Meeting Time: M/W/F 12:00-12:50 p.m.  
Meeting Location: Silcox Center 116  
Instructor: Michelle McLeod, PhD, ATC, SCAT, PES  
Office: 310 Silcox Physical Education & Health Center  
Office Hours: Wednesdays 1:00-4:00 p.m. (subject to change) or by appointment  
Office Phone: 843.953.3047  
E-mail: mcleodmm@cofc.edu  
Course Website: Hosted by OAKS  
Prerequisites: ATEP 245, ATEP 345; or permission of the instructor  
Co-requisites: ATEP 347L  
Required Texts:  
  II. Supplemental readings on OAKS  

**Course Description:** This course provides knowledge and instruction of the adjunctive use of therapeutic modalities in the injury recovery process. This course focuses on the physiologic basis and rationale for modality use, clinical application and specific application techniques. You will gain didactic knowledge regarding modality selection, indications and contraindications as well as hands-on experience in the appropriate use and application of techniques.

This course is required for the athletic training major and is a directed elective for the exercise science major within the Department of Health and Human Performance. The class is well integrated into the athletic training curriculum, but may be different from other classes in the exercise science curriculum. Exercise science students may lack a general understanding of common musculoskeletal injuries. However, the assigned readings will attempt to provide adequate background in musculoskeletal injury to enable all students to excel in this course.

**Course Objectives:** Upon successful completion of this course, you should be able to:

1. Describe and differentiate physiological and pathophysiological responses to inflammatory and non-inflammatory conditions  
2. Appropriately treat acute musculoskeletal injury via application of an immediate treatment  
3. Understand common surgical techniques and interpretation of operative reports, including resulting precautions, indications, contraindications and co-morbidities that may influence modality selection  
4. Assess and treat pain via an understanding of pain perception and pain modulation theories  
5. Describe how common pharmacological agents influence pain and healing  
6. Describe the laws of physics that underlay the application of thermal, mechanical, electromagnetic and acoustic energy to the body  
7. Recognize manufacturer, institutional, state and/or federal standards related to the regulation of therapeutic modality use  
8. Appropriately design and administer therapeutic modalities interventions aimed at achieving specific treatment goals
9. Describe methods of assessing patient status and progress with clinical outcomes assessments
10. Determine the efficacy of therapeutic modalities interventions through the development of a relevant clinical question, comparing and contrasting relevant and available research by conducting a literature search using appropriate search techniques and resources

Student Learning Outcomes:
1. As a result of this course, students will be able to describe perceptions of pain and pain modulation theories, and inflammatory and non-inflammatory conditions as evidenced by earning a B or higher on each Integration and Application Assessment.
2. As a result of this course, students will be able to choose and justify the use of a therapeutic modality intervention to achieve specific treatment goals as evidenced by earning a B or higher on each Integration and Application Assessment.
3. As a result of this course, students will be able to determine and defend the effectiveness of a therapeutic modality intervention using evidence-based resources as evidenced by earning a B or higher on the Clinical Question Project.

5th Edition Educational Competencies (for Athletic Training Majors): The content of this course will in part or completely cover the following competencies from the 5th edition of the NATA Educational Competencies:

AC-38 Apply appropriate immediate treatment to protect the injured area and minimize the effects of hypoxic and enzymatic injury.
AC-43 Instruct the patient in home care and self-treatment plans for acute conditions.
CE-9 Identify functional and patient-centered quality of life outcome measures appropriate for use in athletic training practice.
CE-14 Differentiate between an initial injury evaluation and follow-up/reassessment as a means to evaluate the efficacy of the patient’s treatment/rehabilitation program, and make modifications to the patient's program as needed.
EBP-5 Develop a relevant clinical question using a pre-defined question format (eg, PICO= Patients, Intervention, Comparison, Outcomes; PIO = Patients, Intervention, Outcomes)
EBP-6 Describe and contrast research and literature resources including databases and online critical appraisal libraries that can be used for conducting clinically-relevant searches.
EBP-7 Conduct a literature search using a clinical question relevant to athletic training practice using search techniques (eg, Boolean search, Medical Subject Headings) and resources appropriate for a specific clinical question.
EBP-10 Determine the effectiveness and efficacy of an athletic training intervention utilizing evidence-based practice concepts.
EBP-11 Explain the theoretical foundation of clinical outcomes assessment (eg, disablement, health-related quality of life) and describe common methods of outcomes assessment in athletic training clinical practice (generic, disease-specific, region-specific, and dimension-specific outcomes instruments).
EBP-12 Describe the types of outcomes measures for clinical practice (patient-based and clinician-based) as well as types of evidence that are gathered through outcomes assessment (patient-oriented evidence versus disease-oriented evidence).
EBP-13 Understand the methods of assessing patient status and progress (eg, global rating of change, minimal clinically important difference, minimal detectable difference) with clinical outcomes
assessments.

