

**Physical Agents
PTHA 1431
Semester:
Course Dates:**

Course Description: Study of the biophysical principles, assessment, and application of therapeutic physical agents with specific emphasis on indications, contraindications, medical efficacy, and physiological effects. Fee: \$24; Insurance: \$13.10; Prerequisites: PTHA 1513

Credit: Four (4) Semester Hours (3 lecture and 4 lab); 112 Contact Hours.

Purpose: This course is intended for third semester Physical Therapist Assistant students. Application of physical agents and massage will be emphasized.

Required Textbooks:

Cameron, Michelle H., *Physical Agents in Rehabilitation: From Research to Practice*, Second Edition, Saunders: Elsevier Science, St. Louis, Missouri, 2009.

Course Time/Location: EVC room 9307 See schedule

Instructors:

Office Hours/Location

Phone:

Email

Website:

Arranging conferences/appointments

Program student learning outcomes

1. Upon completion of the second clinical course, the student will demonstrate completion of all 12 entry level skills in the professional behaviors section of the PTA MACS (Mastery Assessment of Clinical Skills)
2. Upon completion of the third and final clinical course, the student will demonstrate completion of the entry level skills in the data collection section of the PTA MACS (Mastery Assessment of Clinical Skills)
3. Upon completion of the third and final clinical course, the student will demonstrate completion of the entry level skills in the intervention section of the PTA MACS (Mastery Assessment of Clinical Skills)
4. Upon completion of the third and final clinical course, the student will be assigned a score of entry level or better on the final progress report of the PTA MACS (Mastery Assessment of Clinical Skills).
5. Upon completion of the third and final clinical course, the student will demonstrate the skills necessary to synthesize research literature and present an inservice to clinical faculty following evidence-based practice guidelines

Course Objectives: Specific chapter objectives given at the beginning of each unit. The student will recognize that all therapeutic interventions performed by the PTA are determined by and performed under the direction and supervision of the PT. Upon completion of this course, the student will:

1. Identify the physiological effects of local and general application of heat and cold.
2. Define convection, conversion, conduction and radiation.
3. Given a list of physical agents, match each to its correct form of heat transfer.

4. Identify all indications and contraindications, principles of application, and physiological effects and apply the following physical agents or modalities in role-playing situations:

hot packs	diathermy	paraffin	ultrasound
cold packs	infrared	electrical stimulation	phonophoresis
TENS	EMG	ice massage	IPT
biofeedback	contrast baths	cold immersion	ICT
whirlpool	combination therapy	diathermy	ultraviolet
fluidotherapy	Spray & Stretch	iontophoresis	

5. Demonstrate an understanding of electricity by listing the principles and physiological effects of electrotherapy.

6. Identify the basic strokes utilized in massage.

7. Identify the variations in soft tissue work as discussed in class.

8. Identify the psychological, mechanical, physiological and reflex effects of massage.

9. Identify indications/contraindications of all soft tissue work.

10. Given a treatment plan, demonstrate knowledge of massage through a role-playing situation.

11. Apply all physical agents and treatment techniques with recognition of the patients' and families' reactions to illness and disability and respect for individual differences in people.

SCANS: The following SCANS competencies will be addressed in this course (See PTA Student Handbook for clarification):

Students will have multiple opportunities to: identify, organize, plan and allocate resources (Resources); exercise leadership, participate as a team, teach others and develop skills in cultural competency (Interpersonal) acquire and use information using oral, written and multi-media methods (Information); work with a variety of technologies (Technology); read, write, perform mathematical operations, listen and speak to groups (Basic Skills); think creatively, make decisions, solve problems, visualize, use varied learning techniques, analyze underlying principles of relationships and ethics (Thinking Skills); display responsibility, self-esteem, sociability, self-management, integrity and honesty (Personal Qualities).

Course Schedule/Assignments: See handout provided on first class date and posted to Blackboard.

Facilities: Class will be held in the PTA lab (9207), Eastview Campus. Lab equipment is kept in the storeroom in the PTA lab at all times. Any student wishing to use lab equipment at any time other than regular class hours must make arrangements with the PTA faculty.

