

# COLEMAN COLLEGE FOR HEALTH SCIENCES PHYSICAL THERAPIST ASSISTANT PROGRAM

# Spring 2016 PTHA 1431: PHYSICAL AGENTS CRN #: 94417, 94418, 94419, 94420

Lecture: Mondays 2:30 – 4:30 pm; Fri 9-11 am Room 473
Lab 1: Tues/Thurs 8-10 am; Wed 7:30-11:30 am Room 452A
Lab 2: Tues/Thurs 10 am-12 pm; Wed 12-4 pm Room 452A

4 credit hours: 4 hours lecture and 8 hours lab/8 weeks (96 contact hours)

# **INSTRUCTORS**

Lead: Laura S. Kabiri, PT, DPT, MS Bradley Eng, PT, DPT Michele Gonzalez, PT, MS

CRN#: 94417, 94418, 94419, 94420 CRN#: 94420 CRN#: 94418

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Office Hrs: Mon 8-10: Fri 8-9 & 11-12

Room 417

# **COURSE DESCRIPTION**

In this course, you will learn the biophysical principles, physiological effects, intervention efficacy, and application of physical agents.

# **END OF COURSE OUTCOMES**

Describe the biophysical principles and efficacy of physical agents; relate indications, contraindications and precautions to interventions; apply physical agents; demonstrate communication skills.

#### **CREDIT**

4 semester hours

#### **PREREQUISITES**

PTHA 1305, 1413, 1229, 1201, and HPRS 1106

#### **REQUIRED TEXTBOOKS**

- Physical Agents, Theory and Practice, Third (3<sup>rd</sup>) Edition; ISBN: 978-0-8036-3816-7 Barbara Behrens, PTA, MS and Susan Michlovitz, PT, PhD, MS, CHT
   \*\*\*Abbreviated as "PA" for weekly reading assignments
- 2. Class Handouts

# **REFERENCE TEXTBOOKS:**

- 1. Manual for Physical Agents, Sixth (6<sup>th</sup>) Edition; ISBN: 978-0-13-607215-7 Karen W. Hayes, PT, PhD, FAPTA and Kathy D. Hall, PT, EdD
- 2. Thermal Agents in Rehabilitation, Third (3<sup>rd</sup>) Edition; ISBN: 0-8036-0044-5 Susan L. Michlovitz, MS, PT, CHT
- 3. <u>Physical Agents in Rehabilitation, From Research to Practice</u>, Third (3<sup>rd</sup>) Edition; ISBN: 978-1-4160-3257-1
  - Michelle H. Cameron, MD, PT, OCS
- 4. <u>The Manual of Trigger Point and Myofascial Therapy</u>; ISBN: 1-55642-542-2 Dimitrios Kostopoulos, PT, PhD and Konstantine Rizopoulos, PT, FABS

# **OBJECTIVES**

- 1. Describe the biophysical principles and intervention efficacy of physical agents.
  - a. Explain the mechanism of pain control for a given physical agent.
  - b. Identify the depth of penetration of heat modalities.
- 2. Recognize indications, contraindications and precautions for physical agents.
  - a. List the indications, precautions, and contraindications for soft tissue mobilization.
  - b. List the indications, precautions, and contraindications for hydrotherapy.
  - c. List the indications, precautions, and contraindications for thermal agents.
  - d. List the indications, precautions, and contraindications for electrotherapy.
  - e. List the indications, precautions, and contraindications for mechanical agents.
- 3. Under direction and supervision of a PT, apply the following physical agents:
  - a. Soft tissue management (massage, trigger points, compression)
  - b. Hydrotherapy (whirlpools, aquatic pools)
  - c. Thermal agents (heat, cryotherapy, ultrasound, diathermy)
  - d. Electrotherapy (TENS, NMES, IFC, iontophoresis, biofeedback)
  - e. Mechanical agents (tilt table, supine pelvic traction, supine cervical traction)
- 4. Monitor and communicate treatment response.
  - a. Recognize when contraindications prohibit application of physical agents and report this to the supervising physical therapist.
  - b. Recognize when adverse effects of physical agents require modification or termination of treatment and report this to the supervising physical therapist.
  - c. Write a SOAP note documenting the physical therapy treatment performed.

