UCLouvain

lfsm1203

2026

Fundamentals of neurophysiology

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 main functional exploration methods in neuroscience • Basic principles of nerve impulses • Introduction to sense organs and transduction mechanisms • Central processing mechanisms of fundamental sensory systems for motor control (Somesthetic system [tactile sensitivity, proprioception, nociception], Vision, Vestibular system) • Neurophysiological mechanisms of motor skills (motor units, reflexes, postural control, locomotion, cortical control of voluntary movements, sensorimotor integration, roles of the basal ganglia and the cerebellum) • The different forms of memory • Attentional processes
Learning outcomes	**At the end of this learning unit, the student is able to :** • Demonstrate knowledge and understanding of the neuroscientific methods used to study human motor behaviour (2.1, 11.1, 11.3 /9.1, 9.2, 9.3) • Demonstrate knowledge and understanding of the basic principles of nerve impulse/potential for action (2.1, 11.1, 11.3 /9.1, 9.3) • Demonstrate knowledge and understanding of the neurophysiological mechanisms of sensory processing fundamental to motor skills, particularly somaesthesia, vision and the vestibular system (2.1, 11.1, 11.3 /9.1, 9.3) • Demonstrate knowledge and understanding of the neurophysiological mechanisms underlying motor skills, from reflexes to voluntary movements (2.1, 11.1, 11.3 /9.1, 9.2, 9.3) • Compare neural structures and mechanisms relating to different levels of motor control (2.1, 11.1, 11.3 /9.1, 9.2, 9.3) • Demonstrate knowledge and understanding of different forms of memory (2.1, 11.1, 11.3 /9.1, 9.2, 9.3) • Demonstrate knowledge and understanding of the attentional processes that guide motor behaviour (2.1, 11.1, 11.3 /9.1, 9.2, 9.3) • Use the concepts covered in the course to solve practical problems (5.3 Kiné and 9.3 EP)
Bibliography	**Neurosciences** Dale Purves, George J Augustine, Jennifer M. Groh, Scott A. Huettel , Anthony-Samuel LaMantia, Léonard White Traducteur : Philippe Gailly, Nicolas Tajeddine, Jean-Marie Coquery De Boeck Supérieur 7e édition - juillet 2025 - 912 pages - ISBN 978-2-8073-4831-8
Other infos	This course is reserved for FSM students. Access is possible to other UCLouvain students on the basis of an application to be submitted to the course coordinator.
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 LFSM1104 AND LFSM1105	
Bachelor in Physiotherapy and Rehabilitation	KINE1BA	4	LFSM1101 AND LFSM1104 AND LFSM1105	