University of Trieste
Department of Life Sciences

International Master's Degree in Neuroscience

(LM-6 Classe delle Lauree in Biologia)

Annex 2 (Allegato 2)

Fundamental courses

CELLULAR AND MOLECULAR NEUROBIOLOGY
(NEUROBIOLOGIA CELLULARE E MOLECOLARE)
Aims
The aim of the course is to familiarize the students with the concept of the relationship between the structure of the different subcellular structures of a neuron and their role in the physiological functions with emphasis on the molecular mechanisms. The practical and theoretical lectures also aim at introducing the students to the scientific methodology typical of cellular neurobiology.

COGNITIVE NEUROSCIENCE
(NEUROSCIENZE COGNITIVE)
Aims
To provide a brain-based account of cognition, and a complete knowledge of the neuroscience methods. To provide a brain-based account of sensation and perception, and to develop practical knowledge of psychophysical methods.

DEVELOPMENTAL NEUROGENETICS
(NEUROGENETICA DELLO SVILUPPO)
Aims
To understand nervous system development through the overview of the major topics of brain and spinal cord embryological development, at the genetic, molecular and cellular level. To understand the genesis of neuronal connectivity patterns in complex nervous systems

INTEGRATIVE NEUROPHYSIOLOGY
(NEUROFISIOLOGIA INTEGRATIVA)
Aims
This part of the course will focus on main principles of sensory-motor integration. Students will learn to consider sensory and motor systems as a functionally unique apparatus devoted to the interaction with the external world.

MOLECULAR NEUROPHYSIOLOGY
(NEUROFISIOLOGIA MOLECOLARE)
Aims
The purpose of the course is to provide a sound basis of membrane biophysics, ion channels and receptors to understand the fundamental molecular processes responsible for chemical and electrical cell communication. In particular, the course will focus on the mechanisms responsible for cellular excitability, in both central and peripheral nervous systems.

NEUROANATOMY AND NEUROPHARMACOLOGY

(NEUROANATOMIA E NEUROFARMACOLOGIA)

Aims

To introduce the principles at the basis of the pharmacokinetic and pharmacodynamic properties of the drugs, expecially of those acting at the central nervous system

NEUROFUNCTIONAL TECHNIQUES

(TECNICHE NEUROFUNZIONALI)

Aims

Understanding the physical and physiological basis of the modern techniques used in human brain mapping. To be able of designing and performing an MRI study for brain mapping. The student will also learn the basic aspect of recording and analyze the electrical brain signals with particular emphasis on the basic approaches to build a brain computer interface.

NEUROPATHOLOGY

(NEUROPATOLOGIA)

Aims

The course seeks to provide the basic tools for the understanding of the physiopathological, symptomatological, diagnostic and therapeutic aspects of some of the most important neurodegenerative diseases, and their modeling in animals. The feasibility of these models and the potential for translating the arising experimental data into sound clinical practice, will be addressed. The students will therefore be able to associate the neural pathology recapitulated by each model to the most suitable/updated strategies for its diagnosis or therapy.