TI-1 Describe and differentiate the physiological and pathophysiological responses to inflammatory and non-inflammatory conditions and the influence of these responses on the design, implementation, and progression of a therapeutic intervention.

TI-2 Compare and contrast contemporary theories of pain perception and pain modulation.

TI-3 Differentiate between palliative and primary pain-control interventions.

TI-5 Compare and contrast the variations in the physiological response to injury and healing across the lifespan.

TI-6 Describe common surgical techniques, including interpretation of operative reports, and any resulting precautions, contraindications, and comorbidities that impact the selection and progression of a therapeutic intervention program.

TI-7 Identify patient- and clinician-oriented outcomes measures commonly used to recommend activity level, make return to play decisions, and maximize patient outcomes and progress in the treatment plan.

TI-8 Explain the theory and principles relating to expected physiological response(s) during and following therapeutic interventions.

TI-9 Describe the laws of physics that (1) underlay the application of thermal, mechanical, electromagnetic, and acoustic energy to the body and (2) form the foundation for the development of therapeutic interventions (eg, stress-strain, leverage, thermodynamics, energy transmission and attenuation, electricity).

TI-10 Integrate self-treatment into the intervention when appropriate, including instructing the patient regarding self-treatment plans.

TI-11 Design therapeutic interventions to meet specified treatment goals.

TI-11a Assess the patient to identify indications, contraindications, and precautions applicable to the intended intervention.

TI-11b Position and prepare the patient for various therapeutic interventions.

TI-11c Describe the expected effects and potential adverse reactions to the patient.

TI-11e Apply the intervention, using parameters appropriate to the intended outcome.

TI-11f Reassess the patient to determine the immediate impact of the intervention.

TI-12 Use the results of on-going clinical examinations to determine when a therapeutic intervention should be progressed, regressed or discontinued.

TI-13 Describe the relationship between the application of therapeutic modalities and the incorporation of active and passive exercise and/or manual therapies, including, therapeutic massage, myofascial techniques, and muscle energy techniques.

TI-18 Explain the relationship between posture, biomechanics, and ergodynamics and the need to address these components in a therapeutic intervention.

TI-19 Identify manufacturer, institutional, state, and/or federal standards that influence approval, operation, inspection, maintenance and safe application of therapeutic modalities and rehabilitation equipment.

TI-20 Inspect therapeutic equipment and the treatment environment for potential safety hazards.

TI-27 Describe the common routes used to administer medications and their advantages and disadvantages.

TI-29 Describe how common pharmacological agents influence pain and healing and their influence on various therapeutic interventions.
**Professional Behavior:** You are expected to conduct yourself as a professional and to demonstrate respect for the course instructor and peers with behavior that is conducive to a positive learning environment. You are expected to be on time and present for each class session. Cell phones must be turned off prior to the beginning of class and stored away unless being utilized during class to complete an assignment as directed by the instructor. All assignments are to be completed and turned in on time. Late assignments will result in a reduced grade as determined by the instructor’s discretion (10% for each day, including late submissions on the day of) and failure to turn in an assignment by the end of the term will result in a zero for that assignment.

**Attendance:** Class attendance is an individual student responsibility and will be recorded on a limited basis. You are expected to be present and on time to every class, and to complete all assignments as outlined. Excused absences will be permitted for personal emergencies (personal and family related illness or death, documented with a note from a health care provider), religious observances, participation in University-sponsored activities (athletics or artistic performances), or government-required activities (military service or jury duty). It is your responsibility to communicate to the instructor in advance about missing class via e-mail, telephone or in person. Missed work must be made up and it is your responsibility to arrange a make-up time. Missed exams and quizzes can only be made up if there is documentation for an illness or conflict. Make-up quizzes and exams must be scheduled in advance; otherwise you will receive a zero. If you are late to class on an exam day, you will be required to turn in your exam when the time limit has been reached. Repeated tardiness and/or absences may result in a lowered grade.

**Honor Code and Academic Integrity:** It is expected you will conduct yourself within the guidelines of the honor system. (See 2016-2017 Student Handbook) All academic work should be done with the high level of honesty and integrity that this institution demands. The student handbook is a guide to your responsibilities and rights as a student. If you are not familiar with the document, please take the time to review the information contained within the handbook.

Incidents where your actions are determined by the instructor to be related more to a misunderstanding rather than a misjudgment will be handled as a Class 3 Honor Code Violation. An intervention designed to help prevent you from repeating the error will be given to you. The intervention, submitted by form and signed both by the instructor and yourself, will be forwarded to the Dean of Students and placed in the your student file.

Cases of suspected academic dishonesty will be reported directly by the instructor and/or others having knowledge of the incident to the Dean of Students as a Class 1 or Class 2 Honor Code Violation. If the Honor Board finds you responsible for academic dishonesty you will receive a XF in the course, indicating failure of the course due to academic dishonesty. This grade will appear on your transcript for two years after which you may petition for the X to be expunged. You may also be placed on disciplinary probation, suspended (temporary removal) or expelled (permanent removal) from the College by the Honor Board.

