UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

SYLLABUS DEL CORSO

Applied Cognitive Development

2223-2-F5105P010

Learning area

Applied Experimental Psychological Sciences

Learning objectives

**Knowledge and understanding **

• Typical cognitive development: models, methods and instruments to assess cognitive development
• Atypical cognitive development: etiological models explaining neurodevelopmental disorders
• Experimental designs to study neurodevelopmental disorders
• Technological approaches to assess and address neurodevelopmental disorders

**Applying knowledge and understanding **

• Understanding, analysis, and evaluation of research designs in cognitive developmental psychology
• Identifying and analyzing the critical elements of research designs to understand different application in cognitive development
• Applying experimental paradigms for the investigation of typical and atypical cognitive development and its relationships with behaviour and emotions
• Exploring and reasoning about potential and limits of technological approaches applied to atypical development

Contents

Studies on cognitive development are devoted to understand the typical developmental trajectory, as well as the

etiology of neurodevelopmental disorders, and improve assessment tools and treatment programs. In this course, different types of cognitive processes will be presented and discussed: attention, memory, executive function, school learning, language, theory of mind, intelligence and visuo-spatial skills. These cognitive processes will be analyzed in relation to neurodevelopmental disorders (ADHD, Autism, Learning Disability, Language Impairment), school inclusion, effects of the new media on cognition, the reliability of child witness, as well as sensory and social deprivation. Students will familiarize with experiments and tests for the assessment of cognitive development. The neurological basis and the use of new technological approaches, such as robots and virtual reality to assess and promote cognitive development will be presented and discussed.

Detailed program

The course focuses on theory and practice of the research approach to analyze different aspects of cognitive development:

• Assessment and treatment of neurodevelopmental disorders, with a focus on Learning Disabilities, ADHD and Autism
• Neurological basis of developmental disorders
• Trainings for children with neurodevelopmental disorders: how to define a project and how to test their efficacy
• Use of new technology, such as robots and virtual reality, to understand and train cognitive processes in children
• School inclusion of children with special educational needs
• Atypical development of attention and executive function in relation to technological devices, such as video games
• Sensitive periods for sensory learning
• Sensory and social deprivation

Prerequisites

A background in developmental psychology and cognitive psychology will help in understanding the course content. Students lacking such basic knowledge are encouraged to ask for a list of basic references.

Teaching methods

The teaching method will be interactive and will take place through the discussion of scientific articles, videos' presentations and comments, practical exercises, and discussions on the course topics. The course material (slides and, when possible, scientific articles) will be made available on the e-learning site of the course so that also non-attending students can use it.

Assessment methods

The exam will verify the level of mastery of the course contents with special attention to:

- Methods and research designs for treatment evaluation
- Methods and research designs in cognitive development

- Ability to elaborate course contents
- Ability to analyze a scientific paper in the field of cognitive development.

The exam will consist of an oral presentation + discussion of a paper on cognitive development and a written research project derived from the scientific paper.

Textbooks and Reading Materials

1. Slides presented in class
2. Papers will be presented at the beginning of the class

The bibliography will be provided at the beginning of the class and published in the class web-site

Sustainable Development Goals

GOOD HEALTH AND WELL-BEING