Instructional Classroom Methods: The material will be presented in lecture/demonstration format with performance of specific techniques in the laboratory following the lecture. Audiovisual materials will be utilized whenever possible. See PTA Student Handbook

Attendance: See PTA Student Handbook

Course Outline:

- I. Introduction to Physical Agents
 - A. Purposes
 - B. Selection Process
 - C. Patient and Family Reactions
- II. Electrotherapy
 - A. History
 - B. Principles
 - C. Physiological Effects
 - D. Indications
 - E. Contraindications
 - F. Application
 1. AC/DC

2. HVPGS
 3. TENS
 4. biofeedback
 5. interferential therapy
 6. iontophoresis
- III. Intermittent Traction
- A. Principles
 - B. Physiological Effects
 - C. Indications
 - D. Contraindications
 - E. Application
 1. IPT
 2. ICT
- IV. Heat
- A. Physiological effects
 - B. Types of heat transfer
 - C. Indications
 - D. Contraindications
 - E. Application
 1. hot packs
 2. paraffin
 3. fluidotherapy
 4. infrared
 5. ultraviolet
 6. diathermy
 7. ultrasound
 8. combination therapy
 9. phonophoresis
- V. Cold
- A. Physiological effects
 - B. Types of heat transfer
 - C. Indications
 - D. Contraindications
 - E. Application
 1. cold packs
 2. ice massage
 3. immersion
 4. Spray & Stretch
- VI. Hydrotherapy
- A. Physiological effects
 - B. Types of heat transfer
 - C. Indications
 - D. Contraindications
 - E. Application
 1. whirlpool
 2. contrast bath
- VII. Massage
- A. History
 - B. Principles
 - C. Effects
 - D. Indications
 - E. Contraindications
 - F. Basic Strokes
 - G. Various Approaches
 - H. Regional Techniques

Laboratory: All students need laboratory clothes for all classes. Laboratory uniforms consist of shorts for the men and shorts and a halter top for the women. Shorts need not be excessively short but must be loose enough to allow palpation of hip musculature. Halters must have back closures to allow for palpation and treatment. Swimming suits may be worn during hydrotherapy sessions. Please consider using student lockers for lab clothes.

Grade Compilation:

Written exams	46 %
Midterm Lab Exam	11%
Final Lab Exam	11%
Final Written Exam	11%
ALEs and assignments	9 %
Project and Presentation	3%
Project Cards	7%
Professional Dev. Assess	2 %
Total	100%

*For each occurrence of unprofessional behavior or conduct in class, in lab, or during student conferences will result in a deduction of 1% of your final grade average from your final grade.

Grading Scale:

A is	93 to	100.0
B is	84 to	92.9
C is	73 to	83.9
D is	63 to	72.9
F is	below	63.0

A student must have a “C” (73%) or above on written exam and laboratory exam averages for the course at the time of completion. Any student receiving a “D” or “F” must withdraw from the program, but may reapply for readmission the following year as outlined in the Student Handbook. Projects, class participation and homework will not be included for a course grade calculation if either exam average is less than a 73. *All lab skills must be checked off for successful completion of this course.*

Lab Practical Retake Policy

In order to have a successful completion of a lab practical, a score of 73 is required and all essential criteria points must be attained. If this is not achieved, the student has one opportunity to retake the examination for successful completion.

Regardless of the lab practical score, if a student does not attain all the points in the essential criteria categories, the lab grade assigned will not be higher than a 72. If the overall score is lower than a 72, that score will be taken for the initial attempt. The score issued on the first attempt and the score on the retake lab practical will be averaged together to give the student their recorded lab practical grade.

The grading instructor decides scheduling of the retake lab practical. Success and confidence with the use of physical agents and modalities will require practice outside of class with the equipment. We will provide adjunct faculty for open labs. We strongly encourage you to participate with your peers in these valuable opportunities.

Statement on Students with Disabilities: Each ACC campus offers support services for students with documented disabilities. Students with disabilities who need classroom, academic or other accommodations must request them through the Office for Students with Disabilities (OSD). Students are encouraged to request accommodations when they register for courses or at least three weeks before the start of the semester, otherwise the provision of accommodations may be delayed.

Students who have received approval for accommodations from OSD for this course must provide the instructor with the ‘Notice of Approved Accommodations’ from OSD before accommodations will be provided. Arrangements for academic accommodations can only be made after the instructor receives the ‘Notice of Approved Accommodations’ from the student.

Students with approved accommodations are encouraged to submit the 'Notice of Approved Accommodations' to the instructor at the beginning of the semester because a reasonable amount of time may be needed to prepare and arrange for the accommodations.

