

**Virginia Western Community College**  
**PTH 151**  
**Musculoskeletal Structure and Function**

**Prerequisites**

PTA program placement

**Course Description**

Studies the human musculoskeletal system. Covers terms of position and movement, location and identification of specific bony landmarks, joint structure and design, ligaments, muscle origin, action and innervation, and emphasizes types of contraction. Foundational information related to the neurological, cardiovascular, and respiratory systems will also be covered in this course.

**Semester Credits: 4   Lecture Hours: 2   Lab: 4**

**Required Materials**

1. *Clinical Kinesiology and Anatomy, 7th edition* by Lynn S. Lippert; ISBN: 978-1719644525
2. *Trail Guide to the Body, 6th edition* by Andrew Biel; ISBN: 0998785067

**Course Outcomes**

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

1. Define terms related to the study of kinesiology.
2. Recognize the normal structure and function of the circulatory system, including the lymphatic system.
3. Recognize the biomechanical principles of respiration.
4. Identify normal and abnormal thoracoabdominal movements during respiration.
5. Recognize the normal structures and function of the nervous system.
6. Identify the major blood vessels and peripheral nerves of the body.
7. Recognize the joint motions that take place within each plane and around each axis.
8. Recognize the normal structure and function of the skeletal system.
9. Differentiate the types of joints found in the body.
10. Identify the structural components of the major joints of the body.
11. Compare normal and abnormal arthrokinematic and osteokinematic motions.
12. Identify the osteokinematics and arthrokinematics of major joints.
13. Compare joints by degrees of motion and joint type.
14. Identify the indications, contraindications, precautions, and principles of passive, active, and active assistive range of motion.
15. Demonstrate competence in performing passive and active assisted range of motion for the extremities.
16. Identify characteristics of normal muscular system structure and function.
17. Outline the three types of muscle contractions.
18. Compare normal and abnormal muscle length and muscle tone.
19. Differentiate between passive and active insufficiency.
20. Differentiate between open and closed kinetic chain activities.
21. Identify common musculoskeletal landmarks and structures.

22. Identify the origin, insertion, action, and innervation of major skeletal muscles.
23. Recognize common musculoskeletal pathologies seen in the physical therapy setting.
24. Demonstrate competence in correctly palpating common musculoskeletal landmarks.

### **Topical Description**

This course will cover the following topics:

- Foundational Information Related to:
  - Basic kinesiology terms and vocabulary
  - Circulatory System
  - Respiratory System
  - Skeletal System
  - Articular System
  - Arthrokinematics
  - Muscular System
  - Nervous System
- Identification and palpation of common musculoskeletal landmarks and structures
- Correct performance of range of motion techniques.
- Normal and abnormal structure, function, and pathologies of the major joints of the:
  - Pelvis
  - Hip
  - Knee
  - Ankle and foot
  - Shoulder girdle and shoulder joint
  - Elbow
  - Wrist and hand
- Identification of the origin, insertion, action, and innervation of major skeletal muscles of the joints and body regions listed above.

### **Notes to Instructors**

- This course should follow all PTA program policies.