E.R., Schwartz, J.H., Jessell, T.M. (1999). *Neuroscience & Behavior* (Editor in Greek: A. Karamanlidis). Heraklion: Crete University Press.
- Purves, D., Augustine, G.J., Fitzpatrick, D., Hall, W.C., LaMantia, A.-S., O. McNamara, J.O., Williams, S.M. (2008). *Neuroscience* (Editors in Greek: G. Anogiannakis, C. Kazlaris, N. Kalfakis, D. Kandylis, G. Panagis, D. Petsanas). Athens: Parisianou Publications (Greek edition).
- Widmaier P.E., Raff, H., & Strang, T.K. (2016). *Vander's Human Physiology: The mechanism of body function* (Editors in Greek: N. Geladas). Nicosia: Broken Hill

Publishers Ltd (Greek edition).

- Toates, F. (2007). *Biological Psychology* (2nd ed.). Harlow, England: Pearson/ Prentice Hall.