SUBJECT DATASHEET

Neurobiology I. Foundations and neurobiology of perception.

BMETE47MN26

I. SUBJECT DESCRIPTION

1. SUBJECT DATA

Subject name
Neurobiology I. Foundations and neurobiology of perception.

ID (subject code)	BMETE47MN26

Type of subject
contact lessons

Course types and lessons

Type	*Lessons*
Lecture	2
Practice	2
Laboratory	0

Type of assessment
exam

Number of credits
5

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/BMETE47MN26/

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: **1**

Direct prerequisites

Strong	None
Weak	None
Parallel	None
Exclusion	None

Validity of the Subject Description
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2. OBJECTIVES AND LEARNING OUTCOMES

Objectives

The aim of the course is to provide students with the appropriate theoretical foundations in neuroscience. In the first half of the semester, we learn about the basic neural functions, and then we deal with the sensory processes of sensorimotor integration. The structure of the course allows students to master the functions of the nervous system from a global perspective, with each perception modality as a specialty. As a result, students develop a holistic perspective rather than many topic-specific sets of knowledge. In the laboratory belonging to the subject, students can transfer and apply their theoretical knowledge within the framework of a practical paradigm.

Academic results

Knowledge

1. The student knows the conceptual system describing the basic neural functions, the most important connections and theories.

Skills

1. Ability to understand the typical literature on topics related to cognitive neuroscience and is able to in-dependently 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 his/her field.
2. Open and motivated to apply the acquired knowledge.
3. Collaborates with the instructor and fellow students to expand knowledge.
4. Open to the use of information technology tools used in the laboratory.

Independence and responsibility

1. Expect and utilize new knowledge.
2. Actively participates in the process of acquiring knowledge.
3. Solves individual and group tasks responsibly and independently.
4. Collaborates with fellow students during group work.
5. Use a systems approach in your thinking.

Teaching methodology

Lectures, and small group and individual homework assignments based on lectures.

Materials supporting learning

- Kandel, Schwartz, Jessell: Principles of Neural Science. McGraw, Hill, USA, 2007. – releváns fejezetek (relevant chapters)
- Pléh, Kovács, Gulyás: Kognitív idegtudomány. Osiris Kiadó, 2003. – 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)
- 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 assessment of the learning outcomes set out in point 2.2 is based on an oral exam and individual and small group project assig

Performance assessment methods

Detailed description of performance evaluations performed during the examination period: 1. Oral exam: The students acquire 1 oral exam during the semester to acquire the theoretical knowledge. The exam consists of an essay question, a drawing task comparison, and smaller questions covering the entire topic. The questions cover the lesson material as well as the required literature. 2. Individual / Small group project task. Students individually run a published experimental paradigm with 5 subjects of their choice (in 2 blocks on 2 different days), and the results obtained are arranged in a statistical table. The obtained 5-5 row tables are concatenated into small groups of 3-4 people, and statistical compari-sons are made on the resulting sample of 15-20 people. Part of the oral exam is the presentation of group sta-tistics, and each student is individually given a hypothetical experimental data chart that they should interpret.

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

- **Project work**: 10%

Percentage of exam elements within the rating

- **Oral exam**: 90%

Conditions for obtaining a signature, validity of the signature

Issuing grades

Excellent	> 95
Very good	86–95
Good	75–85
Satisfactory	65–74
Pass	50–64
Fail	< 50

Retake and late completion

The oral 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

28

30

30

34

150

Approval and validity of subject requirements

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III. COURSE CURRICULUM

THEMATIC UNITS AND FURTHER DETAILS

Topics covered during the term

A 2.2. pontban megfogalmazott tanulási eredmények eléréséhez a tantárgy a következő tematikai blokkokból áll. Az egyes félévekben meghirdetett kurzusok sillabuszaiban e témaelemeket ütemezzük a naptári és egyéb adottságok szerint.

1 Basic neural processes, cell membrane, action potential
2 The synapse
3 Autonomic nervous system, hípothalamus
4 Introduction to perception - methods
5 Sensory-motor integration
6 From the neuron to cognition
7 Somatosensory system I. – periphery
8 Somatosensory system II. – central processing
9 Somatosensory system III. – perception of pain and heat
10 Basics of vision I. – Phenomena, receptors
11 Basics of vision II. – Low level processing
12 Basics of vision III. – Higher level vision
13 Basics of hearing
14 Practical consultation

Additional lecturers

Dr. Németh Kornél

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).