Additional information about the Office for Students with Disabilities is available at <http://www.austincc.edu/support/osd/>

Academic Freedom: Institutions of higher education are conducted for the common good. The common good depends upon a search for truth and upon free expression. In this course the professor and students shall strive to protect free inquiry and the open exchange of facts, ideas, and opinions. Students are free to take exception to views offered in this course and to reserve judgment about debatable issues. Grades will not be affected by personal views. With this freedom comes the responsibility of civility and respect for a diversity of ideas and opinions. This means that students must take turns speaking, listen to others speak without interruption and refrain from name calling or other personal attacks.

Withdrawal: It is the responsibility of each student to ensure that his or her name is removed from the roll should he or she decide to withdraw from the class. The instructor does, however, reserve the right to drop a student should he or she feel it is necessary. If a student decides to withdraw, he or she should also verify that the withdrawal is submitted before the Final Withdrawal Date. The student is also strongly encouraged to retain their copy of the withdrawal form for their records.

Students who enroll for the third or subsequent time in a course taken since Fall, 2002, may be charged a higher tuition rate, for that course.

State law permits students to withdraw from no more than six courses during their entire undergraduate career at Texas public colleges or universities. With certain exceptions, all course withdrawals automatically count towards this limit. Details regarding this policy can be found in the ACC college catalog.

Incompletes: An instructor may award a grade of "I" (Incomplete) if a student was unable to complete all of the objectives for the passing grade in a course. An incomplete grade cannot be carried beyond the established date in the following semester. The completion date is determined by the instructor but may not be later than the final deadline for withdrawal in the subsequent semester.

Statement on scholastic dishonesty: A student attending ACC assumes responsibility for conduct compatible with the mission of the college as an educational institution. Students have the responsibility to submit coursework that is the result of their own thought, research, or self-expression. Students must follow all instructions given by faculty or designated college representatives when taking examinations, placement assessments, tests, quizzes, and evaluations. Actions constituting scholastic dishonesty include, but are not limited to, plagiarism, cheating, fabrication, collusion, and falsifying documents.

Penalties for scholastic dishonesty will depend upon the nature of the violation and may range from lowering a grade on one assignment to an "F" in the course and/or expulsion from the college. See the Student Standards of Conduct and Disciplinary Process and other policies at: <http://www.austincc.edu/current/needtoknow>

Student rights and responsibilities: Students at the college have the rights accorded by the U.S. Constitution to freedom of speech, peaceful assembly, petition, and association. These rights carry with them the responsibility to accord the same rights to others in the college community and not to interfere with or disrupt the educational process. Opportunity for students to examine and question pertinent data and assumptions of a given discipline, guided by the evidence of scholarly research, is appropriate in a learning environment. This concept is accompanied by an equally demanding concept of responsibility on the part of the student. As willing partners in learning, students must comply with college rules and procedures.

Safety statement: Austin Community College is committed to providing a safe and healthy environment for study and work. You are expected to learn and comply with ACC environmental, health and safety procedures and agree to follow ACC safety policies. Additional information on these can be found at <http://www.austincc.edu/ehs>. Because some health and safety circumstances are beyond our control, we ask that you become familiar with the

Emergency Procedures poster and Campus Safety Plan map in each classroom. Additional information about emergency procedures and how to sign up for ACC Emergency Alerts to be notified in the event of a serious emergency can be found at <http://www.austincc.edu/emergency/>. Please note, you are expected to conduct yourself professionally with respect and courtesy to all. Anyone who thoughtlessly or intentionally jeopardizes the health or safety of another individual will be dismissed from the day's activity, may be withdrawn from the class, and/or barred from attending future activities. You are expected to conduct yourself professionally with respect and courtesy to all. Anyone who thoughtlessly or intentionally jeopardizes the health or safety of another individual will be immediately dismissed from the day's activity, may be withdrawn from the class, and/or barred from attending future activities.

Use of ACC Email: All College e-mail communication to students will be sent solely to the student's ACCmail account, with the expectation that such communications will be read in a timely fashion. ACC will send important information and will notify you of any college related emergencies using this account. Students should only expect to receive communication from their instructor using this account. Likewise, students should use their ACCmail account when communicating with instructors and staff. Instructions for activating an ACCmail account can be found at <http://www.austincc.edu/accmail/index.php>

You are expected to conduct yourself professionally with respect and courtesy to all. Anyone who thoughtlessly or intentionally jeopardizes the health or safety of another individual will be immediately dismissed from the day's activity, may be withdrawn from the class, and/or barred from attending future activities.