

LABETTE COMMUNITY COLLEGE BRIEF SYLLABUS

SPECIAL NOTE:

This brief syllabus is not intended to be a legal contract. A full syllabus will be distributed to students at the first class session.

TEXT AND SUPPLEMENTARY MATERIALS USED IN THE COURSE (if any):

Please check with the LCC bookstore <http://www.labette.edu/bookstore> for the required texts for this class.

<u>COURSE NUMBER:</u>	PTA 104
<u>COURSE TITLE:</u>	THERAPEUTIC EXERCISE
<u>SEMESTER CREDIT HOURS:</u>	3
<u>DEPARTMENT:</u>	Health Science
<u>DIVISION:</u>	Career Technical Education
<u>PREREQUISITE:</u>	Admission to the PTA Program

COURSE DESCRIPTION:

This course is designed to introduce the concepts of therapeutic exercise used in the clinical setting. It focuses on specific areas of the body as well as diagnostic categories. Cardiopulmonary physical therapy is also covered in this course.

COURSE OUTCOMES AND COMPETENCIES:

Students who successfully complete this course will be able to:

1. Discuss the foundational concepts of therapeutic exercise, prevention, health and wellness.
 - Define therapeutic exercise.
 - Define key terms associated with physical function.
 - Discuss types of therapeutic exercise intervention
 - Discuss exercise safety.
 - Discuss the disablement process and models of disablement.
 - Discuss the use of disablement models and classifications in physical therapy.
 - Discuss various aspects of clinical decision making.
 - Define evidenced-based practice.
 - Discuss the patient management model.
 - Explain how to prepare for exercise instruction.
 - List the concepts of motor learning.
 - Discuss issues related to exercise adherence.

- Identify health risk factors.
- List indications to determine readiness for change.
- Discuss how to develop and implement a program.
- Discuss the relationship between exercise and osteoporosis.
- List the considerations for developing prevention, health and wellness programs.
- Identify the types of range of motion (ROM) exercises.
- Discuss the limitations of ROM exercises.
- List the indications and contraindications to ROM exercises.
- Discuss the principles and procedures for applying ROM techniques.
- Demonstrate, on a simulated patient passive, active assistive and active ROM exercises for various joints.
- Instruct a simulated patient in self-assisted ROM exercises,
- Discuss the use of continuous passive motion.
- Demonstrate the use of functional patterning.
- Defines terms related to mobility and stretching.
- Discuss the properties of soft tissue response to immobilization and stretch.
- Discuss the determinants, types and effects of stretching interventions.
- List the procedural guidelines for the application of stretching interventions.
- List the precautions for stretching.
- List and discuss adjuncts to stretching interventions.
- Demonstrate manual stretching techniques in anatomical planes of motion for the upper and lower extremities.

2. Discuss various aspects of peripheral joint mobilization.

- Define the terms associated with peripheral joint mobilization.
- Discuss the basic concepts of arthrokinematics.
- List the indications for joint mobilization.
- Discuss the limitations of joint mobilization.
- List contraindications and precautions for joint mobilization.
- Identify the grades of mobilization performed by physical therapist assistants.
- Discuss and demonstrate procedures for applying passive joint mobilization techniques.
- Discuss the principles of application for mobilization with movement.
- Demonstrate peripheral joint mobilization techniques for the upper and lower extremities.

3. Discuss various aspects and principles of exercise for impaired muscle performance, aerobic exercise, impaired balance and aquatic exercise.

- Define terms associated with resistive exercise.
- Discuss the guiding principles of resistive exercise.
- Discuss skeletal muscle function and adaptation to resistance exercise.
- Discuss and define the determinants of resistance exercise.
- List and define the types of resistance exercise.
- Discuss the general principles of resistance training.
- List precautions for resistance exercise.
- List the contraindications to resistance exercise.

- Define and discuss the use of manual resistance exercise.
- Demonstrate manual resistance exercises for the upper and lower extremities.
- Discuss the principles and techniques of proprioceptive neuromuscular facilitation (PNF).
- Demonstrate PNF of the upper and lower extremities.
- Discuss various techniques of mechanical resistive exercise.
- Demonstrate various mechanical resistive exercises for the upper and lower extremities.
- Discuss selected resistance training regimes.
- Discuss, and become familiar with, various equipment used for resistance training.
- Define and discuss key terms and concepts associated with aerobic exercise.
- Discuss the physiological response to aerobic exercise.
- Discuss testing as a basis for exercise programs.
- List and define the determinants of an exercise program.
- Discuss and demonstrate an aerobic exercise program.
- Discuss the physiological changes that occur with training.
- Discuss the application of principles of an aerobic conditioning program for the patient with coronary disease.
- Discuss the application of aerobic training for the deconditioned individual and the patient with chronic illness.
- Discuss aerobic exercise for different age groups.
- Discuss the background and concepts of balance control.
- Define and discuss impaired balance.
- Discuss the management of impaired balance.
- Develop a multisensory balance exercise program and instruct it to a simulated patient.
- Define aquatic exercise.
- List the goals and indications for aquatic exercise.
- List precautions and contraindications to aquatic exercise.
- Discuss the properties of water.
- Discuss aquatic temperature and therapeutic exercise.
- Identify and discuss the use of special equipment used for aquatic exercise.
- Identify exercise interventions using an aquatic environment including stretching strengthening and aerobic conditioning.

