

ODESSA COLLEGE
Physical Therapist Assistant Program
Fall 2011

COURSE SYLLABUS

Course Number: PTHA 2409
Course Title: **Therapeutic Exercise**
Credit Hours: 4 (2 lec/2 lab)
Contact Hours: 32 lecture/96 lab
Prerequisites: PTHA 1413, PTHA 1405, PTHA 1321
Corequisites: PTHA 2201, 2435
Instructor: Tom McKelvey
Phone: Office – 335-6830 Cell – 528-6393
Email: tmckelvey@odessa.edu
Office Hours:

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|-----------|-------------|-------------|
| Monday | 8:00 – 8:30 | 2:30 – 4:30 |
| Tuesday | 8:00 – 8:30 | 2:30 – 4:30 |
| Wednesday | 8:00 – 8:30 | 2:30 – 4:30 |
| Thursday | 8:00 – 8:30 | 2:30 – 4:30 |

Course Description:

Concepts, principles, and application of techniques related to therapeutic exercise and functional training. In addition to exercise concepts, various orthopedic conditions are studied, with emphasis on diagnosis-specific precautions and treatment guidelines. (SCANS 1, 2, 5, 6, 9, 11)

Required Textbooks:

1. Fundamentals of Orthopedic Management for the Physical Therapist Assistant, 3rd Edition; by Shankman & Manske; Mosby, 2011
2. PTHA 2409 course packet for Fall 2011

Objectives:

After completing this course, the student should be able to:

- 1.0 Understand the characteristics of therapeutic exercise.
- 2.0 Understand the role of the physical therapist assistant in the provision of therapeutic exercise.
- 3.0 Understand the response of various body systems to exercise.
- 4.0 Understand effective use of various types of exercise equipment.
- 5.0 Understand various manual therapeutic exercise techniques.
- 6.0 Understand specific parameters of selected types of exercise which are required to produce desired outcomes.
- 7.0 Understand specific characteristics of selected orthopedic conditions.
- 8.0 Demonstrate and provide instruction in appropriate exercise techniques for various diagnoses and understand guidelines for progression of exercises based on patient responses.

Competencies:

- 1.0 To demonstrate competency in understanding the characteristics of therapeutic exercise, the student should be able to:
 - 1.1. Define therapeutic exercise.
 - 1.2. *Define and differentiate selected types of exercise, including passive, active and active-assisted range of motion, stretching, strengthening, coordination, endurance (aerobic, conditioning, reconditioning) and relaxation exercises, posture awareness training and proprioceptive neuromuscular facilitation.
 - 1.3. *Define and differentiate selected types of strengthening exercise, including isometric, isotonic, isokinetic, concentric and eccentric exercise.
- 2.0 To demonstrate competency in understanding the role of the physical therapist assistant in the provision of therapeutic exercise, the student should be able to:
 - 2.1. *Describe the process of treatment planning to achieve short and long term goals established by the supervising physical therapist.

