



### **Course Description**

#### **PHT2162 | Survey of Neurological Deficits | 3.00 credits**

This course introduces the etiology, pathophysiology, and clinical manifestations of common neurological diseases/conditions treated in physical therapy. Neuroanatomy of the central and peripheral nervous system is reviewed. Reflex integration as well as normal growth and development are discussed. Students have an end of course project-based topic assignment that pertains to commonly seen neurological conditions in physical therapy. Prerequisites: PHT2120, PHT2120L, PHT2224, PHT2224L, PHT2801C; Corequisites: PHT2701, PHT2701L, PHT2810

### **Course Competencies:**

**Competency 1:** The student will identify the overall organization of the nervous system by:

1. Identifying the major divisions
2. Describing the location of the motor cortex
3. Describing the location and major function(s) of the major lobes
4. Describing in a general way clinical manifestations of an impairment of any of the lobes
5. Defining homunculus
6. Defining the pyramidal and extrapyramidal tract in terms of origin, destination and characteristics of a lesion
7. Differentiating between phasic and tonic muscles
8. Defining a motor unit
9. Describing the two ways to increase the force of a muscular contraction
10. Listing the receptors presumed to aid in the feedback control of movement and define their role(s)
11. Differentiating between the alpha and the gamma motor neuron
12. Defining dermatome
13. Listing the cranial nerves and matching each nerve with its appropriate functions
14. Defining the autonomic nervous system and describing it in terms of anatomical and functional divisions
15. Describing the anatomical structure of a muscle spindle and intrafusal muscle fibers
16. Differentiating between characteristics of an upper motor neuron and a lower motor neuron lesion
17. Defining the following disturbances in muscle tone: hypotonia, hypertonia, spasticity, and rigidity
18. Defining the following terms: tremors, spasms, choreiform movements, athetoid movements, ataxia, and clonus

**Competency 2:** The student will understand processes associated with Spinal

Cord Injury by:

1. Defining quadriplegia and paraplegia
2. Listing the major causes of spinal cord lesions and identifying examples of each
3. Discussing the significance of lesions above C4

**Competency 3:** The student will demonstrate an understanding of processes associated with Upper Motor Lesions of the Brain by:

1. Reviewing the motor characteristics common to UMN lesions
2. Reviewing the etiology and clinical manifestations of UMN injuries commonly treated in the physical therapy clinic, including Cerebral Vascular Accident, Traumatic Brain Injury, Multiple Sclerosis, and Basal Ganglia Disorders

**Competency 4:** The student will demonstrate an understanding of processes associated with LMN Injuries by:

1. Defining Wallerian degeneration
2. Discussing recovery of lower motor injuries relative to prognosis, length of time clinical course
3. Identifying nerves frequently associated with LMN injuries
4. Defining infectious polyneuropathy and describing clinical manifestations

5. Defining post-polio injury and describing clinical manifestations

**Competency 5:** The student will understand Pediatric Injuries by:

1. Reviewing normal development (gross motor and reflex)
2. Reviewing neurophysiological relationships of reflexes and gross motor development
3. Identifying etiologies common to the pediatric patient

**Learning Outcomes:**

- Communicate effectively using listening, speaking, reading, and writing skills
- Solve problems using critical and creative thinking and scientific reasoning
- Use computer and emerging technologies effectively
- Demonstrate knowledge of ethical thinking and its application to issues in society