# **ATTENDANCE POLICY**

Students are expected to be on time and remain present for the entire class. Each student is allowed one (1) unexcused absence per course per semester without penalty. For each additional unexcused absence from lecture OR lab, the final course grade will be lowered by one letter grade. Three (3) tardy arrivals (up to 15 minutes late) or early departures (less than 15 minutes) will equal one absence. Students who arrive more than 15 minutes after the start of class or leave more than 15 minutes before the end of class will be considered absent. Please see the student handbook for definitions of a catastrophic (excused) absence. If any absence occurs whether excused or unexcused, the student is responsible for class content and assignments.

\*\*\* This means, if you have a "C" average at the end of the semester and you have more than one unexcused absence in either lecture or lab, you will fail the class.

# **GRADING POLICIES**

**Grade Ranges** 90 - 100 = A 80 - 89 = B 70 - 79 = C 0 - 74 = F

#### Withdrawal

The last day for administrative/student withdrawal is February 9, 2015. Any student not withdrawn by February 9, 2015 will receive the grade earned.

# Score Computation

For individual tests, grades will be rounded according to standard principles as follows:

- A grade of 74.4 will be recorded at 74
- A grade of 74.5 will be recorded at 75

Students will receive grade summary reports during the semester.

## Academic Honestv

Students can be dismissed from the program for cheating on exams or assignments. Students dismissed for cheating will not be allowed readmission to the PTA Program. Cheating includes the following, but not limited to:

- Videotaping or taking pictures of any exam
- In possession of a cell phone during a test
- Using skill sheets or outcomes sheets in the lab test "draw & think" area
- · Cueing a student during a lab test while patient
- Sharing information about how you or someone else performed on a lab test BEFORE ALL lab tests
  are fully completed is considered cheating. This includes ANY form of communication to another
  student including, but not limited to, texting, phoning, email, etc.
- Copying answers from another student
- Using any computerized program to look up answers during an exam

# **TESTING, GRADING & COURSE REQUIREMENTS**

The grand average grade for this course is based on the following components:

Theory Portion (39%)	
Theory Exams (3 x 8%)	24%
Theory Final	15%
Lab Portion (61%)	
Lab Exams (4 x 8%)	32%
Lab Final	15%
Lab Assignments (4 x 3%)	12%
Outcomes	2%
	100%

In order to pass the course a student must have:

- 75% average grade or better for the final overall grade for the theory portion
- 75% average grade or better for the final overall grade for the lab portion
- No outstanding grades of zero (0) on record for the lab portion

The final grand average is then calculated based on all grades listed above. The student must contact the instructor/s after failing any theory or lab exam.

# Theory Exams

Theory exams are based on assigned readings, lectures, class discussions, films, videos, field trips, and practical application from any corresponding laboratory classes as applicable. Theory exams may be Scantron, computer based, or paper-pencil exams consisting of true/false, multiple choice, matching, fill-in-the-blank, or short answer questions. If a Scantron is used for an exam, all answers must be on the Scantron and only the Scantron will be graded. If an exam is computer based, only answers recorded using the computer based exam system will be used to calculate a grade for the exam. Each theory exam may include questions on material previously covered in the course or in courses covering related material.

At the discretion of the instructor, time will be allotted for group exam review to allow students to review missed questions. Any student who requires individual concerns regarding the exam questions should email the instructor and make an appointment to confer in private. The theory final exam is comprehensive and may include information from previous classes applicable to this course.

#### Extra Credit

Extra credit may be assigned throughout the semester. See course handouts for requirements, details, and due dates.

#### Homework

Homework may be assigned throughout the semester. Assignments are to be done individually unless otherwise specified. Homework assignments as assigned by the instructor must be turned in at the beginning of the class. Any homework assignment turned in after the due date will receive a grade of zero (0).

#### Lab Exams

Lab exam grading criteria are available on Eagle Online. A student who is absent for a lab may be required to take a lab exam covering the material taught on the day of the absence. This exam will be a second exam on the day of the scheduled lab exam and will be averaged with the scheduled lab exam grade.

