Interfaculty Graduate Neuroscience Program
(IGNP)

The interfaculty graduate program leading to the MS degree in neuroscience draws on the resources
of the Faculty of Medicine, the Faculty of Engineering and Architecture, and the Faculty of Arts and
Sciences, and is administered by graduate committees of the faculties concerned.

Neuroscience is the study of the nervous system. It includes an interrelated set of scientific
disciplines including basic (neuroanatomy, neurophysiology, neurochemistry, neuropharmacology,
neurobehavior) and clinical (neurology, neurosurgery, anesthesiology, neuropathology,
ophthalmology, psychiatry) subjects. Although the participating faculty comes primarily from the
Physiology and Human Morphology Departments in the Faculty of Medicine, major contributions are
made from faculty in the Neurology and Neurosurgery Divisions and the Psychiatry Department in the
Faculty of Medicine, the Biology Department in the Faculty of Arts and Sciences, and the Electrical
Engineering Department in the Faculty of Engineering and Architecture.

The Interfaculty Graduate Neuroscience Program is a member of the Association of Neuroscience
Departments and Programs (ANDP) in Bethesda, Maryland (USA), whose aim is to advance education
and research in neuroscience.

Admission Requirements
Student applicants must be recommended for admission by both the department concerned and
the appropriate graduate committee. The program is flexible in accepting students from a variety
of backgrounds, including MD graduates and holders of the BS degree from various university
programs.

Graduation Requirements for the MS in
Neuroscience

- Students holding a BS or BA degree are required to take a minimum of 21 graduate credit hours and
  present a thesis based on independent research in one of the basic neuroscience subjects.
- Holders of the MD degree, or medical students who have completed the first two years towards the
  MD, are required to take a minimum of 10 non-medical graduate credit hours in addition to a thesis.
- Only one course (IDTH 308 - Nervous System (6 credits)) is required, in addition to a wide choice of
  electives from various departments and faculties.
Average Length of Time

- Four semesters for holders of BS or BA degrees.
- Two semesters for MD graduates or medical students who have completed the first two years of the medical program.

Course Descriptions

Required Courses

**IDTH 308**  
**Nervous System**  
62.54; 6 cr.
A course that covers the structure and function of the human nervous system. This course can also be taken in two parts: *IDTH 308A* and *IDTH 308B*. Six weeks. Annually.

**IDTH 308A**  
**Neuroanatomy**  
31.27; 3 cr.
Offered to graduate students the course covers normal structure of the human nervous system. *See Department of Human Morphology*. Three weeks.

**IDTH 308B**  
**Neurophysiology**  
31.27; 3 cr.
Offered to graduate students the course covers function of the human nervous system. *See Department of Physiology*. Three weeks.

**IDTH 301**  
**Introduction to Medical Science Literature**  
16.32; 2 cr.
A multi-disciplinary approach to the use of medical science publications (open to beginning graduate students in the Faculty of Medicine). *This course is a requirement for all graduate students in the Faculty of Medicine*.

**IDTH 397–398**  
**MS Thesis**  
9 cr.

Recommended Courses

**IDTH 309**  
**Biology of Nerve and Muscle**  
48.0; 3 cr.
A multi-disciplinary study of anatomy, physiology, biochemistry, pharmacology, and pathology of nerve and muscle. *Alternate years*.

**PHYL 210**  
**General Physiology: Cellular Mechanisms**  
48.16; 3 cr.
A study of aspects of membrane transport processes across symmetrical and asymmetrical cell membranes, electrophysiology, membrane potentials, action potentials in excitable cells, synaptic transmissions, and excitation-contraction coupling in muscles. *Annually*.

**PHYL 324**  
**Electrophysiology of Excitable Cells**  
12.9; 1 cr.
A study of the basic mechanisms of membrane cable property and resting potentials in all cells, action potential initiation and propagation in excitable cells, receptor physiology, central synaptic transmission, neuromuscular transmission, and muscular contraction. *Annually*.

In addition, any elective graduate course from other graduate programs.