Virginia Western Community College
PTH 115
Kinesiology for the Physical Therapist Assistant

Prerequisites
BIO 142, PTH 151 and PTA program placement

Course Description
Focuses on the relationship of specific joint structure and function, the role of individual muscles and groups of muscles and neurologic principles in both normal and pathological movement. The course includes a review of basic physics and biomechanical principles applied to human movement. Includes specific posture and gait analysis. Data collection techniques for various body systems, with focus on nervous and musculoskeletal, are integrated throughout the course.

Semester Credits: 5 **Lecture Hours:** 2 **Lab:** 6

Required Materials
1. PhysioU Subscription
2. *Clinical Kinesiology and Anatomy, 6th edition* by Lynn S. Lippert; ISBN: 978-0803658233 (should have from 1st semester)
3. *Trail Guide to the Body, 6th edition* by Andrew Biel; ISBN: 978-0998785066 (should have from 1st semester)
4. Goniometers from student kit purchased in 1st semester

Course Outcomes

At the completion of this course, the student should be able to correctly:

1. Recognize basic physics and biomechanical principles related to human movement and the practice of physical therapy.
2. Outline the laws of motion, including their clinical relevance.
3. Differentiate the classes of levers including their relationship to human movement.
4. Differentiate between various states of equilibrium.
5. Compare the grades of manual muscle testing.
6. Identify common muscle substitutions during manual muscle testing.
7. Demonstrate competence in assessing strength using manual muscle testing.
8. Identify normal range of motion measurements and end-feels for the major joints of the human body.
9. Demonstrate competence in assessing joint range of motion using a goniometer and inclinometer.
10. Demonstrate competence in assessing functional range of motion.
11. Demonstrate competence in assessing muscle length.
12. Demonstrate competence in assessing dermatomes, myotomes, and reflexes.
13. Demonstrate competence in assessing anthropometric measurements including height, weight, length, and girth.
14. Recognize common special tests utilized during evaluation by the physical therapist.
15. Identify common questionnaires and outcome measures for gait, balance, pain, and level of

function.
16. Demonstrate the ability to administer questionnaires and outcome measures assessing pain and function.
17. Recognize the characteristics of normal posture.
18. Identify common postural deviations.
19. Compare normal and abnormal postural alignment in sitting and standing.
20. Demonstrate competence in assessing posture utilizing a plumb line.
21. Identify the indications, contraindications, precautions, and principles of balance exercises.
22. Given a patient scenario, design a treatment session and treatment progression for a patient with a balance deficit utilizing therapeutic exercise from within the physical therapist's plan of care and appropriate evidence-based resources.
23. Demonstrate competence in performing common balance exercises.
24. Demonstrate the ability to appropriately adjust balance interventions for a simulated patient with a balance deficit.
25. Recognize the stages of the gait cycle using both Rancho Los Amigos and traditional terminology.
26. Correlate joint range of motion and types of muscle contractions occurring during each phase of the gait cycle.
27. Identify common gait deviations.
28. Demonstrate competence in administering common balance and gait outcome measures.
29. Identify basic concepts in professional literature including validity and reliability, common statistical methods, and clinical and statistical significance.
30. Compare the different types of research articles.
31. Compare the specificity and sensitivity of common special tests utilized in physical therapy.
32. Review a research article for scientific rigor and clinical relevance.
33. Organize outcome measures, range of motion, and manual muscle testing measurements into a progress note.
34. Determine when a test or measure should not be performed due to clinical indications or being beyond that which is appropriate for a physical therapist assistant.
35. Recognize when to communicate with the supervising PT regarding the performance and results of tests and measures or change in patient status related to performance of tests and measures.
36. Demonstrate competence in providing verbal instructions to simulated patients related to the performance of tests and measurement procedures.
37. Demonstrate competence in performing a patient interview to assess current pain level and possible contraindications to the performance of delegated tests and measures.
38. Demonstrate the ability to clearly communicate the results of tests and measures with the supervising physical therapist.

Topical Description

This course will cover the following topics:

- Principles of biomechanics and laws of motion.
- Performance of data collection, tests, and measures including:
    - Muscle strength and length
    - Range of motion
    - Functional range of motion

    - Pain
    - Dermatomes, myotomes, and reflexes
    - Anthropometric measurements
    - Use of common questionnaires and outcome measures
- Common special tests utilized during evaluation by the physical therapist.
- Identification of normal and abnormal posture, balance, and gait
- Treatment of abnormal posture, balance, and gait using treatment from the PT plan of care
- Basic concepts in professional literature including validity and reliability, common statistical methods, and clinical and statistical significance
- Communication with the supervising physical therapist related to tests and measures

Notes to Instructors

- This course should follow all PTA program policies.