Course Description
PTH 202 Physical Therapy Modalities
Lec. 3 Lab. 3 Cr. 4
This course introduces patient care techniques, including patient preparation, therapeutic hot/cold modalities and electrical stimulation.
Prerequisites: BIO 210, MAT 120, PSY 201, ENG 101, PTH 101.
Corequisites: BIO 211, ENG 102, PTH 205.

Course Focus
This course introduces patient care techniques, including patient preparation, therapeutic hot/cold modalities and electrical stimulation.

Text and References


OBJECTIVES/LEARNING OUTCOMES
Course Outcomes. Upon successful completion of the course, a student will be able to:
1. List precautions, and contraindications for the following interventions:
   a. Superficial thermal agents: MH, Fluidotherapy, Parrafin
   b. Ultrasound/Phonophoresis
   c. Iontophoresis
   d. Cryotherapy: CP, Contrast, Ice massage, Vapocoolant spray
   e. Infrared
   f. Diathermy
   g. Ultraviolet
   h. Electrical stimulation: IF, HVPC, Combo, NMES, FES, EMS, TENS, ESTR
   i. Biofeedback
j. Laser
k. Wound care: dressings, ESTR, pulsatile levage, wound vac, debridement, WP

2. Describe the physiological responses and indications for treatment of the above listed physical agents.
3. Describe the pain pathway and the inflammatory process as they relate to treatment and wound care.
4. Be able to document for all physical agents in soap note form.
5. Examine the appropriate use of physical agents as outlined in the Physical Therapy Practice Act of the State of South Carolina.
6. Prepare a review of a current journal article that talks about physical agents.

Clinical Outcomes. Upon successful completion of the course a student will be able to safely and appropriately perform the following interventions:

a. Superficial thermal agents: MH, Parrafin
b. Ultrasound/Phonophoresis
c. Iontophoresis
d. Cryotherapy: CP, Contrast, Ice massage, vapocoolant spray
e. Infrared
f. Diathermy
g. Ultraviolet
h. Electrical stimulation: IF, Combo, NMES, TENS
i. Biofeedback

In addition the student will be able to perform the following assessments:

a. Pain
b. Skin integrity
c. Skin sensation
d. Wound classification

COURSE TOPIC OUTLINE/PURPOSE. See course website for detailed outline and learning activities.

The theory and application of adjunctive therapies will be taught and will include introduction to: superficial thermal agents, iontophoresis, phonophoresis, hydrotherapy, ultrasound, electrical stimulation, ultraviolet, diathermy, infrared, cryotherapy, biofeedback, TENS. The topics of pain, inflammation and tissue healing will be taught and will culminate into methods of wound care management and pain control. By the end of the course students will be able to employ patient care techniques and apply adjunctive therapies to manage wound care and pain control while carrying out a treatment plan in accordance with the physical therapists plan of care.

Course Goals

The following list of course goals will be addressed in the course. These goals are directly related to the performance objectives. (*designates a CRUCIAL goal)

