Study program: Special Education and Rehabilitation, module Motor Disability

Type and level of studies: Basic Academic

Title of the subject: Biological Foundations of Cognitive Functions

Lecturer: Dragan S. Marinković

Course status: Obligatory

ECTS: 8

Prerequisites: none

Aim:
To introduce students with biological mechanisms of cognitive processes and with possibilities for their control and modulation. Special attention is given to those cognitive processes and categories of behavior that are of importance for performance and control of motor action.

Outcomes:
Students acquire knowledge from the area of cognitive neuroscience and behavioral neuroscience that will allow them to understand process of mental functioning and behavior of healthy individuals as well as disabled persons. Acquired knowledge is of importance for comprehension of physiological functioning of the brain, as well as for understanding different impairments in the process of vision, hearing, motor action, and mental functioning and behavior.

Content

Lectures: Structural and functional characteristics of nervous system. Neurotransmitters. Molecular basis of differentiation and maturation of nervous system. Functional specialization of the brain. Prenatal and adult brain plasticity. Importance of genetic factors and experience in development of cognitive functions. Electrophysiological methods for investigation of cognitive functions. Methods of structural and functional neuroimaging. Application of animal models in cognitive functions research. Methodological approach in cognitive neurosciences. Biological foundations of food uptake, sleeping and sexual behavior. Biological mechanisms of emotional processing. Process of vision and object recognition, recognition of colors and faces. Attention and visual space recognition. Biological foundations of planning, execution and control of movements. Processes of learning, memory and forgetting, Biological foundations of language. Biological foundations of reading, writing and calculating. Executive functions. Problem solving, expertise and creativity. Biological foundations of social cognition. Reversible and irreversible impairments of cognitive functions. Agents that damage cognitive functions. Biological foundations of damage recover of cognitive functions.

*Practical work:*Practical work follows thematic areas of theoretical lectures.

Literature

1. Dušica Filipović-Đurđević, Sunčica Zdravković. (2013).Uvod u kognitivne neuronauke;.Gradska narodna biblioteka Zrenjanin, Zrenjanin
2. Dragan Marinković. Skripta – Biološke osnove kognitivnih funkcija.
3. Kostić, Aleksandar. (2006). Kognitivna psihologija; Zavod za udžbenike i nastavna sredstva. Beograd

Number of active classes per week:	**Lecture: 2**	**Practical work: 2**

Teaching methods:

Classical educational method using PowerPoint presentations, presentation and discussion of different videos, writing of seminar papers and active learning.

Evaluation of knowledge (maximum score 100)

Pre obligations	**Score**	**Final exam**	**Score**
activities during the lectures	10	written exam	
practical teaching	10	oral exam	50
midterm(s)	20	.....	
seminars	10		