Lab exams may be short skill-specific performance testing or scenario based practical exams and may be recorded (DVD or other format). See Testing, Grading & Course Requirements and calendar for more information regarding lab exams. Completion of <u>each</u> lab exam must be at a minimal level of 75% compliance with the criteria listed on the lab skills sheet (Performance Checklist) used for grading AND with critical skill criteria (if applicable).

When applicable, certain criteria are defined as critical skills and are noted with one or more asterisks on the lab skill grading sheets. Critical skills are those skills that account for safety or effectiveness of intervention or data collection. The components of safe and effective are discussed in lectures and lab presentations and demonstrations.

**Safe:** Patient is not harmed by the intervention or the manner in which the intervention is conducted. This may include checking for contraindications or precautions, checking the patient's reaction to treatment, or using techniques of patient handling that maintain patient safety, such as locking a wheelchair or guarding a patient appropriately.

**Effective:** Treatment addresses the patient's problem(s) within the plan of care and the student is able to accurately explain how the treatment accomplishes this or, if data collection, the data collection skill results in data that is reliable.

#### Performance Failure

If a student scores below 75% with the skill criteria without failing a critical skill, he/she must repeat the same and/or a similar lab exam in order to show competency with the techniques. After the student shows competency with the techniques, the original exam grade is retained on the student's record and is used to compute the exam average. The student will have one (1) opportunity to show competency, and the repeated exam will be recorded on tape. If unable to show competency, the student will receive a grade of zero (0) on record for the failed exam.

#### Critical Skill Failure

If a student does not meet the critical skill criteria on a lab exam, he/she must repeat the exam with the same and/or similar scenario to show competency with the critical skill(s). After successfully repeating the exam without failing any critical skills, a grade of 70% will be recorded in the student's record. The student has one (1) opportunity to successfully repeat the exam, and the repeated exam will be recorded. If unsuccessful, the student will receive a grade of zero (0) on record for the exam.

The student will be given an opportunity to remediate a failed lab exam or a critical skill failure. It is the student's responsibility to email the PTA instructor to request and schedule remediation. Remediation can include any or all of the following: reviewing the failed exam, reviewing class handouts, lecture notes and books, completing extra assignments as given by the instructor, and attending tutorials. A time for taking the repeat exam will be determined by the instructor.

If a student fails both the lab skill and critical skill portions of the lab exam, he/she must repeat a lab exam over the same material with the same and/or a similar scenario and score a minimum of 75% without failing any critical skills. The student has one (1) opportunity to successfully repeat the exam, and the repeated exam will be recorded. The grade recorded after a successful re-take, will be the lower of the two original scores, whether that is the performance skills failure or critical skill failure. If unsuccessful, the student will receive a grade of zero (0) on record for the exam.

A student with a grade of zero (0) on record for any lab exam at the end of the semester will have the opportunity to remediate the zero (0) by taking an additional (second) final lab exam with the same or similar scenario to show competency with the skill(s). The zero (0) will be replaced with the lower of the original scores, whether that is the performance skills failure or critical skill failure.

## For example:

- A student fails the first lab exam with a grade of 72 but does not fail a critical skill
  - o An outstanding grade of "0" is entered in the gradebook
- The student repeats the same and/or similar lab exam and fails the retest with a critical skill
  - o The outstanding grade of "0" remains in the gradebook
- The student takes an extra lab final exam over the same skill and passes
  - o The "0" gets replaced with a 70 in the gradebook (lower of the 2 original grades)
- The 70 will be averaged in with all other lab grades to determine the overall lab and course grades

#### **Examination Absences**

Absence during an in-class quiz or failure to complete a quiz online by the deadline will result in a grade of zero (0), with no exceptions. Absence for a theory or lab exam results in a ten (10)-point deduction from the earned grade. All absences will be treated equally, regardless of the reason. If the student knows in advance that he/she will be absent, arrangements should be made with the lead instructor to take the exam **PRIOR** to the scheduled date.

The student must be prepared to take the missed theory or lab examination the day the student returns to school. It is the responsibility of the student to email the lead instructor **BEFORE THE ORIGINALLY SCHEDULED EXAM**TIME and schedule the reexam. If the student fails to notify the lead instructor before the originally scheduled exam time, the student will receive a grade of zero (0) for the exam. Documented emergencies will be handled as outlined in the Student Handbook. Makeup theory and lab exams may be paper and pencil or computer based exams covering the original content in any question format including essays.

