UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

50 Neuro-Idee: Dal neurone alla Neuroetica

2526-122R-25

Title

50 Neuro-Ideas: from the neuron to neuroethics

Teacher

Prof. Lucio Tremolizzo

Language

Italian

Short description

In this course we will address in a agile manner, 50 basic neuroscience ideas, outlining a continuum:

- STRUCTURE AND FUNCTION OF THE NERVOUS SYSTEM
  01 The nervous system, 02 The neuron doctrine, 03 Glial cells, 04 The nervous impulse, 05 Synaptic transmission, 06 Sensory perception, 07 Movement, 08 Topographic mapping
  09 Specialized brain regions, 10 Brain asymmetry

- YOUR BRAIN, YOUR SELF

11 Mirror neurons, 12 The connectome, 13 Embodied cognition, 14 Bodily awareness, 15 Free will, 16 Sex differences, 17 Personality, 18 Brain-damaged patients, 19 The theatre of consciousness, 20 Consciousness disorders

- THOUGHT PROCESSES
  21 Attention, 22 Working memory, 23 Learning and memory, 24 Mental time travel, 25 Memory (re) consolidation, 26 Decision-making, 27 Reward and motivation, 28 Language processing, 29 Executive function

- THE DYNAMIC BRAIN
  30 Cell migration and axon pathfinding, 31 Cell death, 32 Synaptic pruning, 33 Neuroplasticity, 34 Adolescence, 35 Stress and the brain, 36 The ageing brain, 37 Neurodegeneration

- BREAKING FROM DOGMA
  38 Adult neurogenesis, 39 Epigenetics,40 Default mode, 41 Brain-wave oscillations, 42 Prediction error

- EMERGING TECHNOLOGIES AND CHALLENGES
  43 Neural stem cells, 44 Brain stimulation, 45 Cognitive enhancement, 46 Brain scanning, 47 Decoding, 48 Brain-computer interfacing, 49 Neuroscience and the law, 50 Neuroethics

Target audience

PhD students: neuroscience interdisciplinary course

Maximum number of participans

open

Assessment method

discussion

CFU / Hours

1 CFU/8 hours

Teaching period and mode

May 12-19-26 2026, hours 14-17

Sustainable Development Goals

GOOD HEALTH AND WELL-BEING