

ODESSA COLLEGE
Physical Therapist Assistant Program
Spring 2011

COURSE SYLLABUS

Course Number:	PTHA 1431	
Course Title:	Physical Agents	
Credit Hours:	4 hours	
Contact Hours:	32 lecture, 96 lab	
Prerequisites:	PTHA 1201, 1305, 1413	
Corequisite:	PTHA 1321, 1325	
Instructors:	Lynn McKelvey	Tana Pipes
Phone:	Office – 335-6842	Office – 335-6836
		Home – 368-7739
	Cell – 638-6762	Cell – 413-3890
Email:	lmckelvey@odessa.edu	tpipes@odessa.edu
Office Hours:	Lynn:	Tana:
Monday	8:30-11:30	9:00-11:00
Tuesday	3:30-4:00	9:00-11:00
Wednesday	8:30-11:30 & 1:00-4:00	9:00-11:00 & 1:00-3:00
Thursday	3:30-4:00	9:00-11:00

Course Description:

Biophysical principles, physiological effects, intervention efficacy and application of physical agents. Thermal agents, hydrotherapy, ultrasound, electromagnetic radiations, electrical current, biofeedback, traction, intermittent compression, continuous passive motion, and therapeutic massage are studied. (SCANS 1, 2, 3, 6, 8, 9, 11)

Required Textbooks:

1. Physical Agents in Rehabilitation: From Research to Practice 3rd Edition by M. Cameron, Saunders, 2009
2. Outcome-Based Massage 2nd Edition by C. Andrade & P. Clifford, Lippincott Williams & Wilkins, 2008
3. PTHA 1431 Course Packet for Spring 2011

Objectives:

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

- 1.0 Safely and effectively apply the following physical agents within the plan of care established by the physical therapist: thermal agents, hydrotherapy, massage, ultrasound, ultrasound combined with electrical stimulation, electrical current, biofeedback, traction, intermittent compression, diathermy, infrared, ultraviolet, laser, and continuous passive motion.
- 2.0 Utilize appropriate data collection techniques to monitor response to treatment.
- 3.0 Demonstrate the ability to read and interpret professional literature relative to evidence-based practice and the application of selected physical agents or physical therapy interventions.

Competencies:

- 1.0 To demonstrate competency in safely and effectively applying the following physical agents within the plan of care established by the physical therapist: thermal agents, hydrotherapy, massage, ultrasound, ultrasound combined with electrical stimulation, electrical current, biofeedback, traction, intermittent compression, diathermy, infrared, ultraviolet, laser, and continuous passive motion, the student should be able to:
 - 1.1 *Identify the rationale, physiological effects and indications of each physical agent.
 - 1.2 *Describe / discuss the role of physical agents in achieving short and long term goals within the plan of care.
 - 1.3 *List and/or explain contraindications and precautions of each physical agent.
 - 1.4 *Become familiar with equipment and supplies prior to performance of a treatment.
 - 1.5 *Inspect the area to be treated.
 - 1.6 *Explain purpose and effects of each physical agent to patient prior to application.
 - 1.7 *Perform and/or explain correct application of each physical agent according to the guidelines established.

- 1.8 *Monitor the patient's response to each of the physical agents applied and modify the treatment as indicated.
- 1.9 *Document application of and patient's response to physical agents.
- 2.0 To demonstrate competency in utilizing appropriate data collection techniques to monitor response to treatment, the student should be able to:
 - 2.1 *Visually identify normal versus abnormal skin responses (including but not limited to color, blanching and mottling) to application of the physical agents listed above.
 - 2.2 *Identify normal versus abnormal changes in vital signs (blood pressure, pulse, respiration and temperature) in response to application of the physical agents listed above.
 - 2.3 *Assess the degree of edema before and after treatment using both circumferential measurement and volumetric water displacement.
 - 2.4 *Use palpation to assess soft tissue and skin temperature.
 - 2.5 *Identify responses to treatment that necessitate immediate action or adjustments within the plan of care and communication with the supervising physical therapist.
- 3.0 To demonstrate competency in reading and interpreting professional literature relative to evidence-based practice and the application of selected physical agents or physical therapy interventions, the student should be able to:
 - 3.1 *Locate, examine and discuss professional literature related to an assigned topic according to guidelines provided in class.
 - 3.2 *Organize pertinent data gleaned from the professional literature and produce a written report according to guidelines provided in class.
 - 3.3 *Present an oral report according to guidelines provided in class.

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

Methods of Presentation:

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

Course Requirements:

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

1. Complete all unit exams.
2. Complete laboratory check-offs.
3. Complete all assigned projects and class presentations.
4. Complete the final lab practical.
5. Complete the final exam.

Grade Compilation:	Project	5%
	Lab Check-offs/Practicals	10%
	Quizzes	5%
	Unit Tests	55%
	Final Exam	25%

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 (including Saturday and Sunday). 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 (including Saturday and Sunday) will be assessed each day the exam is not taken.

Quizzes:

Announced quizzes over indications, contraindications, and precautions for selected physical agents will be given at the beginning of class. Dates can be found on the course schedule. The lowest quiz grade will be dropped and the remaining quiz grades will be averaged for a total of 10% of the final grade. Missed quizzes cannot be made up. If one quiz is missed, it will be the grade that is dropped before averaging. If more than one is missed, zeroes will be recorded and averaged with the other quiz grades.

