

**Course Syllabus****I. General Information**

Course name	<b>Biological bases of behaviour</b>
Programme	Psychology
Level of studies (BA, BSc, MA, MSc, long-cycle MA)	MA
Form of studies (full-time, part-time)	Full-time
Discipline	Psychology
Language of instruction	English

Course coordinator/person responsible	Paweł Stróżak
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Type of class ( <i>use only the types mentioned below</i> )	Number of teaching hours	Semester	ECTS Points
lecture	30	I	7

Course pre-requisites	Basic knowledge in biology, chemistry and physics; B2 English language skills
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**II. Course Objectives**

C1: Introduce basic concepts in the field of biological psychology and behavioural neuroscience
C2: Disseminate knowledge regarding behavioural genetics and neural basis of cognition
C3: Introduce the fundamentals of explaining human behaviour in terms of genetic, physiological, and neurobiological processes

### III. Course learning outcomes with reference to programme learning outcomes

Symbol	Description of course learning outcome	Reference to programme learning outcome
<b>KNOWLEDGE</b>		
W_01	The student has knowledge concerning biological conditions of human and animal behaviour, in particular concerning genetic, neurobiological and physiological processes leading to specific forms of behaviour	K_W02
W_02	The student has knowledge of the connections between psychology and biology, knows the genetic, physiological and neurobiological conditions of behavioural disorders and human mental life	K_W05
<b>SKILLS</b>		
U_01	The student is able to use theoretical knowledge from the field of biological psychology and behavioural neuroscience to analyse and interpret human behaviour; he/she can also identify and describe genetic, neurobiological and physiological determinants of different human behaviours	K_U01
U_02	The student is able to integrate knowledge from biology and psychology with regard to normal and disturbed human functioning	K_U11
<b>SOCIAL COMPETENCIES</b>		
K_01	The student understands the importance of biological conditions for human behaviour and mental life and shows readiness to broaden knowledge in this field	K_K01
K_02	The student demonstrates a critical attitude towards those views and practices in psychology that ignore biological predispositions to specific behaviours	K_K05

### IV. Course Content

**Class 1.** Introductory issues: reductionism in science, biological psychology and behavioural neuroscience, behavioural genetics, brain and behaviour

**Class 2.** Basic genetics: inheritance of traits, Mendelian genetics, chromosome theory of inheritance, genetic code

**Class 3.** How genes affect behaviour: reading the human genome, mutations, behavioural genetics, genes and psychopathology, epigenetics

**Class 4.** Nerve cells and nerve impulses: brain and central nervous system, cells of the nervous system, structure of neurons, nerve conduction

**Class 5.** Synaptic transmission: properties of synapses, types of synapses, synaptic transmission, neurotransmitters and receptors

**Class 6.** Anatomy of the nervous system: neuroanatomical terminology, central and peripheral nervous system, spinal cord, brain, cerebral cortex

**Class 7.** Methods of studying the brain: early views on the localization of activities in the brain, electroencephalography (EEG), brain-computer interfaces, tomographic methods

**Class 8.** Visual perception and attention: eye and retina, neural basis of vision, blindsight, neural basis of visual attention

**Class 9.** Auditory perception: properties of sound, structure and function of the auditory system, auditory pathways, perception of music  
**Class 10.** Mechanical and chemical senses: sense of balance, sense of touch, skin sensations, proprioceptive sensation, pain sensation, chemical senses  
**Class 11.** Movement and motor behaviour: muscles and their movements, brain mechanisms of motor control, cerebrospinal pathways, conscious decisions and movement (is free will an illusion?)  
**Class 12.** Biological rhythms, sleep and wakefulness: circadian, infradian and ultradian rhythms of biological activities, genetic and brain mechanisms of the biological clock, stages of sleep and brain mechanisms, functions of sleep and dreaming  
**Class 13.** Internal regulation and reproductive behaviour: regulation of temperature, thirst and hunger, sex and hormones, determinants of gender identity, biological basis of sexual orientation  
**Class 14.** Emotional and social behaviour: brain mechanisms of emotions, somatic responses to emotions, reading mental states, anti-social behaviour  
**Class 15.** Processes of brain development and plasticity: structural brain development, functional brain development, innate knowledge and instinct, brain plasticity

#### V. Didactic methods used and forms of assessment of learning outcomes

Symbol	Didactic methods (choose from the list)	Forms of assessment (choose from the list)	Documentation type (choose from the list)
KNOWLEDGE			
W_01	Lecture	Written exam	Test sheet from the exam
W_02	Lecture	Written exam	Test sheet from the exam
SKILLS			
U_01	Lecture	Written exam	Test sheet from the exam
U_02	Lecture	Written exam	Test sheet from the exam
SOCIAL COMPETENCIES			
K_01	Lecture	Written exam	Test sheet from the exam
K_02	Lecture	Written exam	Test sheet from the exam

#### VI. Grading criteria, weighting factors

Evaluation criteria for the written exam: **Unsatisfactory** (0%-50%); **Satisfactory** (52,5%-60%); **Satisfactory+** (62,5%-70%); **Good** (72,5%-80%); **Good+** (82,5%-90%); **Excellent** (92,5%-100%)

#### VII. Student workload

Form of activity	Number of hours
Number of contact hours (with the teacher)	<b>30</b>
Number of hours of individual student work	<b>210</b>

## VIII. Literature

Basic literature
Kalat, J. W. (2018). <i>Biological Psychology. 13th Edition</i> . Cengage Learning.
Kandel, E. R., Koester, J. D., Mack, S. H., Siegelbaum, S. A. (2021). <i>Principles of Neural Science. Sixth Edition</i> . McGraw Hill.
Knopik, V. S., Neiderhiser, J. M., DeFries, J. C., Plomin, R. (2016). <i>Behavioral Genetics. 7th Edition</i> . Worth.
Additional literature
Plomin, R. (2019). <i>Blueprint: How DNA makes us who we are</i> . The MIT Press.
Ward, J. (2020). <i>The Student's Guide to Cognitive Neuroscience. Fourth Edition</i> . Routledge.
Watson, J. D., Berry, A. (2003). <i>DNA: The Secret of Life</i> . Random House.