

# Fundamentals of neurophysiology and neuropsychology in motor control and motor learning


In view of the health context linked to the spread of the coronavirus, the methods of organisation and evaluation of the learning units could be adapted in different situations; these possible new methods have been - or will be - communicated by the teachers to the students.

5 credits

45.0 h

Q1

Teacher(s)	Derosiere Gérard (compensates Duque Julie) ;Duque Julie ;Duque Julie (compensates Missal Marcus) ;Jankovski Aleksandar (compensates Missal Marcus) ;Klöcker Anne (compensates Duque Julie) ;Missal Marcus (coordinator) ;
Language :	French
Place of the course	Louvain-la-Neuve
Prerequisites	<i>The prerequisite(s) for this Teaching Unit (Unité d'enseignement – UE) for the programmes/courses that offer this Teaching Unit are specified at the end of this sheet.</i>
Main themes	- Introduction to the most important techniques in Neurosciences: recordings, reversible lesions, transcranial magnetic stimulation, functional brain imaging' - Receptors and transduction mechanisms - Central processing of sensory informations: vision, tactile, pain, proprioception and balance. - Motor control: spinal reflexes, muscle tone, posture, corticospinal system, motor cortical areas, basal ganglia, cerebellum, voluntary movements, locomotion, motor coordination' - Sensori-motor integration; role of the posterior parietal cortex in movement control. - Distinct forms of learning and memory.
Aims	<p>1</p> <ul style="list-style-type: none"> <li>- To study the normal function of the sensory systems, especially the visual and somatosensory systems.</li> <li>- To study the neurophysiological mechanisms responsible for controlling movements, from the simple reflexes to the most sophisticated voluntary hand movements. - To investigate the neural basis of learning and memory. - To provide the basic knowledge for further advanced Neuroscience courses.</li> </ul> <p>-----</p> <p><i>The contribution of this Teaching Unit to the development and command of the skills and learning outcomes of the programme(s) can be accessed at the end of this sheet, in the section entitled "Programmes/courses offering this Teaching Unit".</i></p>
Evaluation methods	<b>Due to the COVID-19 crisis, the information in this section is particularly likely to change.</b> Multiple-choice test.
Teaching methods	<b>Due to the COVID-19 crisis, the information in this section is particularly likely to change.</b> Lectures.
Content	- Introduction to the most important techniques in Neurosciences: recordings, reversible lesions, transcranial magnetic stimulation, functional brain imaging - Receptors and transduction mechanisms - Central processing of sensory informations: vision, tactile, pain, proprioception and balance. - Motor control: spinal reflexes, muscle tone, posture, corticospinal system, motor cortical areas, basal ganglia, cerebellum, voluntary movements, locomotion, motor coordination - Sensori-motor integration; role of the posterior parietal cortex in movement control. - Distinct forms of learning and memory.
Inline resources	Lectures available on Moodle: <a href="https://moodleucl.uclouvain.be/course/view.php?id=5603">https://moodleucl.uclouvain.be/course/view.php?id=5603</a>
Bibliography	<ul style="list-style-type: none"> <li>• <a href="https://moodleucl.uclouvain.be/course/view.php?id=5603">https://moodleucl.uclouvain.be/course/view.php?id=5603</a></li> </ul> <p><b>Neurosciences</b> , Purves et al. Editeur: De Boeck Supérieur.</p>
Other infos	Rating: Review written or oral and / or elements of continuous assessment Support: Syllabus and / or book (s) Framing: Holder (s)
Faculty or entity in charge	FSM

<b>Programmes containing this learning unit (UE)</b>				
Program title	Acronym	Credits	Prerequisite	Aims
Bachelor in Physiotherapy and Rehabilitation	KINE1BA	5	LIEPR1001 AND LIEPR1004	
Bachelor in Motor skills : General	EDPH1BA	5	LIEPR1001 AND LIEPR1002 AND LIEPR1004 AND LIEPR1021 AND LIEPR1022	