

## **Course Description**

### **PHT1102C | Anatomy for the Physical Therapist Assistant | 4.00 credits**

This is a combination course that includes lecture and laboratory. Students learn regional description of human anatomy with emphasis on the structure and function of the musculoskeletal and neurological system, surface anatomy, palpation, and clinical correlations relevant to physical therapy practice. The origin, insertion, action, and innervations of major muscles are emphasized. The laboratory component provides students an immersive experience utilizing a variety of learning tools including computer-assisted learning (CAL) and state of the art anatomy models. Students identify bony landmarks, major muscles, and soft tissue. They are introduced to palpation skills and surface anatomy. Prerequisites: BSC2085, BSC2085L, PHY1004, PHY1004L; Corequisites: PHT1201, PHT1201L, PHT1211, PHT1211L

## **Course Competencies:**

**Competency 1:** The student will learn anatomical terminology for general body regions and the anatomy of the human body by:

1. Listing the synonyms for general body regions (i.e., head and neck, upper limb, trunk, and lower limb with an emphasis on the musculoskeletal system)
2. Naming the synonyms for body surfaces
3. Labeling the planes of the body
4. Defining the various movements that occur within the body

**Competency 2:** The student will describe the osteology of the musculoskeletal system with a review of the structure of the skeletal system including the skull, shoulder girdle, upper limb, thorax, vertebral column, and pelvic girdle, and lower limb by:

1. Defining osteology
2. Listing the functions of the skeletal system
3. Detailing the various types of connective tissue with characteristics of each
4. Discussing the composition of bone
5. Listing the types of bone with identifying characteristics of each
6. Defining diaphysis, epiphysis, metaphysis, and periosteum
7. Defining the various types of bone landmarks
8. Labeling an anterior, posterior, and lateral human skeleton diagram
9. Identifying the axes of joint motion

**Competency 3:** The student will describe and discuss arthrology of the human skeletal system by:

1. Defining arthrology
2. Discussing the classifications of joints from immovable to freely movable
3. Identifying examples of fibrous, cartilage, and synovial joints
4. Listing and describe the three main types of cartilage
5. Describing degrees of freedom

**Competency 4:** The student will overview myology and learn the action, origin and insertions, innervation, and blood supply of the major muscles of the musculoskeletal system by:

1. Identifying histologic aspects of muscle tissue
2. Discussing the physiology of muscle contraction
3. Explaining the function of the muscle spindle

**Competency 5:** The student will discuss the CNS and PNS, dermatomes, myotomes, and peripheral innervation of the muscular system and overview neurology by:

1. Defining origin and insertion and their significance in muscle contractions  
Defining the basic structure of the central and peripheral nervous systems as their function relates to human movement
2. Reviewing the components of the brachial plexus and the lumbosacral plexus

**Competency 6:** The student will describe the osteology/arthrology/myology/neurology of the skull, vertebral column, thorax, and shoulder girdle by:

1. Listing the central portions of the skull
2. Identifying major bony landmarks of the skull
3. Describing the structure and function of the vertebrae
4. Listing the number of vertebrae at each level
5. Describing the characteristic differences between all types of vertebrae
6. Listing the primary and secondary curves of the spinal column
7. Discussing how the spinal curves develop
8. Listing the types of joints located in the spinal column
9. Listing the ligaments of the spinal column
10. Identifying the main muscles of the head/neck/trunk region
11. Relating origins, insertions, and actions of listed muscles found within the head/neck/trunk region
12. Identifying innervation of listed muscles within the head/neck/trunk region
13. Identifying the ribs, the sternum, the clavicle, and related structures
14. Identifying the contribution of the scapula, clavicle, and sternum to shoulder movements
15. Describing the bony landmarks, ligaments, and other structures related to the shoulder girdle or scapula

**Competency 7:** The student will describe the osteology/arthrology/myology/neurology of the Upper Extremity by:

1. Identifying and listing the importance of the landmarks of the shoulder complex
2. Identifying the movements of the upper extremity
3. Identifying and listing the bony landmarks of the humerus
4. Identifying and listing the bony landmarks of the radius and ulna
5. Identifying and listing the bony landmarks of the wrists/hand
6. Describing the articulations found within the upper extremity
7. Relating the muscular movements of the upper extremity to function
8. Identifying prime movers of the upper extremity
9. Identifying the origins, insertions, and actions of listed muscles responsible for the upper extremity's movement
10. Identifying the innervations of listed muscles responsible for the upper extremity's movement

**Competency 8:** The student will describe the osteology/arthrology/myology/neurology Lower Extremity by:

1. Identifying the movements of the lower extremity
2. Identifying the components of the bony pelvis
3. Identifying the bony landmarks of the femur
4. Identifying the bony landmarks of the tibia and the fibula
5. Identifying the bony landmarks of the foot and ankle
6. Identifying the main muscles of the lower extremity
7. Describing the articulations found within the lower extremity
8. Discussing the significance of the joints of the lower extremity
9. Listing and describing the various support structures of the lower extremity
10. Relating the muscular movements of the lower extremity to function
11. Identifying prime movers of the lower extremity
12. Identifying the origins, insertions, and actions of listed muscles responsible for the lower extremity's movement
13. Identifying the innervations of listed muscles responsible for movement of the lower extremity

**Competency 9:** The student will discuss the cardiovascular system as it relates to the supply of cardiac and skeletal muscles by:

1. Identifying the chambers of the heart
2. Identifying the valves of the heart
3. Identifying the major blood vessels of the heart
4. Discussing the difference between skeletal and cardiac muscle
5. Identifying the blood supply to the major body regions

**Competency 10:** The student will discuss the pulmonary system as it relates to cardiopulmonary physical therapy by:

1. Identifying the lobes of the lungs
2. Identifying the pulmonary segments
3. Discussing the blood flow
4. Discussing the pulmonary blood supply from and to the heart
5. Identifying the osteology, myology, innervation, and blood supply for the ribs

**Learning Outcomes:**

- Solve problems using critical and creative thinking and scientific reasoning
- Create strategies that can be used to fulfill personal, civic, and social responsibilities
- Demonstrate knowledge of ethical thinking and its application to issues in society
- Use computer and emerging technologies effectively