

SPRINGFIELD TECHNICAL COMMUNITY COLLEGE

ACADEMIC AFFAIRS

Course Number: PTAS 200 Department: Physical Therapist Assistant

Course Title: Kinesiology Semester: Spring Year: 1997

Objectives/Competencies

Course Objective	Competencies
1. Basic framework for support and movement of the human body.	1. Name all bones of the body and identify significant landmarks. 2. Name all types of joints and list the movements which occur at each type of diarthrodial joint. 3. Define 1 st , 2 nd and 3 rd class levers and give examples in the human body.
2. Basic muscle physiology.	1. Differentiate among kinds of muscle contractions. 2. Explain physiology of muscle contraction.
3. Shoulder and shoulder girdle muscles with their interrelated movements.	1. Give origin, insertion, innervation and action of these muscles. 2. Recognize deviations in posture from muscle weakness and/or paralysis.
4. Flexor and extensor group of the elbow and how they are used in activity.	1. Give origin, insertion, innervation and action of these muscles. 2. Interpret the contribution of various muscles to joint

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<p>5. Muscles in the forearm and their effect on the forearm, wrist and hand.</p>	<p>motion. 3. Show effects on shoulder and elbow of two-joint muscles.</p> <ol style="list-style-type: none"> 1. Give origin, insertion, innervation and action of these muscles. 2. Recognize muscles which are active as prime movers, synergists and antagonists. 3. Name muscles which cross more than one joint. 4. Give an example of passive and active insufficiency. 5. Define the relationship of tendons to their retinaculum, especially at the carpal tunnel.
<p>6. The intrinsic muscles of the hand.</p>	<ol style="list-style-type: none"> 1. Give origin, insertion, innervation and action of these muscles. 2. Explain the relationship of the intrinsic and extrinsic muscles to the digits. 3. Recognize deformities resulting from injuries to radial, median, and ulnar nerves.
<p>7. Basic structures of the back and the muscles and ligaments responsible for its stability and movement.</p>	<ol style="list-style-type: none"> 1. Describe the bony framework including primary and secondary curves, discs, and joints of the vertebral column. 2. Describe the contribution of the back muscles to trunk movements. 3. Relate this functional anatomy of body mechanics.
<p>8. Muscles of the abdominal wall and their effect on the trunk and internal organs.</p>	<ol style="list-style-type: none"> 1. List origin, insertion, innervation and action of these

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<p>9. Muscles of the pelvic girdle and hip.</p> <p>10. The structure of the knee joint and the muscles producing movement there.</p> <p>11. Muscles of the leg and an understanding of their effect on</p>	<p>muscles.</p> <ol style="list-style-type: none"> 2. Explain the action of these muscles when they contract unilaterally or bilaterally in various combination. 3. Explain the action of these muscles in defecation, urination, forced expiration and parturition. <ol style="list-style-type: none"> 1. Give origin, insertion, innervation and action of these muscles. 2. Explain the contribution of these muscles to walking, standing, and to motions at the hip and knee. 3. Name two-joint muscles of the hip and knee and point out examples of passive and active insufficiency. <ol style="list-style-type: none"> 1. Describe ligaments and cartilage of the knee joint and state their function. 2. Give origin, insertion, innervation and action of these muscles. 3. Name two-joint muscles of the knee and ankle and explain the role of all two-joint lower extremity muscles in standing. 4. Trace the femoral, obturator and sciatic nerves from lumbosacral plexus to nerve supply of the muscles in the lower extremity. 5. Show the nature of the handicap resulting from a nerve injury. 6. List and define deviations of knee alignment.

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the ankle and foot.	
12. Bony structure and muscle groups of the foot.	<ol style="list-style-type: none"> 1. Give origin, insertion, innervation and action of these muscles. 2. Interpret the action of these muscles acting on the ankle and foot. 3. Describe the loss due to nerve injury.
13. Mechanical concepts of thoracic movements and the muscles which control respiration.	<ol style="list-style-type: none"> 1. Name the bones of the foot and describe their relationship to the arches and weight bearing. 2. Recognize similarities and differences in muscle groups of the foot compared to the intrinsics of the hand. 3. List and define deviations of the foot.
14. Muscles of the neck and face.	<ol style="list-style-type: none"> 1. Name bones and joints of the thorax. 2. Name the major and accessory muscles of respiration. 3. Describe their function. 4. Explain the mechanics and physiology of respiration. 5. Give origin, insertion, innervation and action of the major muscles of respiration.
	<ol style="list-style-type: none"> 1. Give the origin, insertion, innervation and action of the more superficial muscles affecting the neck. 2. Name the deep muscle groups and give their action. 3. Recognize deviations in the cervical spine. 4. Define axial extension. 5. Name facial muscles and their actions. 6. Describe the loss resulting from a facial nerve injury and list some activities that can be done by a Bell's Palsy

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<p>15. Alignment and relationship of various body segments in normal standing posture.</p> <p>16. Normal sequence of gait and show understanding of deviations by explaining their causes.</p>	<p>patient.</p> <ol style="list-style-type: none"> 1. Name the parts through which the plumb line should fall when viewing the standing individual from the side and from the back. 2. Name the major anti-gravity muscles and explain their contribution to standing. 3. Name muscles preventing falling backwards when sitting without a backrest. <ol style="list-style-type: none"> 1. List the phases of a complete walking cycle. 2. Describe or demonstrate the gait deviation when given the muscle weakness or paralysis.