UCLouvain

liepr1024

2023

Fundementals of neurophysiology and neuropsychology in motor control and motor learning

4.00 credits	45.0 h	Q1

Teacher(s)	Duque Julie (coordinator) ;Missal Marcus ;
Language :	French
Place of the course	Louvain-la-Neuve
Prerequisites	*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.*
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.
Learning outcomes	**At the end of this learning unit, the student is able to :** 1 - To study the normal function of the sensory systems, especially the visual and somatosensory systems. - 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.
Evaluation methods	Written exam with multiple choices questions. There are 30 questions with 5 choice but only one is correct. The threshold to pass is set to 10/20 or more. This threshold is fixed to at least 18 correct responses over 30. Below 18/30 : the exam is failed (9 or less). Those modalities will stay the same for all sessions of this académique year.
Teaching methods	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: https://moodleucl.uclouvain.be/course/view.php?id=5603
Bibliography	• https://moodleucl.uclouvain.be/course/view.php?id=5603 **Neurosciences** , Purves et al. Editeur: De Boeck Supérieur.
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

Programmes containing this learning unit (UE)

Program title	Acronym	Credits	Prerequisite	Learning outcomes
Bachelor in Motor skills : General	EDPH1BA	4	LFSM1101 AND LFSM1102 AND LFSM1104 AND LIEPR1021 AND LIEPR1022	
Bachelor in Physiotherapy and Rehabilitation	KINE1BA	5	LFSM1101 AND LFSM1104 AND LKINE1006	