

STANDARD COURSE OUTLINE

PHTA 2391 & PHTA 2392 Neurophysiology & Neurophysiology Lab

PREREQUISITES

MATH	1204	College Algebra	OR
MATH	1003	Math for AAS	
BIOL	2214	Anatomy & Physiology I	
BIOL	2224	Anatomy & Physiology II	
PSYC	2003	General Psychology	
ENGL	1013	English Composition I	
ENGL	1023	English Composition II	OR
ENGL	2013	Technical Writing	
AHSC	1001	Medical Terminology	
CISQ	1103	Introduction To Computer Information	
PHTA	2105	Clinical Kinesiology in PT	

Admission into the Physical Therapist Assistant Program

Completion of courses in the technical phase of the PTA Program for the 1st summer and fall semester.

COURSE DESCRIPTION PHTA 2391: This course is designed to provide the PTA student with a strong understanding of the Pathophysiology of clinical manifestations for lesions of the PNS and CNS, and the skills to perform neurological assessments.

COURSE DESCRIPTION PHTA 2392: Lab skills to accompany PHTA 2391.

CREDIT HOURS/CONTACT HOURS/LOAD HOURS:

PHTA 2391: 1 credit hour/non-transferable; 1 contact hour & 1 load hour

PHTA 2392: 2 credit hours/non-transferable; 6 contact hours and 6 load hours.

TARGET AUDIENCE: Students admitted to the PTA Program who complete the PHTA technical courses in the summer and fall semesters

INSTRUCTIONAL MATERIALS: See Instructor for Details.

STUDENT LEARNING OUTCOMES/COURSE OBJECTIVES:

Upon successful completion of this course, the student should be able to:

1. Demonstrate ability to accurately perform neurological assessments to include:
 - a. Integrity of myotomes and dermatomes for nerve roots.
 - b. Balance and coordination testing utilizing a variety of tools to include some standardized questionnaires or forms.
 - c. Righting Reactions

- d. equilibrium and non-equilibrium testing
 - e. sensory testing following appropriate guidelines and differentiate between tests for superficial sensation, proprioceptive sensation, and cortical sensation
 - f. assessment of muscle tone
 - g. DTR's
 - h. cranial nerves
 - i. Glasgow Coma Scale
2. Given a written scenario or PT evaluation with objective findings demonstrate the ability to assess the disease process in terms of:
 - a. Location
 - b. Etiology
 - c. Prognosis
 - d. Appropriate assessments
 - e. Signs and symptoms
 - f. Medical and physical therapy treatment/interventions for the following: CVA, SCI, HI, MS, disorders of the basal ganglia, cerebellum, cranial nerves, myopathies, peripheral neuropathies, and degenerative neurological diseases.
 3. Describe and/or identify the components and functions of the nervous system to include components of the CNS, PNS, and ANS.
 4. Demonstrate a basic understanding of neuroanatomy and physiology of neurons and muscles.
 5. Demonstrate a basic understanding of GTO's and muscle spindles and their function.
 6. Demonstrate the ability to:
 - a. Identify dermatome and peripheral nerve sensory boundaries
 - b. Identify and differentiate between the spinal cord tracts for function and location.
 - c. Signs and symptoms associated with a variety of spinal cord lesions and syndromes.
 - d. Probable location of lesion.
 7. Given a case history, or case based problem, demonstrate knowledge of the brain's blood supply by:
 - a. Assessing artery involved
 - b. Area of brain involved
 - c. Probable signs and symptoms associated with a lesion to specific arteries and/or areas of the brain
 8. Differentiate between the types of muscle fibers and nerve fibers.
 9. Differentiate between signs and symptoms of UMNL and LMNL.

10. Given a PT evaluation with goals and a POC develop and provide the following patient and/or family education/recommendations regarding:
 - a. Equipment
 - b. Safety issues as the relate to ADLs
 - c. Possible barriers in the home, community and work
 - d. Discharge recommendations based on findings from neurological assessments within the parameters of the POC
11. Given a PT evaluation with objective findings, goals and POC and/or by the student performance ROM, MMT, sensory testing, balance testing, coordination testing, etc. the student will demonstrate knowledge and understanding of the findings to assess probable location of lesion.
12. Demonstrate ability to accurately document assessment findings in a SOAP note format or approved assessment forms for:
 - a. Sensation
 - b. DTR
 - c. Balance
 - d. Coordination
 - e. Glasgow Coma Scale
 - f. Cranial nerves
13. Demonstrate understanding of neurological terms and diseases in written format of oral discussions.
14. Demonstrate appropriate verbal and non-verbal communication and clear instructions when instructing mock patients to perform assessments for sensation, balance, coordination, cognition, MMT, ROM , cranial nerves, DTR's etc.
15. Given a PT evaluation with objective findings or a mock patient with a spinal cord injury and level of lesion, demonstrate ability to assess:
 - a. Probable functional status patient may achieve
 - b. Muscles available for ADL's
 - c. Muscle function and nerve roots for muscles
 - d. Appropriate assessment tests which should be performed to include MMT, sensory assessments, and assessment of ADL's.
16. Demonstrate safety awareness during all assessment activities to include providing appropriate level of assistance and utilizing correct guarding techniques as applicable.

17. Demonstrate awareness of signs and symptoms of autonomic dysreflexia and appropriate emergency measures to take.
18. Demonstrate conduct during lab sessions and laboratory practicals that reflect practice standards that are legal, ethical, safe and within the parameters of the PTA practice act and POC.
19. Demonstrate ability to assess a patient's ability to follow and understand instructions.
20. Demonstrate knowledge and utilization of universal precautions during all laboratory procedures.
21. Recognizes when an intervention or assessment is beyond that which is appropriate for a PTA and initiates clarification with the PT.

TOPICS:

Neuroanatomy and Physiology of Neurons and Muscle Fibers Central Nervous System, Peripheral Nervous System & Autonomic Nervous System, Balance Assessments, Anatomy and Functional Components of the Spinal Cord, Muscle Spindle, GTO's, spinal reflexes, Muscle Tone, Alpha, Beta, & Gamma Motor neurons, Nerve Plexuses, Myotomes, Dermatomes Tracts of the Spinal Cord (motor and sensory), Sensory Testing, CVA & Blood Supply to Brain & Spinal Cord Disorders of Basal Ganglia, Cerebellum & Demyelinating, Disorders, Multiple Sclerosis, Coordination Testing Cranial Nerves and Vagal System, Spinal Cord Injury, Myopathies, Peripheral Neuropathies, Myasthenia Gravis; Genetic & Developmental Disorders, Traumatic Head Injury, Glasgow Coma Scale.

FORMS OF ASSESSMENT

GRADES WILL BE BASED UPON:

1. Written Exams
2. Comprehensive mid-term
3. Comprehensive final
4. Lab Examinations:
5. Quizzes (may/may not be announced).
6. Comprehensive final practical.
7. Lab Assignments