1. compare pain interventions
2. describe cellular inflammatory process
3. describe neurological pain pathways
4. describe physiological pain
5. describe psychiatric pain
6. describe ulcer prevention
7. document patient’s pain
8. document wound appearance
9. enumerate which physical agents benefit woundcare
10. explain current pain theories
11. identify ulcer stages
12. list inflammation stages
13. prescribe appropriate treatment per inflammation stage
14. relate pain symptoms versus causes
15. write a soap note
16. compare physiological effects of thermal agents
17. contrast superficial versus deep heating interventions
18. employ thermal treatment precaution
19. exercise thermal treatment contraindications*
20. explain body temperature regulation
21. explain correct fluidotherapy treatment method
22. perform thermal treatment interventions*
23. relate heat transfer to thermal agents
24. state thermal treatment indications
25. relate wavelength to tissue depth
26. configure ultrasound machines BNR limitations*
27. configure ultrasound machines ERA limitations*
28. critique delivery methods causing cavitation*
29. critique US delivery methods causing piezoelectric effect*
30. critique US delivery methods causing shearing effect*
31. critique US delivery methods causing standing wave*
32. administer diathermy*
33. administer phonophoresis*
34. describe ultrasounds energy transformation
35. describe diathermy energy transformation
36. state diathermy contraindications*
37. state phonophoresis contraindications*
38. state ultrasound contraindications*
39. explain phonophoresis drug delivery
40. perform ultrasound*
41. rationalize diathermy precautions
42. rationalize phonophoresis precautions
43. rationalize ultrasound precautions
44. state diathermy indications
45. state ultrasound indications
46. state specific pharmacological phonophoresis reactions*
47. state diathermy physiological effects
48. state ultrasounds physiological effects
49. apply cosine law to ultraviolet and infrared
50. apply inverse square law to ultraviolet and infrared
51. contrast infrared versus laser physiological effects
52. contrast luminous versus nonluminous infrared
53. contrast ultraviolet wavelengths physiological effects
54. deliver infrared*
55. deliver ultraviolet*
56. determine ultraviolet MED*
57. rationalize ultraviolet precautions
58. state ultraviolet contraindications*
59. state infrared contraindications*
60. rationalize infrared precautions
61. explain laser treatment
62. state infrared indications
63. state laser indications
64. state ultraviolet indications
65. administer different types electrostimulation*
66. choose appropriate electrode placement
67. choose appropriate electrode sizes
68. state indications for electostimulation
69. choose appropriate electrostimulation technique
70. compare different types of electrostimulation
71. examine muscle unit contraction cellular pathways
72. examine nerve excitement cellular pathways
73. state electrical stimulation contraindications*
74. know electical stimulation physiological effects
75. choose appropriate treatment parameters based on treatment goals
76. relate coulombs law to electrostimulation application
77. relate law of du bois reymond to apply electrostimulation
78. relate ohms law to electrostimulation application
79. state electrical stimulation precautions

**Student Contributions**

**Laboratory Requirements**

Each student is required to actively participate in laboratory sessions by practicing the application of palpation skills on fellow classmates. Appropriate and professional behavior is expected at all times in the laboratory setting. Shorts and a tank top are the required attire for all laboratory activities. A sweatshirt or sweatpants may be worn over these if such clothing does not interfere with the laboratory activities. Clothing must allow access to various parts of the body during specified laboratory activities. Male students may be required to remove their shirt. Failure to comply with the dress code will result in dismissal from the lab, resulting in an absence.

Students are expected to be prepared for class sessions.

**Course Evaluation**

<table>
<thead>
<tr>
<th>Component</th>
<th>Points</th>
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<tbody>
<tr>
<td>5 quizzes (100pts. Each)</td>
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<tr>
<td>4 lab practicals (50pts. Each)</td>
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<tr>
<td>Article review</td>
<td>50</td>
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<tr>
<td>Case study</td>
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<tr>
<td>Final</td>
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<td>Total</td>
<td>1000</td>
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Course Schedule
Lecture: Tuesday and Thursday from 8:30-10:00
Clinical: N/A
Lab: Thursday from 1:00-4:00
Course website: http://elearning.tcl.edu  www.tcl.edu

ADA STATEMENT
The Technical College of the Lowcountry provides access, equal opportunity and reasonable accommodation in its services, programs, activities, education and employment for individuals with disabilities. To request disability accommodation, contact the counselor for students with disabilities at (843) 525-8228 during the first ten business days of the academic term.

