



NEUROSCIENCE

NEUR 300

Course Description

Neuroscience provides the basis for the understanding of structure and function of the human nervous system and disorders affecting it. The course is kept relevant by including discussions of appropriate clinical cases and scenarios. Students will also have the opportunity to extend their understanding of some areas and to develop skills in self-directed learning.

Credit: 3 credits

Repeatable: No

Competencies: At the end of Neuroscience, the student will have had the opportunity to practice the following competencies through meeting the objectives of the course:

Medical Knowledge

- MK1 Demonstrate knowledge of normal and abnormal structure and function of the human body on the macroscopic, microscopic and molecular levels.
- MK2 Identify the pathology and pathophysiology of various diseases and correlate them with clinical signs and symptoms.
- MK3 Demonstrate knowledge of common or significant, acute and chronic clinical problems.
- MK5 Demonstrate comprehension of clinical interventions and agents including pharmaceutical, surgical, genetic, complementary and alternative medicines, and other

Course Structure

This course is presented in several formats: Lectures with PowerPoint presentations (recorded), case discussions, and self-directed learning.

Objectives:

- To provide an overview of the topography and structural organization of the Human Nervous System.
- To describe the basic features of development of the nervous system and to understand how and why common malformations occur in the nervous system.
- To understand the ultrastructure of neurons and glia and the major cyto-architectural features of the brain and spinal cord.
- To obtain a basic understanding of the techniques used to investigate morphology and connections of neurons to provide the basis for further study of the nervous system.

- To obtain an understanding of the functional anatomy of sensory and motor processing and higher cerebral functions such as language and emotions and to be able to apply this knowledge to the clinical situation.
- To understand the principles of the blood supply and venous drainage of the nervous system and to be able to deduce the effects of rupture or occlusion of the major vessels.
- To relate structure and function of the nervous system to presentation of common disorders and diseases of the human nervous system.

Schedule: Dates and times will be posted at the beginning of the term on the online calendar.

Textbooks and Reference Materials

- *Essential Neuroscience* 3rd Ed: Allen Seigal, Hreday N Sapru
- *Gray's Clinical Neuroanatomy: The anatomic basis for clinical neuroscience*
- *Neuroanatomy through Clinical Cases* 2nd Ed; Blumenfeld
- *Lippincott's Illustrated Reviews: Neuroscience*
- *Neuroscience online: An electronic text book for Neuroscience*

Evaluation:

| | Points* |
|--------------|---------|
| 2 Quizzes | 30 |
| Mid term | 50 |
| Final exam | 50 |
| Total points | 130 |

Grade:

| Percent of Points | Letter Grade |
|-------------------|--------------|
| 95-100% | A+ |
| 90-94% | A |
| 85-89% | B+ |
| 80-84% | B |
| 75-79% | C+ |
| 70-74% | C |
| <70% | F |

Attendance: Students are expected to attend all scheduled learning activities.

Policies

Those relevant to course.

Faculty:

Dr. Binu Shrestha