

## Subject card

|                                             |                                                                                                                               |                                                          |                                         |                                     |                                                                                   |            |     |
|---------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|-----------------------------------------|-------------------------------------|-----------------------------------------------------------------------------------|------------|-----|
| Subject name and code                       | Neurohormonal Regulation of Body Functions, PG_00152015                                                                       |                                                          |                                         |                                     |                                                                                   |            |     |
| Field of study                              | Psychology                                                                                                                    |                                                          |                                         |                                     |                                                                                   |            |     |
| Date of commencement of studies             | October 2025                                                                                                                  |                                                          | Academic year of realisation of subject |                                     | 2026/2027                                                                         |            |     |
| Education level                             | uniform Master's studies                                                                                                      |                                                          | Subject group                           |                                     | Obligatory subject group in the field of study<br>Humanistic-social subject group |            |     |
| Mode of study                               | full-time studies                                                                                                             |                                                          | Mode of delivery                        |                                     | at the university                                                                 |            |     |
| Year of study                               | 2                                                                                                                             |                                                          | Language of instruction                 |                                     | Polish                                                                            |            |     |
| Semester of study                           | 4                                                                                                                             |                                                          | ECTS credits                            |                                     | 2.0                                                                               |            |     |
| Learning profile                            | academic                                                                                                                      |                                                          | Assessment form                         |                                     | credit                                                                            |            |     |
| Conducting unit                             | Laboratory of Neurophysiology and Neurochemistry -> Department of Animal and Human Physiology -> Faculty of Biology -> Rector |                                                          |                                         |                                     |                                                                                   |            |     |
| Name and surname of lecturer (lecturers)    | Subject supervisor                                                                                                            |                                                          | dr Ziemowit Ciepielewski                |                                     |                                                                                   |            |     |
|                                             | Teachers                                                                                                                      |                                                          |                                         |                                     |                                                                                   |            |     |
| Lesson types                                | Lesson type                                                                                                                   | Lecture                                                  | Tutorial                                | Laboratory                          | Project                                                                           | Seminar    | SUM |
|                                             | Number of study hours                                                                                                         | 30.0                                                     | 0.0                                     | 0.0                                 | 0.0                                                                               | 0.0        | 30  |
|                                             | E-learning hours included: 0.0                                                                                                |                                                          |                                         |                                     |                                                                                   |            |     |
| Learning activity and number of study hours | Learning activity                                                                                                             | Participation in didactic classes included in study plan |                                         | Participation in consultation hours |                                                                                   | Self-study | SUM |
|                                             | Number of study hours                                                                                                         | 30                                                       |                                         | 5.0                                 |                                                                                   | 25.0       | 60  |
| Subject objectives                          | Understanding the role of the neurohormonal system in systemic regulation of the body                                         |                                                          |                                         |                                     |                                                                                   |            |     |