ATTENDANCE
1. The College’s statement of policy indicates that students must attend ninety percent of total class hours or they will be in violation of the attendance policy.
2. Students not physically attending class during the first ten calendar days from the start of the semester must be dropped from the class for NOT ATTENDING.
3. Students taking an online/internet class must sign in and communicate with the instructor within the first ten calendar days from the start of the semester to indicate attendance in the class. Students not attending class during the first ten calendar days from the start of the semester must be dropped from the class for NOT ATTENDING.
4. Reinstatement requires the signature of the division dean.
   a. In the event it becomes necessary for a student to withdraw from the course OR if a student stops attending class, it is the student’s responsibility to initiate and complete the necessary paperwork. Withdrawing from class may have consequences associated with financial aid and time to completion.
   b. When a student exceeds the allowed absences, the student is in violation of the attendance policy. The instructor MUST withdrawal the student with a grade of “W”, “WP”, or “WF” depending on the date the student exceeded the allowed absences and the student’s progress up to the last date of attendance or
   c. under extenuating circumstances and at the discretion of the faculty member teaching the class, allow the student to continue in the class and make-up the work. This exception must be documented at the time the allowed absences are exceeded.
   d. Absences are counted from the first day of class. There are no "excused" absences. All absences are counted, regardless of the reason for the absence.
5. A student must take the final exam or be excused from the final exam in order to earn a non-withdrawal grade.
6. Students are expected to be in class on time. Arrival to class after the scheduled start time or leaving class prior to dismissal counts as a tardy. Three tardies and/or early departures are considered as one absence unless stated otherwise.
7. It is the student’s responsibility to sign the roll/verify attendance with instructor upon entering the classroom. Failure to sign the roll/verify attendance results in a recorded absence. In the event of tardiness, it is the student’s responsibility to insure that attendance is marked. The student is responsible for all material/ announcements presented, whether present or absent.
8. Continuity of classroom and laboratory (which includes clinical experiences) is essential to the student’s progress in providing safe and competent patient care. Students are expected to use appropriate judgment for participating in clinical activities. To evaluate the student’s knowledge
and skills, it is necessary for the student to be present for all clinical experiences. If absence does occur, the designated clinical site, in addition to the Division of Health Sciences Administrative Assistant, must be notified by telephone no later than 30 minutes prior to the start of the clinical experience. The Division of Health Sciences telephone number is 843-525-8267.

A copy of TCL’s STATEMENT OF POLICY NUMBER: 3-1-307 CLASS ATTENDANCE (WITHDRAWAL) is on file in the Division Office and in the Learning Resources Center.

HAZARDOUS WEATHER
In case weather conditions are so severe that operation of the College may clearly pose a hardship on students and staff traveling to the College, notification of closing will be made through the following radio and television stations: WYKZ 98.7, WGCO 98.3, WGZO 103.1, WFXH 106.1, WWVV 106.9, WLOW 107.9, WGZR 104.9, WFXH 1130 AM, WLVH 101.1, WSOK 1230 AM, WAEV 97.3, WTOC TV, WTGS TV, WJWJ TV, and WSAV TV. Students, faculty and staff are highly encouraged to opt in to the Emergency Text Message Alert System. www.tcl.edu/textalert.asp

ACADEMIC MISCONDUCT
There is no tolerance at TCL for academic dishonesty and misconduct. The College expects all students to conduct themselves with dignity and to maintain high standards of responsible citizenship.

It is the student’s responsibility to address any questions regarding what might constitute academic misconduct to the course instructor for further clarification.

The College adheres to the Student Code for the South Carolina Technical College System. Copies of the Student Code and Grievance Procedure are provided in the TCL Student Handbook, the Division Office, and the Learning Resources Center.

Health care professionals hold the public trust. Academic misconduct by health science students calls that trust into question and academic integrity is expected.

