DATE OF LAST REVIEW: 02/2013

CIP CODE: 51.0806

SEMESTER: Departmental Syllabus

COURSE TITLE: Neuromuscular Rehabilitation

COURSE NUMBER: PHTR 0275/1275

CREDIT HOURS: 5

INSTRUCTOR: Departmental Syllabus

OFFICE LOCATION: Departmental Syllabus

OFFICE HOURS: Departmental Syllabus

TELEPHONE: Departmental Syllabus

EMAIL: Departmental Syllabus

*KCKCC-issued email accounts are the official means for electronically communicating with our students.*

PREREQUISITES: Fundamental Treatment Procedures
Musculoskeletal I, II and III
Clinical Skills I, II and III

REQUIRED TEXT AND MATERIALS: Please check with the KCKCC bookstore, http://www.kckccbookstore.com/, for the required texts for your particular class.

COURSE DESCRIPTION:
This course covers neuroanatomy, neurological dysfunction, neurological treatment theories, pediatrics and geriatrics. The student will learn entry-level knowledge and skills necessary to assess the status of and treat pediatric patients, geriatric patients, and patients with various neurological disorders.

METHODS OF INSTRUCTION:
A variety of instructional methods may be used depending on content area. These include but are not limited to: lecture, multimedia, cooperative/collaborative learning, labs and demonstrations, projects and presentations, speeches, debates, and panels, conferencing, learning experiences and performances outside the classroom. Methodology will be selected to best meet student needs.
COURSE OUTLINE:
I. Neuroanatomy
   A. Organization of the nervous system
   B. Anatomy of the brain and spinal cord
   C. Cranial nerves

II. Somatosensory system
   A. Organization
   B. Abnormalities
   C. Sensory testing

III. Motor system
   A. Structure and function
   B. Muscle tone
   C. Disorders

IV. Autonomic nervous system
   A. Anatomy
   B. Disorders

V. Vestibular and visual systems
   A. Anatomy
   B. Disorders

VI. Neuroplasticity

VII. Motor control and motor learning

VIII. Cognition and perception

IX. Cerebrovascular accident
    A. Physiology
    B. Tests and Measures
    C. Interventions
    D. Pharmacology

X. Traumatic brain injury
   A. Physiology
   B. Tests and Measures
   C. Interventions

XI. Multiple sclerosis
    A. Physiology
    B. Tests and Measures
    C. Interventions

XII. Amyotrophic lateral sclerosis
    A. Physiology
    B. Tests and Measures
    C. Interventions
XIII. Spinal cord injury
   A. Physiology
   B. Tests and Measures
   C. Interventions
   D. Ambulation training for patients with SCI

XIV. Peripheral nerve disorders
   A. Physiology
   B. Pathology
   C. Tests and Measures
   D. Interventions

XV. Geriatrics
   A. Physiology
   B. Pathology
   C. Tests and Measures
   D. Interventions
   E. Pharmacology

XVI. Pediatrics
   A. Developmental reflexes
   B. Pathology
   C. Tests and Measures
   D. Interventions
   E. Pharmacology

EXPECTED LEARNER OUTCOMES:
A. The student will discuss the anatomy and physiology of all components of the nervous system.
B. The student will discuss a variety of neurological disorders and the effect of each on patient functioning.
C. The student will demonstrate an understanding of pathologies and treatment applications specific to the practice of physical therapy with pediatric patients.
D. The student will demonstrate an understanding of pathologies and treatment applications specific to the practice of physical therapy with geriatric patients.
E. The student will perform various physical therapy tests and measures used in the assessment of patients with neurological, pediatric and geriatric disorders to identify current level of functioning.
F. The student will assimilate assessment results to implement a treatment session within the PT plan of care for a patient with neurological disorder.
G. The student will appreciate the role of the PTA as a professional member of the rehabilitation team in the treatment of a patient with neurological dysfunction.

COURSE COMPETENCIES:
The student will discuss the anatomy and physiology of all components of the nervous system.
1. The student will identify the location and function of various structures within the brain and spinal cord.
2. The student will diagram the vascular supply of the brain.
3. The student will outline the information received and/or sent via each cranial nerve.
4. The student will compare and contrast the sympathetic and parasympathetic divisions of the autonomic nervous system.
5. The student will discuss how the nervous system remolds itself via neuroplasticity.
The student will discuss a variety of neurological disorders and the effect of each on patient functioning.