4. Discuss various aspects of soft tissue injury, repair and management; joint, connective tissue and bone disorders and surgical interventions and postoperative management.

- Discuss various aspects of soft tissue lesions.
- Discuss management of injuries during the acute phase.
- Discuss management of injuries during the subacute phase.
- Discuss management of injuries during the chronic phase.
- Discuss cumulative trauma and its management.
- Develop an exercise program for a patient with a soft tissue injury.
- Discuss various aspects of arthritis.
- Discuss fibromyalgia and myofascial pain.
- Discuss osteoporosis.
- Discuss fractures and post-traumatic immobilization.

- Demonstrate, on a simulated patient, an appropriate exercise program.
- Discuss surgical intervention for musculoskeletal disorders.
- Identify the guidelines for preoperative and postoperative management.
- List various orthopedic surgeries and their postoperative management.
- Develop and instruct an exercise program for a simulated postoperative patient.

5. Discuss peripheral nerve disorders and their management.

- Explain the peripheral nerve structure.
- Discuss nerve injury and recovery.
- Discuss neural tension disorders.
- Define and discuss thoracic outlet syndrome.
- Define and discuss carpal tunnel syndrome.
- Define and discuss compression in the tunnel of Guyon.
- Discuss various aspects of complex regional pain syndrome: reflex sympathetic dystrophy and causalgia.
- Instruct a simulated patient in an exercise program for peripheral nerve disorders.

6. Discuss structure and function of the spine, postural impairments and management guidelines.

- Define postural alignment and stability of the spine.
- Identify the etiology of pain.
- Identify common faulty postures and their impairments.
- Discuss general management guidelines for impaired posture.
- Discuss the signs and symptoms of tension/cervical headache and its management.
- Instruct a simulated patient in an exercise program for postural impairment.
- Discuss the structure and function of the spine.
- Discuss pathology of the intervertebral disk.
- Discuss the pathomechanical relationships of the intervertebral disk and facet joints.
- Discuss pathology of the facet joints.
- Discuss pathology of muscle and soft tissue injuries of the spine.
- Discuss the pathomechanics of spinal instability.
- Discuss the principles of management for the spine.
- Discuss management guidelines for various spine related issues.
- Discuss management guidelines for temporomandibular joint dysfunction.
- Instruct a simulated patient in an exercise program for spinal disorders.
- Discuss fundamental interventions.
- Discuss patient education.
- Discuss general exercise guidelines.
- Discuss the elements of kinesthetic training.
- Discuss the progression to active and habitual control of posture.
- Discuss and demonstrate cervical and upper thoracic stretching techniques.
- Discuss and demonstrate mid and lower thoracic and lumbar region stretching techniques.
- Discuss and demonstrate spinal stabilization training.
- Discuss isometric and dynamic exercises for the spine.

- Discuss common aerobic exercises and their effect on the spine.
- Discuss early functional training-fundamental techniques.
- Discuss preparation for functional activities and basic exercise techniques.
- Discuss body mechanics and environmental adaptations.
- Discuss and demonstrate intermediate to advanced exercise techniques for functional training.
- Discuss education for prevention of spine injuries.
- Instruct a simulated patient in a program for the spine.