You should be aware that unauthorized collaboration—working together without permission—is a form of cheating. Unless the instructor specifies that students can work together on an assignment, quiz and/or test, no collaboration during the completion of the assignment is permitted. Other forms of cheating include possessing or using an unauthorized study aid (which could include accessing information via a cell phone or computer, or using unauthorized resources during quizzes or exams), copying from others’ exams, plagiarism, and giving unauthorized assistance.
Research conducted and/or papers written for other classes cannot be used in whole or in part for any assignment in this class without obtaining prior permission from the instructor.

**Disability Statement:** This College abides by section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act that stipulates no student shall be denied access to an education “solely by reason of a handicap.” Disabilities covered by law include, but are not limited to, learning disabilities and hearing, sight or mobility impairments. If you have a documented disability that may have some impact on your work in this class and for which you may require accommodations, please see an administrator at the Center of Disability Services, 843.953.1431 or me so that such accommodation may be arranged. If there is a student in this class who has a documented disability and has been approved to receive accommodations through SNAP Services, please set up an appointment to discuss accommodations with me.

**Evaluation Criteria:**

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<thead>
<tr>
<th>Evaluation Category</th>
<th>Points/Assignments</th>
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<tr>
<td>Class Preparation Assessments (10 x 10 pts)</td>
<td>100 pts Clinical Question Project 10 pts</td>
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<tr>
<td>Integration and Application Assessments (3x100 pts)</td>
<td>300 pts Reference List 10 pts</td>
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<tr>
<td>Integration and Application Assessment Final</td>
<td>150 Abstracts (5 from Reference List) 37 pts</td>
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<tr>
<td>Journal Article Critique</td>
<td>50 pts Clinical Question Written Summary 35 pts</td>
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<tr>
<td>Journal Article Class Discussion Questions</td>
<td>15 pts Pecha Kucha Presentation 50 pts</td>
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<tr>
<td>Journal Article Class Discussion Facilitation</td>
<td>15 pts Quizzes (may be scheduled or unannounced; 5 x 10 pts) 50 pts</td>
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<tr>
<td>Journal Article Partner Assessment</td>
<td>10 pts</td>
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**Total Points** 822 pts

**Final Course Grade:** Totaling the number of points earned and dividing it by the total number of available points (822) will calculate/determine the final grade. The final grade for this course will be assigned based solely upon the percentage of points earned. No other factor will be considered. The grade will be assigned according to the following table:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>A</td>
<td>&gt;90%</td>
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<tr>
<td>A-</td>
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<td>B+</td>
<td>87 – 85%</td>
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<td>B</td>
<td>84 – 80%</td>
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<tr>
<td>B-</td>
<td>79 – 78%</td>
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<td>C+</td>
<td>77 – 75%</td>
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<td>C</td>
<td>74 – 70%</td>
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<td>D+</td>
<td>67 – 66%</td>
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<td>D</td>
<td>65 – 64%</td>
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<tr>
<td>D-</td>
<td>63 – 62%</td>
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<tr>
<td>F</td>
<td>&lt;62%</td>
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**NOTE:** The last day to withdraw with a grade of “W” for the semester is Thursday, October 27, 2016.
Integration and Application Assessments
Four written Integration and Application Assessments covering materials presented in this course will be given. Three of these assessments will be administered on the dates provided on the tentative lecture schedule and the fourth will be administered on the date assigned by the College of Charleston’s final examination schedule.

Assigned Journal Article Discussion Questions and Class Discussion Facilitation
Each student will be assigned a partner to complete this assignment. Each pair will be assigned a journal article addressing a topic relevant to course material. The team will submit the following: (1) a typed-summary of the article (see rubric posted on OAKS course page), (2) three open-ended, thought and discussion provoking discussion questions; (3) on an assigned article discussion date, the student team will facilitate a class discussion of the article and the completed questions/partner assessment form will be due.

Clinical Question Project
Each student will be assigned a clinical questions or statement regarding the effectiveness and/or efficacy of a therapeutic modalities intervention. Each student will conduct a literature search to obtain ten topic related journal articles. Students will (1) submit a list of these ten references, formatted according to the requirements in the Journal of Athletic Training, (2) write a summary of five of these articles following an assigned format, including a brief statement describing the rationale of including the chosen article in the reference list (3) compose a summary of the findings and determine the answer to the clinical question (is it supported or unsupported? Why or why not?), and (4) present your findings to the class in the form of a Pechu Kucha presentation (20 slides x 20 seconds each; we will use a modified format of 15 slides x 20 seconds each). Details regarding these assignments will be provided in a rubric posted on the course OAKS page.