It is a fundamental requirement that any work presented by students will be their own. Examples of academic misconduct include (but are not limited to):

1. copying the work of another student or allowing another student to copy working papers, printed output, electronic files, quizzes, tests, or assignments.
2. completing the work of another student or allowing another student to complete or contribute to working papers, printed output, electronic files, quizzes, tests, or assignments.
3. viewing another student’s computer screen during a quiz or examinations.
4. talking or communicating with another student during a test.
5. violating procedures prescribed by the instructor to protect the integrity of a quiz, test, or assignment.
6. plagiarism in any form, including, but not limited to: copying/pasting from a website, textbook, previously submitted student work, or any instructor-prepared class material; obvious violation of any copyright-protected materials.
7. knowingly aiding a person involved in academic misconduct.
8. providing false information to staff and/or faculty.
9. entering an office unaccompanied by faculty or staff.
10. misuse of electronic devices.
### GRADING POLICY

<table>
<thead>
<tr>
<th>Grading scale</th>
<th>W withdraw</th>
<th>WP withdraw with passing grade</th>
<th>WF withdraw with failing grade</th>
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<tbody>
<tr>
<td>90% - 100%</td>
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<td>75% - 81%</td>
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<td>70% - 74%</td>
<td>D</td>
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<tr>
<td>Below 70%</td>
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**Grading Methodology.** The final grade must be 75.00% or more in order to pass the course and progress in the program. In addition, each student must pass the final exam with a grade of 75.00% or above. If a student fails the final exam a second attempt will be given. The highest score a student can achieve on the second attempt is 75%. Students absent from an examination or presentation will receive a “0” grade for the examination unless other arrangements are made with the individual instructor prior to the examination or presentation day or on the examination or presentation day before the test/presentation is scheduled to be given. It is the responsibility of the student to contact the appropriate instructor to arrange to make up the examination. Arrangements may be completed by telephone. If the instructor is not available, a message should be left on the instructor’s voice mail AND with another member of the faculty or administrative assistant. The instructor will decide the time and method of make-up examinations on an individual basis. Messages sent by other students are unacceptable. The student is responsible for notifying the instructor of the reason for the absence. Grades are posted on Blackboard within one week of administration of tests and examinations.

Each student must demonstrate safety and competence in required laboratory skills. Students are responsible for insuring that laboratory skills are checked off by the instructor. The Laboratory Skills Achievement List for this course can be found at the back of this syllabus. All laboratory skills must be passed with a minimum score of 75% in order to pass the course. Students will be given three opportunities to pass the each skill check. In addition, the student must pass the practical exam (score 75% or greater) in order to pass the course. Should the student fail the practical exam, they will be given one opportunity to retake the exam. The highest possible score on retaking the exam is 75.00%. Non-compliance with a critical safety criterion will result in an automatic failure on skills checks as well as practical exams.

**COURSE COORDINATOR:** Jennifer Culbreth  
**OFFICE LOCATION:** Room 125, Building 4  
**TELEPHONE NUMBER:** 843-470-5956  
**E-MAIL:** jculbreth@tcl.edu
<table>
<thead>
<tr>
<th>Skills</th>
<th>First Attempt</th>
<th>Second Attempt</th>
<th>Third Attempt</th>
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<tbody>
<tr>
<td>Hot packs*</td>
<td>P ND</td>
<td>P NR</td>
<td>P F</td>
</tr>
<tr>
<td>Paraffin*</td>
<td>P ND</td>
<td>P NR</td>
<td>P F</td>
</tr>
<tr>
<td>Ice pack*</td>
<td>P ND</td>
<td>P NR</td>
<td>P F</td>
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<tr>
<td>Ice massage*</td>
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<td>P F</td>
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<tr>
<td>Contrast bath*</td>
<td>P ND</td>
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<td>P F</td>
</tr>
<tr>
<td>Ultraviolet*</td>
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<td>P F</td>
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<tr>
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<tr>
<td>IF*</td>
<td>P ND</td>
<td>P NR</td>
<td>P F</td>
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<tr>
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<tr>
<td>Biofeedback</td>
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<tr>
<td>NMES*</td>
<td>P ND</td>
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<td>P F</td>
</tr>
<tr>
<td>Iontophoresis*</td>
<td>P ND</td>
<td>P NR</td>
<td>P F</td>
</tr>
</tbody>
</table>

*designates critical safety skills

P: Pass
ND: Needs Development
NR: Needs Remediation
F: Fail