| Learning outcomes               | Course outcome                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Subject outcome                                                                                                                                                                                                                                                                                                                                                                                            | Method of verification                                                                                                                       |
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|                                 | [PSYCHJ5_U12] He/she knows the symptoms and causes of selected methods of health assessment as well as the symptoms and causes of selected disorders and lesions to the extent necessary for the studied field of study.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | The student identifies basic diseases and disorders of the neurohormonal system, and is able to identify the likely causes of these disorders                                                                                                                                                                                                                                                              | [SU1] oral statement/conversation/discussion<br>[SU4] test/exam - oral or written                                                            |
|                                 | [PSYCHJ5_K10] He/she shows respect for the patient, client, social groups and care for their well-being.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | The student demonstrates empathy and understanding towards different environmental and social groups understanding the problems of these environments.                                                                                                                                                                                                                                                     | [SK1] oral statement/conversation/discussion<br>[SK4] test/exam - oral or written<br>[SK8] observation of student's independent or team work |
|                                 | [PSYCHJ5_W08] He/she has in-depth and expanded knowledge of the psychological foundations of human functioning.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | The student describes neurohormonal coupling as a basic system of systemic integration, lists and characterises basic neurohormones, pituitary tropic hormones and hormones of the glands/target tissues, and describes endocrine disorders and their effects in selected disease entities.                                                                                                                | [SW4] test/exam - oral or written<br>[SW1] oral statement/conversation/discussion                                                            |
|                                 | [PSYCHJ5_W05] Has a structured and in-depth knowledge of the specialization of psychology, including terminology, theory, and methodology.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | The student uses a professional vocabulary for neuroendocrinology and knows the most important methods used in neuroendocrinological research                                                                                                                                                                                                                                                              | [SW4] test/exam - oral or written<br>[SW1] oral statement/conversation/discussion                                                            |
|                                 | [PSYCHJ5_W10] Has an in-depth and expanded knowledge of the biological, pedagogical, social and philosophical bases of human mental functioning; understands the nature of functionality and dysfunctionality, harmony and disharmony, norm and pathology.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | The student correctly defines and understands the concept of the internal environment of the organism, homeostasis and stress in psychological terms                                                                                                                                                                                                                                                       | [SW4] test/exam - oral or written<br>[SW1] oral statement/conversation/discussion                                                            |
|                                 | [PSYCHJ5_U15] He/she is able to formulate opinions about patients, clients and social groups in the context of the profession.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | On the basis of his/her knowledge and skills he/she is able to identify the most important disease entities related to disorders of the neurohormonal system.                                                                                                                                                                                                                                              | [SU1] oral statement/conversation/discussion<br>[SU4] test/exam - oral or written                                                            |
|                                 | [PSYCHJ5_U14] He/she knows the basic psychosocial concepts and mechanisms related to health and its protection to the extent necessary for the fields of science and scientific disciplines relevant to the studied field of study.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | The student has an adequate grasp of concepts related to psychosocial mechanisms of human well-being, enabling him/her to move smoothly in the area of neurohormonal system functioning                                                                                                                                                                                                                    | [SU1] oral statement/conversation/discussion<br>[SU4] test/exam - oral or written                                                            |
|                                 | [PSYCHJ5_K07] He/she is sensitive to social and psychological problems, he/she is ready to communicate and cooperate with the environment, including people who are not specialists in a given field, and to actively participate in groups and organizations implementing psychological activities.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | The student strives for a holistic view of the organism as an autonomous system dynamic, centrally regulated, efficiently adapting to sudden and/or strong changes of the internal as well as the external environment and discusses different "scenarios" for efficient regulation, as well as the anticipated consequences of disorders of individual components of the neurohormonal regulatory system. | [SK1] oral statement/conversation/discussion<br>[SK4] test/exam - oral or written                                                            |
| Subject contents                | The internal environment of the body and its role in regulating cell and organ reactivity. Hormone signal transduction systems. Cell receptors and signal transduction chains into the cell (G proteins, cyclic AMP, calcium cascade). Role of the hypothalamus in the integration of the endocrine, vegetative and somatic systems. Neurohormonal coupling as a fundamental system of systemic integration. Hormones of systemic activation and intracellular accumulation. The role of core and adrenal cortex hormones in adaptive responses. The stress response in the light of regulatory theory. Stress and homeostasis. Overview of endocrine function: hypothalamus, pituitary, adrenal glands, thyroid gland, parathyroid glands, sex glands, thymus and pineal gland. Endocrine disorders in selected disease entities. Somatotrophic axis. Lactotrophic axis. Gonadal axes. Pregnancy. |                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                              |
| Prerequisites and co-requisites |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                              |
| Assessment methods and criteria | Subject passing criteria                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Passing threshold                                                                                                                                                                                                                                                                                                                                                                                          | Percentage of the final grade                                                                                                                |
|                                 | test                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 51.0%                                                                                                                                                                                                                                                                                                                                                                                                      | 100.0%                                                                                                                                       |

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| Recommended reading                                            | Basic literature                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <p>Used in the classroom:</p> <ul style="list-style-type: none"> <li>Larsen P. R., Kronenberg H. M., Melmed S., Polonsky K. S., Foster D. W., Wilson J. D. 2016 Williams Textbook of Endocrinology. Saunders/Ganong W. F., 2007. physiology. Wydawnictwo Lekarskie PZWL, Warsaw</li> <li>Murray R.K. et al, 2002. harper's biochemistry. Wydawnictwo Lekarskie PZWL, Warszawa</li> <li>Fink G. (Ed), 2017 Stress: Neuroendocrinology and Neurobiology: Handbook of Stress Series, Volume 2 1st Edition, Academic press</li> </ul> <p>Studied independently by the student:</p> <ul style="list-style-type: none"> <li>Literature provided by the instructor</li> <li>Biology, 11th Edition, Eldra P. Solomon, Charles E. Martin, Diana W. Martin, Linda R. Berg, 2019</li> </ul> |
|                                                                | Supplementary literature                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Fink G, Pfaff D., Levine J. Handbook of Neuroendocrinology, 2012, Academic Press                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|                                                                | eResources addresses                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Example issues/<br>example questions/<br>tasks being completed | <ol style="list-style-type: none"> <li>Vasopressin and oxytocin</li> <li>Growth hormone, prolactin, IGF-1- regulation of secretion and function</li> <li>Thyroid axis and thyroid dysfunction</li> <li>Hypothalamic-pituitary-adrenal axis. Role in the stress response.</li> <li>Stress definitions, mechanism, effects on the body</li> <li>Cerebral-pituitary-adrenal axis</li> <li>Adrenal diseases.</li> <li>Hormones involved in calcium regulation.</li> <li>Vitamin D-production and action.</li> <li>Glucose regulation: hypo- and hyperglycaemia. Insulin and glucagon-functions.</li> <li>Diabetes mellitus: causes, types, symptoms.</li> <li>Regulation of water and electrolyte balance (ADH, aldosterone, RAA system).</li> <li>Hormones involved in the regulation of food intake (ghrelin, leptin, cholecystokinin and others).</li> <li>Major sex hormones and their functions (kisspeptin, GnRH, LH, FSH, oestrogens, testosterone)</li> <li>Melatonin-functions in the body</li> </ol> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Work placement                                                 | Not applicable                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

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