SUBJECT DATASHEET

Neurobiology II. Sensory and motor processing.

BMETE47MN27

I. SUBJECT DESCRIPTION

1. SUBJECT DATA

Subject name
Neurobiology II. Sensory and motor processing.

ID (subject code)	BMETE47MN27

Type of subject
contact lessons

Course types and lessons

Type	*Lessons*
Lecture	2
Practice	0
Laboratory	0

Type of assessment
exam grade

Number of credits
2

Subject Coordinator

Name	*Position*	*Contact details*
Dr. Zimmer Márta	associate professor	zimmer.marta@ttk.bme.hu

Educational organisational unit for the subject
External department

Subject website
http://cogsci.bme.hu/~ktkuser/KURZUSOK/BMETE47MN27/

Language of the subject
magyar, angol - HU, EN

Curricular role of the subject, recommended number of terms
Programme: **Psychology Master's Programme - Cognitive psychology specialisation from 2020/21/Term 1**
Subject Role: **Compulsory**
Recommended semester: **2**

Direct prerequisites

Strong	None
Weak	None
Parallel	None
Exclusion	None

Validity of the Subject Description
-

2. OBJECTIVES AND LEARNING OUTCOMES

Objectives

The aim of the course is to deepen the theoretical knowledge acquired in the first semester, as well as to expand their cognitive neuroscience knowledge with additional knowledge. In the first half of the semester, we complete the perceptual modalities and discuss multimodal interactions separately, then take over the non-discussed and / or psychological aspects of the two most studied modalities, and finally address the motor processes of sen-sorimotor integration. The structure of the course allows students to master the functions of the nervous system with a global approach, with each perception modality as a specialty. The basic aim of the course is for students to view neural functions as reactions to an active system. As a result, students develop a holistic perspective rather than many topic-specific sets of knowledge.

Academic results

Knowledge

1. The student knows the conceptual system describing the basic neural functions, the most important con-nections and theories. He knows the specialties of the individual detection modalities, as well as the basic operating principles of the motor system, the components of the system, and the deficits resulting from their damage.

Skills

1. The student is able to understand the typical literature on topics related to cognitive neuroscience and is able to independently search for literature sources.
2. Ability to communicate in a professionally adequate manner, orally and in writing on various topics in cognitive neuroscience.

Attitude

1. Open to expanding knowledge related to your field.
2. Open and motivated to apply the acquired knowledge.
3. Collaborates with the instructor and fellow students to expand knowledge.

Independence and responsibility

Teaching methodology

Lectures.

Materials supporting learning

- Kandel, Schwartz, Jessell: Principles of Neural Science. McGraw, Hill, USA, 2007. – releváns fejezetek (relevant chapters)
- Calver, Spence, Stein: The Handbook of Multisensory Processes. MIT Press, 2004. – releváns fejezetek (relevant chapters)
- Blumenfeld: Neuroanatomy Through Clinical Cases. Oxford University Press, 2010. – releváns fejezetek (relevant chapters)
- Fonyó Attila: Az orvosi élettan tankönyve. Medicina Kiadó, több kiadás – releváns fejezetek (relevant chapters)
- Fonyó Attila: Élettan gyógyszerészhallgatók részére. Budapest, Medicina Kiadó, 2007. – releváns fejezetek (rele-vant chapters)
- Pléh, Kovács, Gulyás: Kognitív idegtudomány. Osiris Kiadó, 2003. – releváns fejezetek (relevant chapters)
- Purves, Brannon, Cabeza, Huettel, LaBar, Platt, Woldorff: Principles of Cognitive Neuroscience. Sinauer, USA, 2008.
- Sekuler, Blake: Észlelés. Osiris Kiadó, több kiadás – releváns fejezetek (relevant chapters)

II. SUBJECT REQUIREMENTS

TESTING AND ASSESSMENT OF LEARNING PERFORMANCE

General Rules

The learning outcomes set out in point 2.2 are assessed in two separate exams, written in the diligent and / or examination period

Performance assessment methods

Detailed description of performance evaluations performed during the diligence and / or examination period: Written exam: The acquisition
of the theoretical knowledge of the students is ensured by two written exams written at separate times during the semester. The exam consists of test questions, drawing tasks, essay questions (approximately half - 1 page explanation), as well as smaller questions covering the entire topic (8-10 questions, questions that can be answered in 1-2 sentences, lists). The questions cover the lesson material as well as the required literature.

Percentage of performance assessments, conducted during the study period, within the rating

- **Written exams (2 pcs)**: 50%-50%
- **total**: 100%

Percentage of exam elements within the rating

Conditions for obtaining a signature, validity of the signature

Issuing grades

Excellent	> 90
Very good	80–90
Good	65–79
Satisfactory	50–64
Pass	40–49
Fail	< 40

Retake and late completion

The written exam can be improved during the examination period. In case of correction, the more favorable of the previous and the new result for the student is taken into account.

Coursework required for the completion of the subject

28

10

22

60

Approval and validity of subject requirements

-

III. COURSE CURRICULUM

THEMATIC UNITS AND FURTHER DETAILS

Topics covered during the term

To achieve the learning outcomes set out in section 2.2, the course consists of the following thematic blocks. In the bridge buses of the courses announced in each semester, these topics are scheduled according to the calendar and other features.

1 Kemoszenzórium/Chemosensory processing

2 Multiszenzoros integráció/Multisensory integration

3 A szem – anatómia, szemmozgások, a retina/The eye – anatomy, eye movements, retina

4 Látás („haladó") - Kéreg alatti mechanizmusok, thalamikus magvak és colliculus superior/Vision (Advanced) – Subcortical mechanisms, thalamic nuclei, colliculus superior

5 Látás („haladó") – V1 és a párhuzamos pályarendszerek/Vision (Advanced) – V1, parallel pathways

6 Látás („haladó") – vizuális almodalitások, vizuális figyelem/Vision (Advanced) – submodalities, visual attention

7 Hallás I. – idegtudományi jellegzetességek/Hearing I. – neuroscientific phenomena

8 Hallás II. – pszichológiai jelenségek/Hearing II. – psychological phenomena

9 Motoros rendszer I. - izomrosttól a gerincvelőig/Motor system I. – from muscle fibers tot he spinal chord

10 Motoros rendszer II. – agytörzs, agykéreg/Motor system II. – brainstem, cortex

11 Motoros rendszer III. – bazális ganglionok és cerebellum/Motor system III. – basal ganglia, cerebellum

Additional lecturers

Approval and validity of subject requirements

The subject data sheet I. and II. beyond Part III. shall be approved by the head of the Department of Cognitive Science indicated in point 1.8 in consultation with the specialist (s) of the relevant field (s).