UCLouvain

llogo1324

2023

Digital development and dyscalculia

4.00 credits	30.0 h	Q1

Teacher(s)	Noël Marie-Pascale ;
Language :	French
Place of the course	Louvain-la-Neuve
Learning outcomes	
Evaluation methods	The certification evaluation is carried out by a written exam containing mostly open questions requiring a short and precise answer. The exam may also include some multiple choice questions. During the September session, if a very small number of students are registered for the exam, the teacher may decide to propose an oral exam instead of a written exam.
Teaching methods	Lecture by the teacher.
Content	Topics: Cognitive bases of numerical development in typical children and in people with dyscalculia- Proto-numerical tools in babies, including the analog line metaphor (or ANS: approximate number system) - Counting (development of the verbal numerical chain) and enumeration (principles and development of sets counting) - Symbolic codes : - oral/written verbal numbers, arabic numbers, lexicon, syntax, transcoding - base 10 representation - Access to the magnitude of large numbers - Link between these basic numerical capabilities and arithmetic performance - Calculation : 1. o Sensitivity to additions-removals in babies; non-verbal calculations in infants, approximate calculation ; 2. o strategy development, Siegler's association distribution model, base 10 for complex calculations - word problem solving - Rational numbers: decimal numbers and fractions - Dyscalculia : 1. o definition, prevalence, difficulties presented, associations with other disorders, 2. o causal hypotheses (genetic contribution; role of general cognitive factors, deficit in basic numerical factors, etc.) 3. o neuro-functional correlates 4. - Rehabilitation and experimental training - Special issues that may be considered: 1. relationship between fingers and numbers ; 2. hypersensitivity to interference in arithmetic fact deficits; 3. deficit of the semantic representation of number in visuo-spatial dyspraxias.
Inline resources	Pdf documents correspoding to the slides of the course are available on moodle. Other ressource: a synthesis from INSERM http://www.ipubli.inserm.fr/bitstream/handle/10608/110/Synthese.html#titre_n1_10
Bibliography	Ouvrages de référence: 1. Noël, M.-P. & Karagiannakis, G. (2020). *Dyscalculie et difficultés d'apprentissage en mathématiques. Guide pratique de prise en charge.* De Boeck supérieur, Louvain-la-Neuve, Belgique, 317 pages, ISBN : 978-2-8073-1899-1 2. Noël, M.P. & Karagiannakis, G. (2022). *Effective teaching strategies for dyscalculia and learning difficulties in mathematics. Perspectives from cognitive neuroscience.* Routledge, New York, 303 pages, ISBN 9781032151434.
Other infos	Support: documents, powerpoint presentations etc available on Moodle, references to published articles; book in English can be used as a very good support for the course. The standard exam is a written exam in French. However, international students taking this course: • Will be allowed to use a dictionary when taking the written exam in French • Are provided with the opportunity to write all their answers in English

Faculty or entity in charge	ELOG

Programmes containing this learning unit (UE)

Program title	Acronym	Credits	Prerequisite	Learning outcomes
Bachelor in Psychology and Education : Speech and Language Therapy	LOGO1BA	4		