#### **Examination and Quiz Tardiness**

There will be strict adherence to the examination and quiz time. A student who arrives late will sacrifice that portion of the total exam taking time. Exams and quizzes will be handed in/collected/stopped at the scheduled time.

#### PLAN OF INSTRUCTIONAL PRACTICES

#### Teaching Methods

The material in this course will be taught by a combination of lecture, discussions, demonstrations, and practice by the students on each other. Each student <u>must</u> experience a procedure as "the patient" as well as apply the procedure to a fellow student as the SPTA. Students will be assigned lab partners who will be rotated throughout the course. At times, students will work in larger groups. Students should be prepared for class by reading textbook materials appropriate to the subject being taught prior to class.

# Instructional Aides

Computerized presentations, textbooks, handouts, demonstration, models, films, computerized programs, dry erase board, and actual physical therapy equipment will be used in this course. During tests, the lab will be set up like an actual physical therapy department. No instructional aids, especially actual PT equipment, may be used without permission of the instructor.

## Providing for Individual Differences

Each student will be treated as an individual with unique learning needs. Each student will be checked on his/her skills by an instructor and additional help given during lab time if needed. More advanced students may be assigned as lab partners to those who need additional assistance. Study groups are encouraged. Labs can be open upon request at other than classroom time for further practice sessions during the weekday, depending on availability of the lab and an instructor to supervise. Instructors have scheduled office hours for individual conferences.

# Safety

Safety will be taught throughout the course during instruction on body mechanics, equipment usage, patient assessment, and patient handling. Student performance is monitored during lab sessions by instructors. Practice time must be monitored by an instructor for any modality in which there is a safety issue. Lab skills practice and lab tests will be **stopped immediately** if students are in danger of injury to themselves or others. Each student will be apprised of fire exits, extinguisher, disaster and fire drills. Equipment is calibrated and checked for electrical safety by an outside agency each year before the section of the course on such equipment begins.

# Class Participation

It is necessary for satisfactory course completion that each student demonstrates professionalism, courtesy, enthusiasm, initiative, and compassion for fellow students and instructors. These skills are the basis for success in the physical therapy field. This course can be considered a pre-employment course in basic physical therapy procedures. The class will simulate as much as possible the actual working practices of a physical therapy department. During the course, each student will have the opportunity to simulate working as a physical therapist assistant and functioning as part of a physical therapy department.

In order to accomplish the above, during the lab, the lab will be considered to be a hospital physical therapy department, each student will be considered to be a student PTA in the department, and his/her lab partner is to be addressed as and considered to be a patient. The instructors will be the supervising physical therapist or physical therapist assistant and clinical instructor in charge of the department.

During lab, instructors will evaluate and sign off on the performance of each student on the **Outcome** sheets based on the following criteria:

- 1. Was the student in appropriate lab clothing?
- 2. Did the student pay attention to the lab demonstration and discussion?
- 3. Did the student practice skills during the entire time allotted for practice?
- 4. Did the student demonstrate an attempt to use feedback from instructors and classmates to improve performance?
- 5. Did the student ask questions to clarify the discussion, demonstration, or feedback given by the instructors?

**Outcomes** are part of Professional Performance and Grading Course Requirements. Outcomes must be **signed off on the day of the lab class**. No late signatures will be accepted. It is the student's responsibility to get a signature. The final overall grade for Outcomes will also be based on the total number of classed attended and documented by an instructor signature.

Clean-up of the lab is **everyone's** responsibility. Work areas must be clean prior to leaving the lab. All students must be responsible for adequate and sanitary work conditions in the lab. Students will be assigned specific duties in the lab on a rotating basis. Extra assignments or volunteer services which can benefit the students will be mentioned in class. Students should volunteer to help the department as much as possible.

## Lab Dress Requirements

Each student will be **required** to wear a lab uniform <u>at all times</u> during all labs consisting of:

- For <u>Females</u>: Halter top, sports bra, or top which **OPENS IN THE BACK**, and shorts which can expose the hip joint and upper thigh
- For Males: Shorts which expose the hip joint and the upper thigh

Students should be prepared for every lab by being in lab clothes **PRIOR** to the start of lab.

