COURSE UNIT

Functional Neuroanatomy

HEAD LECTURER

Adriana Sampaio

LEARNING OUTCOMES

From this course, students are expected to:
1. Know the main macroscopic and functional organization of the central and peripheral nervous system;
2. Match alterations of the functional anatomy with main clinical symptoms;
3. Match structural and functional anatomy with medical images;
4. Describe the cerebrovascular anatomy, vascular territories and clinical correlates of an injury;
5. Describe the anatomy-function correlation in major neurological syndromes.

SYLLABUS

1. Macroscopic Anatomy of the Central and Peripheral Nervous System.
2. Brainstem and Spinal Cord: Clinical Correlates.
3. Mesencephalon - Clinical Correlates.
4. Cerebellum - Clinical Correlates.
5. Basal Ganglia - Clinical Correlates.
6. Hypothalamus - Clinical Correlates.
7. Limbic System - Clinical Correlates.
8. Cerebral Cortex - Clinical Correlates.
9. Main bundles of inter- and intra-hemispheric fibers - clinical correlates.
10. Cerebral brain flow.

TEACHING METHODS

Four methodologies will be employed during the course: (1) oral presentations of theoretical content; (2) functional classifications through medical imaging; (3) developing core knowledge through readings of scientific articles; (4) analysis and discussion of clinical cases. Clinical case analysis consists of problem-oriented teaching in which students use their knowledge of brain structure and functioning to resolve standard clinical cases, and whenever possible clinical cases are discussed using complementary imaging tests.

ASSESSMENT METHODS

Assessment includes three components:
1. Attendance and participation in the workshops;
2. Short answer questions about the topics addressed in the course (65%); minimum score 7,5;
3. Case study analysis (35%) - Case study days began with the Professor that gives a 15-minute overview of the neuroanatomy relevant to the topic. Small group presentations of the case follow the instructor’s introduction to the anatomy relevant to the case (20 minutes). Then there is 15-minute discussion of the case, led by the designated discussion leaders.

BIBLIOGRAPHY

1. Adifi, A. & Bergman, R. 2005. Functional Neuroanatomy: Text and Atlas, 2nd Edition. New York: Lange Basic Science - McGraw Hill Companies.
2. Haines, D. (2015). Neuroanatomy in Clinical Context: An Atlas of Structures, Sections, Systems, and Syndromes (9th Edition). China: Wolters kluwer Health.
3. Hendelmen, (2006). Atlas of Functional Neuroanatomy (2 Edition). USA: Taylor & Francis Group, LLC.
4. Snell, R. (2010). Clinical Neuroanatomy. 7th edition. Philadelphia: Lippincott Williams & Wilkins.