Doctoral School: **Biology Doctoral School**
Doctoral Program: Neuroscience and Human Biology

Subject code: **BIO/7/6**
Subject title: **Neurobiology of Behavior L**
Teacher and Neptun code: **Dr. Dobolyi Árpád (GLDXEV)**
Credits: 4
Class hours: 2 hours/week, lecture

Aims of the course
The lectures present the physiological and neurobiological background of various behaviors.
Contents of the course
1. Motivation. Factors influencing the development of behavior. Motivation and its neurobiological substrate.
2. The role of reward in regulating behavior. The mesolimbic system and its cortical regulation. Dopaminergic agents and agents acting on other transmitter systems, addiction.
3. Emotions, fear. Limbic structures. Neural mechanisms of fear.
4. Psychovegetative effects. The peripheral nervous system and its role in emotional reactions.
5. Regulation of body temperature. Heat sensing receptors and their location in the body. Regulatory mechanisms, associated nervous system pathways and mechanisms triggered by varying degrees of temperature change.
6. Physiological regulation of fluid uptake and elimination. Detection of osmotic conditions. Neuronal and hormonal regulation of water intake.
7. Regulation of food intake. Short- and long-term regulation. Neuronal and hormonal mechanisms.
8. Neurobiology of social behaviors. Nervous system background of cooperation, empathy, play.
9. Physiology of sexual behavior. Fundamentals of lordosis and other female behaviors. Neurobiology and endocrine factors in male sexual behavior.
10. Offspring care behaviors. Maternal behaviors and their changes during pregnancy and lactation.
11. Physiology of aggressive behavior. Offensive and defensive behaviors. Aggression towards predators and conspecifics.
12. The role of learning in shaping behavior. Brain / behavioral background of learning. Types of learning and plasticity, description of relevant brain areas.
13. The memory. Types of memory. Neurobiological background of memory and recollection.
14. Cognitive regulation of behavior. Associative cortical areas and their role in behavior formation. Brain representation of speech.

Requirements
Oral exam
Grade is determined by the exam result.

Literature

Power point slides, circa 350 slides