Project:

Students will complete a literature review. Three current sources (professional journals) must be used to research an assigned topic. A written report will be turned in and a presentation given to the class for a total of 10% of the final grade. Specific instructions and topic assignments will be given in class.

Online Resources:

Both textbooks for this course have free online student resources. Physical Agents in Rehabilitation: From Research to Practice online resources can be accessed at www.evolve.elsevier.com. Outcome-Based Massage online resources can be accessed at <http://thepoint.lww.com/andrade2e>. Students are encouraged to utilize these resources to enhance learning.

Course Outline:

- I. INTRODUCTION TO PHYSICAL AGENTS
 - A. Introduction
 - B. Effects
 - C. Inflammation
 - D. Chronic Inflammation
 - E. Skin
 - F. Pain
 - G. Tone Abnormalities
 - H. Motion Restrictions
 - I. Red Flags
 - J. General Contraindications
- II. THERMAL AGENTS
 - A. Principles
 - B. Effects and Purposes
 - C. General Indications, Contraindications, and Precautions
 - D. Specific Procedures with Indications, Contraindications, and Precautions
 - 1. Moist Heat
 - 2. Infrared
 - 3. Paraffin
 - 4. Cryotherapy
 - 5. Contrast Bath/Pack
 - 6. Vapocoolant Spray
- III. MASSAGE
 - A. Principles
 - B. Effects and Purposes
 - C. General Indications, Contraindications and Specific Precautions
 - D. Specific Procedures
 - 1. Back
 - 2. Extremities
 - 3. Face
- IV. HYDROTHERAPY
 - A. Principles
 - B. Effects and Purposes
 - C. General Indications, Contraindications, and Precautions
 - D. Specific Procedures with Indications, Contraindications, and Precautions
 - 1. Full Body
 - 2. Extremity
 - E. Texas Hazard Communication Act
 - 1. Chemical List
 - 2. MSDS's
 - 3. Training Program
- V. ULTRASOUND
 - A. Principles
 - B. Effects and Purposes
 - C. Indications, Contraindications, and Precautions
 - D. Procedures
 - 1. Continuous

- 2. Pulsed
 - 3. Underwater
 - 4. Phonophoresis
- VI. INTRODUCTION TO THERAPEUTIC ELECTRIC CURRENT
- A. Principles
 - B. Direct Current
 - 1. Effects and Purposes
 - 2. Indications, Contraindications and Precautions
 - C. Alternating Current
 - 1. Effects and Purpose
 - 2. Indications, Contraindications and Precautions
- VII. ULTRASOUND/ELECTRICAL STIMULATION COMBINATION
- A. Principles
 - B. Effects and Purposes
 - C. Indications, Contraindications, and Precautions
 - D. Procedure
- VIII. ELECTRICAL STIMULATION
- A. Principles
 - 1. DC
 - 2. AC
 - B. Types and Effects
 - 1. Muscle Stimulation
 - 2. Edema Reduction
 - 3. Wound Healing
 - 4. Pain Control
 - C. Clinical Applications
 - 1. Iontophoresis
 - 2. Denervated Muscle
 - 3. HVPG
 - 4. Muscle Stimulation
 - 5. Edema Reduction
 - 6. Wound Healing
 - 7. Pain Control
 - D. Indications, Contraindications, and Precautions
- IX. BIOFEEDBACK
- A. Principles
 - B. Effects and Purposes
 - C. Indications, Contraindication, and Precautions
 - D. Procedures
 - 1. EMG
 - 2. Thermal
 - 3. GSR
- X. ELECTRODIAGNOSTIC PROCEDURES
- A. Introduction
 - B. Types of Tests
 - 1. Reaction of Degeneration
 - 2. Strength Duration Curve
 - 3. Galvanic-Tetanus Ratio
 - 4. Nerve Conduction Velocity
 - 5. Electromyography
- XI. TRACTION
- A. Intermittent
 - 1. Principles
 - 2. Effects and Purposes

- 3. Indications, Contraindications, and Precautions
- 4. Procedures
- B. Static
 - 1. Principles
 - 2. Effects and Purposes
 - 3. Indications, Contraindications, and Precautions
 - 4. Procedures

XII. DIATHERMY

- A. Principles
- B. Effects and Purposes
- C. Indications, Contraindication, and Precautions
- D. Procedures
 - 1. Shortwave
 - 2. Microwave

XIII. INTERMITTENT COMPRESSION

- A. Principles
- B. Effects and Purposes
- C. Indications, Contraindications, and Precautions
- D. Procedures

XIV. ULTRAVIOLET

- A. Principles
- B. Effects and Purposes
- C. Indications, Contraindications, and Precautions
- D. Procedures

XV. LASER

- A. Principles
- B. Effects and Purposes
- C. Indications, Contraindications, and Precautions
- D. Procedures

XVI. CONTINUOUS PASSIVE MOTION

- A. Principles
- B. Effects and Purposes
- C. Indications, Contraindications, and Precautions
- D. Procedures