ALL STUDENTS with loose long hair must pull it back or pin it up during lab. Fingernails *MUST* be trimmed short so the nail cannot be felt when you rub the tips of the fingers along your arm. When viewing the hand from the palm side, the nail should not be seen. All cell phones & electronic devices must be put away and turned off completely. Video taping or recording of any kind of demonstrations or equipment is not allowed unless permission is given by the Instructor.

# Lab Test Requirements

As the SPTA during lab tests, each student must dress as if going to work in a clinic or hospital. Lab coats and professional attire and grooming will be required on lab tests. Requirements are as follows:

- 1. Short sleeve polo shirt
- 2. Khaki pants
- 3. Flat shoes with closed toes & heels, non-skid soles
- 4. Short fingernails
- 5. No dangling earring, diamond rings on fingers, excessive piercing
- 6. Long hair pulled back
- 7. Facial hair trimmed and neat

# SCANS (Secretary's Commission on Achieving Necessary Skills)

A study was conducted for the Department of Labor by the American Society for Training and Development which identified the seven skills U.S. employers want most in entry level employees. These skills are motivation to learn, basic skills, communication, teamwork, critical thinking, career development, and leadership. The relationship between SCANS competencies and the objectives of PTHA 1431 are shown on the grid following the sections of the syllabus. The following SCANS skills will be emphasized.

- -Selects and Applies Technology to a Task
- -Maintain/Troubleshoots Equipment

# **EARLY ALERT**

The Houston Community College Early Alert program has been established to assist in the overall effort to retain students who are at risk of failing, withdrawing, or dropping a course. This process requires instructional faculty and student support staff to identify students who are performing poorly as early as possible and provide relevant support services to help students overcome their deficiencies. A student is identified when an instructor notices academic or personal difficulties that affect student's academic performance. The possible problem (s) could be tardiness, missed/failed test scores, excessive absences, or a number of other circumstances. Once a referral is made counselors will then contact students to discuss the issues and possible solutions to their academic difficulties.

# **COURSE EVALUATION**

EGLS3 – Evaluation for Greater Learning Student Survey System

At Houston Community College, professors believe that thoughtful student feedback is necessary to improve teaching and learning. During a designated time, you will be asked to answer a short online survey of researched-based questions related to instruction. The anonymous results of the survey will be made available to your professors and division chairs for continual improvement of instruction. Look for the survey as part of Houston Community College Student System online near the end of the term.

# **SERVICES TO STUDENTS WITH DISABILITIES**

The Houston Community College System does not discriminate on the basis of disability in the recruitment and admission of students or the operation of any of its programs and activities. The designated office of compliance with the Americans with Disabilities Act (ADA) and Section 504 of the Rehabilitations Act or 1973 is the HCCS Office Access and Equity Office. Additional information regarding the process for obtaining accommodations for students with physical and mental disabilities may be obtained by contacting the Disability Support Services Counselor at individual campuses. The college will make its campuses and programs when viewed in their entirety, accessible to individuals with disabilities. Where it is impractical to modify a specific area to make it accessible, the college will provide an accessible alternative.

For instruction accommodations the student should contact the HCCS Disability Support Services through the counseling office at least one month prior to the first day of class. Academic accommodations will be provided only after students have properly registered for services through designated disability services staff. Any student who anticipates difficulty in gaining access to a classroom should contact the center administrator at or before the time of registration.

# TITLE IX OF THE EDUCATION AMENDMENTS OF 1972, 20 U.S.C. A§ 1681 ET. SEQ.

Title IX of the Education Amendments of 1972 requires that institutions have policies and procedures that protect students' rights with regard to sex/gender discrimination. Information regarding these rights are on the HCC website under Students-Anti-discrimination. Students who are pregnant and require accommodations should contact any of the ADA Counselors for assistance.

It is important that every student understands and conforms to respectful behavior while at HCC. Sexual misconduct is not condoned and will be addresses promptly. Know your rights and how to avoid these difficult situations.

Log in to www.edurisksolutions.org. Sign in using your HCC student email account, then go to the button at the top right that says Login and enter your student number.