- 2.2. *Identify specific patient responses and conditions which require the physical therapist assistant to contact the supervising physical therapist for additional guidance before proceeding with therapeutic exercise.
- 2.3. *Describe requirements for effective documentation of therapeutic exercise.
- 2.4. *Analyze patient scenarios to determine patient readiness for treatment, ongoing appropriateness of therapeutic exercise and potential need for adjustments within the plan of care.
- 3.0 To demonstrate competency in understanding the response of various body systems to exercise, the student should be able to:
 - 3.1. *Describe changes in heart rate and blood pressure which normally occur during exercise.
 - 3.2. *Measure heart rate and blood pressure during and after aerobic exercise and compare the changes which are observed to the expected normal response
 - 3.3. *Describe changes in muscle, bone and other connective tissue which normally occur during exercise.
 - 3.4. *Describe changes in selected body systems and structures which normally occur as a result of exercise.
- 4.0 To demonstrate competency in effective use of various types of exercise equipment, the student should be able to:
 - 4.1. *Describe types of exercises which can be performed using selected pieces of exercise equipment
 - 4.2. *Determine the most effective piece or type of exercise equipment to use to accomplish selected treatment goals
 - 4.3. *Incorporate appropriate exercise equipment into class presentations of treatment programs.
- 5.0 To demonstrate competency in understanding of various manual therapeutic exercise techniques, the student should be able to:
 - 5.1. *Perform selected passive range of motion, manual stretching, manual strengthening, inhibition and facilitation techniques.
 - 5.2. *Describe manual exercise techniques to accomplish treatment goals identified in the plan of care.
- 6.0 To demonstrate competency in understanding specific parameters of selected types of exercise which are required to produce desired outcomes, the student should be able to:
 - 6.1. *Describe specific characteristics of exercise (frequency, intensity, duration, movement quality, etc.) necessary to effect desired changes when using selected exercises.
 - 6.2. *Apply exercise parameters appropriately in the provision of therapeutic exercise programs.
- 7.0 To demonstrate competency in understanding specific characteristics of selected orthopedic conditions, the student should be able to:
 - 7.1. *Describe the structure which is affected and the characteristics of selected orthopedic injuries.
 - 7.2. *Describe general treatment guidelines for selected orthopedic conditions.
 - 7.3. *Describe specific precautions during the treatment of selected orthopedic conditions.
- 8.0 To demonstrate competency in demonstrating and providing instruction in appropriate exercise techniques for various diagnoses and understanding of guidelines for progression of exercises based on patient responses, the student should be able to:
 - 8.1. *Describe exercises which are typically used for the treatment of selected diagnoses.
 - 8.2. *Demonstrate selected exercise techniques, including passive, active and active-assisted range of motion, stretching, strengthening, coordination, endurance (aerobic, conditioning, reconditioning) and relaxation exercises, posture awareness training and proprioceptive neuromuscular facilitation.
 - 8.3. *Instruct other students in the performance of selected exercises.
 - 8.4. *Describe specific criteria for progression of exercises within the plan of care as patient conditions change.

** Indicates integrated, core curriculum skills (math, reading, writing, communication, technological literacy and/or critical thinking)*

Methods of Presentation:

Lectures, demonstrations, laboratory practice, reading assignments, and outside projects and assignments.

Course Requirements:

In order to receive credit for this course, all students must::

1. Complete all unit exams.
2. Complete all laboratory sessions and worksheets.
3. Complete all assigned projects and class presentations.
4. Complete the final exam.

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| Grade Compilation: | Unit Exams/Quizzes | 60% |
| | Lab/Projects/Assignments | 10% |
| | Final Exam | 30% |

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| Grading Scale: | 90-100 = A |
| | 80-89 = B |
| | 70-79 = C |
| | 60-69 = D |
| | Below 60 = F |

Note: Students must make a minimum grade of C in each PTA course in order to remain in the program.

Procedure for Requesting Special Accommodations

Odessa College complies with Section 504 of the Vocational Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990. If the student has any special needs or issues pertaining to access to and participation in any class at Odessa College, please contact Becky Rivera-Weiss in the Office of Disability Services at 432-335-6861 to request assistance and accommodations.

Physical therapist assistant students with a disability who request reasonable accommodations should meet with the Program Director no later than the first week of classes. Reasonable accommodations will be provided as authorized by the Office of Disability Services as long as the ability to meet course requirements is not compromised. Physical Therapist Assistant faculty provide no accommodations without authorization. It is the student's responsibility to be a self-advocate when requesting accommodations. The student will need to meet with each course instructor at the beginning of class to discuss the particular accommodation needed. Documentation of special needs will be maintained in the student's file.

Professional Behavior:

Professional behavior is absolutely essential both while the individual is a student in this program as well as after graduation. The Professional Behaviors Assessment form provides a standard for behavior and a mechanism for self-assessment by the student as well as assessment by faculty during the academic component of the program. If a faculty member observes consistent failure to demonstrate acceptable professional behavior by a student, the faculty member will utilize the assessment form as a tool for counseling the student. **Failure to respond appropriately to counseling regarding professional behaviors will result in dismissal from the program.**

Attendance:

Regular attendance at lecture and lab is essential and has a direct effect on the final grade that a student earns in class. Non-attendance on the part of a student may result in grade penalty or may lead to dismissal from the program.

A student should attend all lecture and laboratory sessions. Habitual or patterned absenteeism in lecture or lab will not be tolerated. As soon as such a problem is identified, the student will be required to meet with the faculty to determine a course of action and, if the problem is not corrected, the student will be subject to dismissal from the program. Absences in laboratory sessions are particularly problematic because of the lost opportunity to practice skills; therefore, students will be penalized for missing more than one lab session per semester. Should a student miss more than one lab session, one point for each missed session will be deducted from the final course grade.