7. Discuss various aspects of the upper extremity.
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- Identify the joints of the shoulder girdle complex.
- Describe shoulder girdle function.
- Discuss referred pain and nerve injury
- Discuss the nonoperative management of joint hypomobility.
- Discuss postoperative management of the glenohumeral joint.
- Discuss the nonoperative management of the painful shoulder syndromes.
- Discuss the postoperative management of painful shoulder syndromes.
- Discuss the nonoperative management of shoulder dislocations.
- Discuss the postoperative management of shoulder instabilities.
- Discuss and demonstrate exercise techniques used during the acute and early subacute stages of tissue healing.
- Discuss and demonstrate exercise techniques to increase flexibility and range of motion.
- Discuss and demonstrate exercises to develop and improve muscle performance and functional control of the shoulder girdle.
- Instruct a simulated patient in an exercise program for a shoulder girdle disorder.
- Identify the joints of the elbow and forearm.
- Describe muscle function at the elbow and forearm.
- Discuss referred pain and nerve injury in the elbow region.
- Discuss the nonoperative management of elbow and forearm joint hypomobility.
- Discuss joint surgery and postoperative management.
- Discuss the symptoms and management of myositis ossificans.
- Discuss repetitive trauma syndromes of the elbow and forearm and its nonoperative management.
- Discuss and demonstrate exercise techniques to increase flexibility and range of motion of the elbow and forearm.
- Discuss and demonstrate exercises to develop and improve muscle performance and functional control.
- Instruct a simulated patient in an exercise program for the elbow and/or forearm.
- Identify the joints of the wrist and hand.
- Discuss hand function.
- Identify the major nerves subject to pressure and trauma at the wrist and hand.
- Discuss the nonoperative management of joint hypomobility.
- Discuss joint surgery and postoperative management.
- Discuss repetitive trauma syndromes.

- Discuss traumatic lesions of the wrist and hand.
- Discuss and demonstrate techniques for musculotendinous mobility.
- Discuss and demonstrate exercise techniques to increase flexibility and range of motion.
- Discuss and demonstrate exercises to develop and improve muscle performance, neuromuscular control and coordinated movement.
- Instruct a simulated patient in an exercise program for the wrist and hand.

8. Discuss various aspects of the lower extremity.
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- Identify the anatomical characteristics of the hip region.
- Describe the functional relationships of the hips and pelvis.
- Discuss the hip and gait.
- Discuss referred pain and nerve injuries of the hip area.
- Discuss the nonoperative management of hip joint hypomobility.
- Discuss hip joint surgery and postoperative management.
- Discuss fractures of the hip and the surgical and postoperative management.
- Discuss painful hip syndromes and overuse syndromes and their nonoperative management.
- Discuss and demonstrate exercise techniques to increase flexibility and range of motion on the hip.
- Discuss and demonstrate exercises to develop and improve muscle performance and functional control of the hip.
- Instruct a simulated patient in an exercise program for the hip.
- Identify the joints of the knee complex.
- Describe patellar function.
- Describe muscle function.
- Describe the knee and gait.
- Discuss referred pain and nerve injuries at the knee.
- Discuss the nonoperative management of knee joint hypomobility.
- Discuss joint surgery and postoperative management.
- Discuss patellofemoral dysfunction, nonoperative management.
- Discuss patellofemoral and extensor mechanism dysfunction postoperative management.
- Discuss the nonoperative management of ligament injuries.
- Discuss the nonoperative management of meniscal tears.
- Discuss the postoperative management of meniscal tears.
- Discuss and demonstrate exercise techniques to increase flexibility and range of motion.
- Discuss and demonstrate exercises to develop and improve muscle performance and functional control of the knee.
- Instruct a simulated patient in an exercise program for the knee.
- Describe structural relationships and motions of the ankle and foot.
- Describe function of the ankle and foot.
- Describe the ankle/foot complex and gait.
- Discuss referred pain and nerve injury of the foot and ankle.
- Discuss the nonoperative management of joint hypomobility.
- Discuss postoperative management of the ankle and foot.

- Discuss repetitive trauma syndromes of the ankle and foot.
- Discuss the nonoperative management of ligamentous injuries.
- Discuss postoperative management of soft tissue injuries of the foot and ankle.
- Describe and demonstrate exercise techniques to increase flexibility and range of motion.
- Describe and demonstrate exercises to develop and improve muscle performance and functional control of the ankle and foot.
- Instruct a simulated patient in an exercise program for the ankle and foot.

9. Discuss various aspects of vascular disorders of the extremities.

- List and discuss disorders of the arterial system.
- List and discuss disorders of the venous system.
- List and discuss disorders of the lymphatic system.
- Discuss breast cancer-related lymphatic dysfunction.
- Discuss and demonstrate exercises for the management of lymphedema.
- Instruct a simulated patient in exercises for the management of lymphedema.