The instructor reserves the right to modify the syllabus as needed during the semester. Any modifications will be announced during class time.

Topic & Readings	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
Week 1	MARCH 7	MARCH 8	MARCH 9	MARCH 10	MARCH 11
Soft Tissue					
Management	Syllabus Review & Soft Tissue	STM Basic Strokes	STM-Spine	Scar Tissue Massage & Trigger Points	STM Review
Readings: PA Ch. 2-3,	Management		STM-UE/LE	i iiggei i eiiite	
9	Lecture				
Obj: 1a, 2a, 3a, 4a/b					
Week 2	MARCH 21	MARCH 22	MARCH 23	MARCH 24	MARCH 25
Soft Tissue					
Management	<b>STM Theory Test</b>	STM Lab	<b>STM Lab Exam</b>	Atrium STM	<b>HOLIDAY</b>
	(PA Ch.2-3;	ExamPractice			
Readings: PA Ch. 9	Handouts Wks.1-				
Obj: 1a, 2a, 3a, 4a/b	2)				
Week 3	MARCH 28	MARCH 29	MARCH 30	MARCH 31	APRIL 1
Hydrotherapy/Thermal					7
Agents	Hydrotherapy,	HP/CP	IM/Cryocuff/	Ultrasound (gel	Thermal
	Cryotherapy,		Contrast Bath	method), Ultrasound	Review
Readings: PA Ch. 4-6,	Superficial & Deep			(water method),	
10	Heat Lecture		Fluidotherapy/	Diathermy, Light	
Obj: 1a/b, 2b/c, 3b/c,			Paraffin Lab	Therapy	
4a/b					
Week 4	APRIL 4	APRIL 5	APRIL 6	APRIL 7	APRIL 8
STM/Thermal Testing					
Intro to Electrotherapy	<b>Thermal Theory</b>	Thermal Lab Exam	Thermal Lab	Intro to Electrotherapy	Electrotherapy
Readings: PA	Test	Practice	Exam	Lab	Lecture
Ch.11(not pp.273-84)	(PA Ch.4-6,10;				
Obj: 1a/b,2a-d,3a-	Handouts Wk.2)				
d,4a/b					
Week 5	APRIL 11	APRIL 12	APRIL 13	APRIL 14	APRIL 15
Electrotherapy					
B	TENS & NMES	IFC, Iontophoresis,	TENS & NMES,	Iontophoresis &	Electrotherapy
<b>Readings:</b> 13-16,	Lecture	Combo US/ES,	IFC, Combo	Biofeedback Lab	Review
pp.273-284		Biofeedback Lecture	US/ES Lab		
Obj: 1a, 2d, 3d, 4a/b					

Weekly Topic/Readings	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
Week 6	APRIL 18	APRIL 19	APRIL 20	APRIL 21	APRIL 22
Electrotherapy					
Testing	<b>Electrotherapy</b>	Electrotherapy Lab	<b>Electrotherapy Lab</b>	Transfer Review	Tilt
Tilt Table &	Theory Test	Exam Practice	Exam	(with OT)	Table/Compression
Compression	(PA Ch. 11-16;			,	Lecture
	Handouts Wks. 4-5)				
Readings: PA	,				
Ch. 8					
Obj: 1a, 2d/e,					
3d/e, 4a/b					
Week 7	APRIL 25	APRIL 26	APRIL 27	APRIL 28	APRIL 29
<u>Mechanical</u>					
<u>Traction</u>	Mechanical Traction	Tilt	ICT/IPT Traction Lab	Tilt Table/	Tilt Table/
Readings: PA	Lecture	Table/Compression		Compression/	Compression/
Ch. 7		Lab		Traction	<b>Traction</b>
	Extra Credit Due			Exam Review	Lab Examl
Obj: 1a, 2e, 3e,					
4a/b					
Week 8	MAY 2	MAY 3	MAY 4		
Final Exams					
	COMPREHENSIVE	OPEN LAB	COMPREHENSIVE		
Readings: All	THEORY FINAL	8 AM-12 PM	LAB FINAL		
Obj: 1a-b, 2a-e,					
3а-е, 4а-с					