All absences must be reported to the appropriate faculty member prior to the start of class. If the faculty member cannot be reached directly, a voice mail message may be left. Failure to notify the faculty prior to an absence will affect the student's Professional Behaviors Assessment.

Acceptance of Late Assignments:

Projects or outside assignments are due at the beginning of class on the assigned due date. Late papers will receive a 5% per day grade penalty. This penalty will continue to be assessed each day the assignment is not turned in.

Missing an Exam:

Exams are defined as formally scheduled examinations covering a major portion of the course content and cumulatively comprising a relatively large percentage of the overall grade for a course. Every effort should be made by the student to be present for all exams. If it is necessary for a student to miss an exam, the instructor must be notified prior to the scheduled exam time and arrangements must be made for make-up. It is the instructor's option to give the same exam as the one missed or a different exam over the same content. If the exam is not made up within one class day, a 5% per day penalty will be assessed each day the exam is not taken.

Quizzes:

Quizzes are given covering material in the reading assignments to encourage students to read the textbook in preparation for the lectures. Therefore, quizzes covering a particular topic are given prior to the lecture covering the same topic. Once the lecture has started, the corresponding quiz cannot be made up if it has been missed. A grade of zero will be recorded for quizzes missed for any reason.

Documentation Assignments:

A documentation assignment will be required at specified time during the semester. Students will be required to access Blackboard to obtain due date, instructions and the assignment. The written assignment will be submitted on Blackboard. The assignment grade will be averaged with any other assignment grades and comprise ten percent of the final course grade. Further instructions will be provided in class and on Blackboard.

Course Outline:**INTRODUCTION**

- I. Definitions
- II. Goals of Therapeutic Exercise
- III. Objectives of Therapeutic Exercise
- IV. Characteristics of Therapeutic Exercise
- V. Characteristics of Effective Patient Supervision
- VI. Patient Status Assessment
- VII. Treatment planning

EXERCISE EQUIPMENT

- I. General Guidelines
- II. ROM and Stretching Equipment
- III. Strengthening Equipment
- IV. Endurance Equipment
- V. Coordination / Balance Equipment

STRENGTHENING EXERCISE

- I. Definitions
- II. Benefits of Strengthening Exercises
- III. Goals of Strengthening Exercise
- IV. Indications for Strengthening Exercise
- V. Precautions
- VI. Contraindications for Strengthening Exercises
- VII. Types of Muscle Contractions
- VIII. General Guidelines for Strengthening Exercises
- IX. Isotonic Exercise
- X. Progressive Resistance Exercises (PRE's)
- XI. Practical Application of PRE
- XII. Isometric Exercise
- XIII. Isokinetic Exercise
- XIV. Plyometric Exercises (stretch-shortening drills)
- XV. Closed Kinetic Chain Exercises
- XVI. Progression (beginning with weakness or injury)
- XVII. Circuit Training

- XVIII. Special Populations
- XIX. Reversibility or “Detraining”
- RELAXATION EXERCISES
 - I. Definitions
 - II. Review of Autonomic Nervous System
 - III. Goals of relaxation exercises
 - IV. Relaxation Principles
 - V. General Guidelines
 - VI. Interventions to Enhance the Effectiveness of Relaxation Exercises
 - VII. Techniques for General Relaxation
- STRETCHING EXERCISES
 - I. Definitions
 - II. Contractile Tissue (Muscle)
 - III. Causes of Flexibility Loss
 - IV. Multi-joint Flexibility
 - V. General Guidelines for Stretching Exercises
 - VI. Stretching Techniques
- ENDURANCE (AEROBIC) EXERCISES
 - I. Definitions
 - II. Cardiovascular System Response to Endurance Exercise
 - III. Respiration Response to Endurance Exercise
 - IV. Muscle Response to Endurance Exercises
 - V. Abnormal Responses to Aerobic Exercise
 - VI. Health Benefits from Endurance Exercise
 - VII. Guidelines for Cardiovascular Endurance Exercises
 - VIII. Guidelines for Muscular Endurance Exercises
 - IX. Precautions
- ORTHOPEDIC INJURIES
 - I. Definitions
 - II. Ligament Injury (Sprains)
 - III. Treatment of Ligament Injuries
 - IV. Bone Injury - Fracture
 - V. Treatment of Fractures
 - VI. Cartilage Injury and Treatment
 - VII. Muscle Injury and Treatment
 - VIII. Tendon Injury and Treatment
- THE ELBOW AND FOREARM
 - I. Elbow / Forearm Exercises
 - II. Nerve Injuries Around the Elbow Joint
 - III. Lateral Epicondylitis (Tennis Elbow)
 - IV. Medial Epicondylitis (Golfers Elbow)
 - V. Medial Valgus Stress Overload
 - VI. Fractures / Dislocations
 - VII. Total Elbow Arthroplasty
- THE WRIST AND HAND
 - I. Wrist / Hand Exercises
 - II. Rheumatoid Arthritis
 - III. Carpal Tunnel Syndrome
 - IV. de Quervain’s Disease (de ker vanz)
 - V. Sprains
 - VI. Fractures
 - VII. Dupuytren’s Disease (de pwe trahn)
 - VIII. Tendon Injuries and Repairs
 - IX. Complex Regional Pain Syndrome (CRPS)
- THE SHOULDER
 - I. Shoulder Exercises
 - II. Impingement Syndrome