6. The student will relate the injury of an anatomical structure to expected symptoms and/or functional limitations.
7. The student will internalize the effect of autonomic nervous system functioning on a patient’s performance.
8. The student will compare and contrast the symptoms of stroke given the arterial supply affected.
9. The student will discriminate between behaviors that result from a right or left hemisphere lesion.
10. The student will infer expected impairments and functional limitations arising from an upper versus lower motor neuron lesion.
11. The student will summarize the role of the PTA in the stages of recovery following stroke and traumatic brain injury.
12. The student will differentiate common complications and expected functional outcomes based on the level of injury in a patient following a spinal cord injury.
13. The student will compare and contrast the clinical presentation of ALS and MS.
14. The student will differentiate the signs and symptoms of common peripheral nerve disorders.
15. The student will compare and contrast the expected functional limitations for various disorders of the vestibular system.
16. The student will discuss the effect on function of visual deficits resulting from lesions at various locations of the visual pathway.

The student will demonstrate an understanding of pathologies and treatment applications specific to the practice of physical therapy with pediatric patients.

17. The student will analyze the effect on function of the persistence or lack of attainment of developmental reflexes, righting and equilibrium reactions.
18. The student will observe the assessment of developmental reflexes on a pediatric patient.
19. The student will discriminate between normal and abnormal development in an infant or young child.
20. The student will demonstrate progression of treatment techniques in each developmental position.
21. The student will summarize the typical clinical presentation of various pediatric diagnoses.
22. The student will accept the role of family centered care in treating pediatric patients.

The student will demonstrate an understanding of pathologies and treatment applications specific to the practice of physical therapy with geriatric patients.

23. The student will analyze normal age-related physiological changes as they relate to various theories of aging.
24. The student will outline the benefits of physical activity for the elderly population.
25. The student will summarize the typical clinical presentation of various geriatric diagnoses.

The student will perform various physical therapy tests and measures used in the assessment of patients with neurological, pediatric and geriatric disorders to identify current level of functioning.

26. The student will internalize the importance of conducting a multi-systems assessment prior to implementing the PT plan of care.
27. The student will perform cranial nerve and sensory testing on a simulated patient.
28. The student will predict the level of a spinal injury based on dermatome and myotome assessment.
29. The student will perform coordination and functional balance assessments on a simulated patient.
30. The student will assess a simulated patient for memory and perception deficits.
31. The student will demonstrate testing utilized to determine changes in muscle tone.
32. The student will assess alignment of a patient’s trunk and extremities during activity completion.
33. The student will perform various standardized and functional assessments to determine level of function and independence level for patients with neurological, pediatric and geriatric disorders.

*The student will assimilate assessment results to implement a treatment session within the PT plan of care for a patient with neurological disorder.*

34. The student will utilize appropriate facilitation and inhibition strategies to address sensory dysfunction.

35. The student will instruct a patient in a variety of activities to address balance and coordination dysfunction.

36. The student will demonstrate treatment of a simulated patient with a neurological condition using a variety of specialized treatment techniques (PNF, NDT, etc.)

37. The student will provide gait and locomotion training to a simulated patient with neuromuscular disorder.

38. The student will discuss the use of electrotherapeutic modalities as an adjunct to treatment in a patient with neurological dysfunction.

39. The student will propose adaptation techniques useful when working with patients affected with memory deficits.

40. The student will integrate the concepts of motor control and motor learning into a simulated patient scenario.

41. The student will outline a treatment plan within the PT plan of care for a patient with neurological dysfunction.

42. The student will outline appropriate progression of an exercise program within the plan of care.

43. The student will provide appropriate instruction to a patient, family member, or caregiver for a simulated patient scenario.

44. The student will value the importance of adhering to appropriate documentation standards when completing a SOAP note for a simulated patient scenario.

45. The student will appreciate the psychological impact of neurological dysfunction on the individual and family members.

*The student will appreciate the role of the PTA as a professional member of the rehabilitation team in the treatment of a patient with neurological dysfunction.*

46. The student will analyze the role of the PTA in assisting the physical therapist with the evaluation of the patient with neurological, pediatric and geriatric disorders.

47. The student will compile a research report related to treatment of a given neurological disorder.

48. The student will discuss when it is appropriate to communicate with the PT based on a patient’s response to treatment or change in status.

49. The student will display a professional demeanor in all interactions in the classroom and simulated patient treatment scenarios.

50. The student will conduct himself in a manner that demonstrates a commitment to legal, ethical and safe practice standards in all simulated patient treatment scenarios.

**ASSESSMENT OF LEARNER OUTCOMES:**
Assessment methods include, but may not be limited to: written tests, laboratory practicals, homework assignments and observation of professional behavior.

**SPECIAL NOTES:**
This syllabus is subject to change at the discretion of the instructor. Material included is intended to provide an outline of the course and rules that the instructor will adhere to in evaluating the student’s progress. However, this syllabus is not intended to be a legal contract. Questions regarding the syllabus are welcome at any time.
Kansas City Kansas Community College is committed to an appreciation of diversity with respect for the differences among the diverse groups comprising our students, faculty and staff that is free of bigotry and discrimination. Kansas City Kansas Community College is committed to providing a multicultural education and environment that reflects and respects diversity and that seeks to increase understanding and tolerance.

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