10. Describe the cardiovascular and pulmonary systems and the implications for physical therapy.

- Describe the anatomy of the thorax.
- Describe the anatomy of the respiratory system.
- Describe the anatomy of the cardiovascular system.
- Describe the anatomy of the cardiac and pulmonary vessels.
- Describe the anatomy of the systemic circulation.
- Describe the differences between ventilation and respiration.
- Describe the physiology of the cardiovascular system.
- List the major determinants of myocardial blood flow.
- Discuss various aspects of atherosclerosis.
- Discuss hypertension.
- Discuss cerebrovascular disease.
- Discuss peripheral artery disease.
- Identify and demonstrate exercises for peripheral artery disease.
- Discuss renal artery disease and aortic aneurysm.
- List causes and types of cardiac muscle dysfunction.
- Discuss cardiac muscle pathophysiology and congestive heart failure descriptions.
- Discuss specific pathophysiologic conditions associated with congestive heart failure.
- Identify the clinical manifestations of congestive heart failure.
- Discuss medical, mechanical and surgical management of congestive heart failure.
- Identify and demonstrate physical therapy interventions for cardiac muscle dysfunctions and failure.
- Discuss and demonstrate ventilator muscle training, energy conservation and self-management techniques.
- Instruct a simulated patient in a program for cardiac muscle dysfunction and failure.
- Discuss the etiology and pathogenesis of restrictive lung dysfunction.
- Identify the clinical manifestations of restrictive lung dysfunction.

- Discuss treatment of restrictive lung dysfunction.
- Identify various causes of restrictive lung dysfunction.
- Describe lung function in obstructive lung diseases.
- List symptoms associated with obstructive lung disease.
- List and discuss the disease-specific obstructive lung conditions.
- Instruct a simulated patient with COPD in an exercise program to include breathing and coughing techniques.
- Discuss obesity and its cardiopulmonary implications.
- Discuss diabetes mellitus and its cardiopulmonary implications.
- Discuss chronic kidney disease and failure and its cardiopulmonary implications.
- List other diseases that affect the cardiopulmonary system.
- Discuss cardiopulmonary toxicity of cancer treatment.
- Discuss clinical laboratory studies.
- List and discuss other noninvasive diagnostic tests.
- List imaging modalities.
- Discuss exercise testing and pharmacologic stress testing.
- Discuss cardiac catheterization.
- Discuss digital subtraction angiography and endocardial biopsy.
- Discuss vascular testing procedures.
- Discuss chest imaging for pulmonary disorders.
- Discuss the use of bronchoscopy.
- Describe pulmonary function testing.
- Discuss blood gas analysis.
- Discuss and demonstrate the use of oximetry.
- List and discuss cardiovascular and thoracic surgical procedures.
- Discuss the use of pacemakers and implantable cardioverter defibrillators.
- Discuss the use of a drainage tube.
- Discuss various monitoring equipment.
- List and identify physical therapy indications and contraindications when working with clients who are on monitoring equipment.
- Discuss the general considerations of pharmacologic management.
- Identify cardiac drugs used in critical care.
- Discuss the pharmacologic management of diabetes.
- Discuss medications used in heart transplantation.
- List medications used for pulmonary function.
- Discuss the implications for physical therapy of these medications.
- Discuss various medications used for pulmonary disorders and their implications for physical therapy.
- Demonstrate, on a simulated patient, select assessment techniques to include anthropometric characteristics, arousal and attention, circulation, environmental barriers, gait, locomotion and balance, integumentary integrity, manual muscle testing, pain, posture, range of motion, reflex integrity and oximetry.
- Discuss and demonstrate various airway clearance techniques.
- Discuss and demonstrate breathing strategies, positioning and facilitation.

- Describe and demonstrate various types of breathing exercises.
- Discuss intervention considerations during the weaning process.
- Describe and demonstrate exercise for acute cardiopulmonary conditions.
- Discuss the primary prevention of cardiovascular disease.
- Discuss rehabilitation of patients with documented cardiovascular disease.
- List general precautions and the relative contraindications to continuing exercise.
- Discuss post acute rehabilitation and candidacy for cardiac rehabilitation.
- Describe home-based cardiac rehabilitation.
- Describe rehabilitation/secondary prevention in the outpatient setting.
- Discuss and describe secondary prevention: management of risk factors.
- Describe administrative considerations for the outpatient setting.
- Describe the structure of the pulmonary rehabilitation program.
- Describe and demonstrate treatment interventions used in pulmonary rehabilitation.
- Discuss physical conditioning.
- Instruct a simulated patient in pulmonary exercises and activities.
- Describe respiratory system development.
- Describe cardiac development.
- Discuss congenital heart defects.
- Discuss respiratory conditions of infancy.
- List and describe pediatric conditions with secondary cardiopulmonary issues.
- List and describe pediatric conditions with decreased activity levels.
- Discuss and demonstrate physical therapy interventions for pediatric cardiopulmonary issues.
- Instruct a simulated patient in a physical therapy home program.
- Describe the anatomy and physiology of the lymphatic system.
- Discuss the pathophysiology of lymphedema.
- Describe the medical management of lymphedema.
- Discuss lipedema and its physical therapy implications.