- III. Rotator Cuff Tears
- IV. Anterior Shoulder Dislocation
- V. Posterior Shoulder Dislocation
- VI. Adhesive Capsulitis
- VII. Acromioclavicular Joint Sprain
- VIII. Fractures
- IX. Shoulder Arthroplasty
- X. Shoulder Arthrodesis

THE HIP

- I. Definitions
- II. Hip Exercises
- III. Hip Fractures
- IV. Pelvic fractures
- V. Osteoarthritis (DJD)
- VI. Total Hip Replacement (arthroplasty)
- VII. Hemiarthroplasty of Hip
- VIII. Legg-Calvé-Perthes Disease (leg-cal-VAY-PER-teez)
- IX. Trochanteric Bursitis
- X. Ischial Bursitis (ischioagluteal bursitis, Tailor's or Weaver's bottom)
- XI. Iliopectineal bursitis (Psoas bursitis)
- XII. Soft Tissue Injuries

THE KNEE

- I. Knee Exercises
- II. Anterior Cruciate Ligament Sprain
- III. Posterior Cruciate Ligament Sprain
- IV. Medial Collateral Ligament Sprain
- V. Meniscus Injuries
- VI. Articular Cartilage Injuries
- VII. Patellofemoral Pain Syndromes
- VIII. Fractures
- IX. Total Knee Replacement (arthroplasty)

THE ANKLE AND FOOT

- I. Functional Relationships of the Ankle and Foot
- II. Ankle / Foot Exercises
- III. Ankle Sprains
- IV. Achilles Tendinopathy
- V. Achilles Tendon Rupture
- VI. Overuse Syndromes
- VII. Fractures of the Ankle and Foot
- VIII. Foot Deformities
- IX. Total Ankle Replacement
- X. Arthrodesis (fusion)

TMJ AND FACIAL MUSCLES

- I. TMJ Dysfunction
- II. Bell's Palsy
- III. CVA with facial droop and poor oral control

WOMEN'S HEALTH

- I. Anatomic and Physiologic Changes of Pregnancy
- II. Pregnancy Induced Pathology/Problems and Treatment
- III. Childbirth Preparation Exercises
- IV. Postpartum Exercises
- V. Mastectomy

THE SPINE

- I. The Lumbar Spine
- II. Lumbar Strains and Sprains
- III. Lumbar Disc Injury
- IV. Other Lumbar Spine Pathologies

- V. The Thoracic Spine
- VI. The Cervical Spine
- VII. Cervical Strains and Sprains
- VIII. Cervical Disc Injury
- IX. Other Cervical Spine Pathologies
- X. Mechanical Traction for Disc Injuries
- XI. Spine Exercises

COORDINATION EXERCISES

- I. Definitions
- II. Development of Coordination
- III. Coordination Assessment
- IV. General Guidelines for Coordination Exercises
- V. Frenkel's Exercises

PROPRIOCEPTIVE NEUROMUSCULAR FACILITATION (PNF)

- I. Introduction
- II. Patterns of The Head, Neck and Trunk
- III. Extremity Patterns
- IV. Specific Techniques
- V. Application of PNF Techniques Within the Developmental Sequence