I. Course Description
KINE 3320 Therapeutic Modalities provides the student with knowledge of current theory and application of therapeutic modalities used in the treatment of musculoskeletal injuries. Prerequisite: KINE 3318 – Prevention & Care of Athletic Injuries.

II. Rationale
This course prepares students seeking to become certified athletic trainers or physical therapists with the information required to properly select and apply therapeutic modalities for the treatment of musculoskeletal injuries. This course is required for 1) students accepted into the Athletic Training Education Program (ATEP) at TAMUCC and must be taken alongside with KINE 3191 and 2) students completing the Pre-Physical Therapy/Occupational Therapy specializations.

III. State Adopted Proficiencies for Teachers and/or Administrators/Counselors
1. LEARNER-CENTERED KNOWLEDGE: The teacher possesses and draws on a rich knowledge base of content, pedagogy, and technology to provide relevant and meaningful learning experiences for all students.
2. LEARNER-CENTERED INSTRUCTION: To create a learner-centered community, the teacher collaboratively identifies needs; and plans, implements, and assesses instruction using technology and other resources.
3. EQUITY IN EXCELLENCE FOR ALL LEARNERS: The teacher responds appropriately to diverse groups of learners.
4. LEARNER-CENTERED COMMUNICATION: While acting as an advocate for all students and the school, the teacher demonstrates effective professional and interpersonal communication skills.
5. LEARNER-CENTERED PROFESSIONAL DEVELOPMENT: The teacher, as a reflective practitioner dedicated to all students’ success, demonstrates a commitment to learn, to improve the profession, and to maintain ethics and personal integrity.

IV. TEES Competencies & CAATE Competencies/Proficiencies
a. TEES COMPETENCIES
N/A

b. NATIONAL COMPETENCIES & PROFICIENCIES FOR ATHLETIC TRAINING (CAATE 4th Ed.)
Acute Care
- AC-C18: Describe the signs, symptoms, and pathology of acute inflammation.

Therapeutic Modalities
- TM-C1: Describe the physiological and pathological processes of trauma, wound healing and tissue repair and their implications on the selection and application of therapeutic modalities used in a treatment and/or rehabilitation program.
- TM-C2: Explain the principles of physics, including basic concepts associated with the
electromagnetic and acoustic spectra (e.g., frequency, wavelength) associated with therapeutic modalities.

- TM-C3: Explain the terminology, principles, basic concepts, and properties of electric currents as they relate to therapeutic modalities.
- TM-C4: Describe contemporary pain-control theories.
- TM-C5: Describe the role and function of the common pharmacological agents that are used in conjunction with therapeutic modalities.
- TM-C6: Explain the body's physiological responses during and following the application of therapeutic modalities.
- TM-C7: Describe the electrophysics, physical properties, biophysics, patient preparation and modality set-up (parameters), indications, contraindications, and specific physiological effects associated with commonly used therapeutic modalities.
- TM-C8: Identify appropriate therapeutic modalities for the treatment and rehabilitation of injuries and illness.
- TM-C9: Describe the process/methods of assessing and reassessing the status of the patient using standard techniques and documentation strategies to determine appropriate treatment and rehabilitation and to evaluate readiness to return to the appropriate level of activity. This includes the ability to:
  - TM-C9a: Describe and interpret appropriate measurement and assessment procedures as they relate to the selection and application of therapeutic modalities.
  - TM-C9b: Interpret objective measurement results as a basis for developing individualized therapeutic modality application and set-up (parameters).
  - TM-C9c: Interpret the results of injury assessment and determine an appropriate therapeutic modality program to return the patient to physical activity.
  - TM-C9d: Determine the appropriate therapeutic modality program and appropriate therapeutic goals and objectives based on the initial assessment and frequent reassessments.
  - TM-C9e: Describe appropriate methods of assessing progress when using therapeutic modalities and interpret the results.
  - TM-C9f: Interpret physician notes, postoperative notes, and physician prescriptions as they pertain to a treatment plan.
  - TM-C9g: Describe appropriate medical documentation for recording progress in a therapeutic modality program.
  - TM-C10: Identify manufacturer’s, institutional, state, and federal standards for the operation and safe application of therapeutic modalities.
  - TM-C11: Identify manufacturer’s, institutional, state and federal guidelines for the inspection and maintenance of therapeutic modalities.

**Proficiencies instructed:**
- TM-P1: Assess patient to identify indications, contraindications, and precautions applicable to the application of therapeutic modalities.
- TM-P2: Obtain and interpret baseline and post-treatment objective physical measurements to evaluate and interpret results.
- TM-P3: Inspect the therapeutic modalities and treatment environment for potential safety hazards.
- TM-P4: Position and prepare the patient for the application of therapeutic modalities.
- TM-P5: Select and apply appropriate therapeutic modalities according to evidence-based guidelines.

**Therapeutic Exercise**
- EX-C1: Describe the physiological and pathological processes of trauma, wound healing and tissue repair and their implications on the development, progression and implementation of a
therapeutic exercise program.

- EX-C4: Describe the appropriate selection and application of therapeutic exercises taking the following into consideration:
- EX-C4a: The physiological responses of the human body to trauma
- EX-C7: Describe the process/methods of assessing and reassessing the status of the patient using standard techniques and documentation strategies in order to determine appropriate treatment and rehabilitation plans and to evaluate the readiness to return to the appropriate level of activity. This includes the ability to:
- EX-C7a: Describe and interpret appropriate measurement and functional testing procedures as they relate to the selection and application of therapeutic exercise.

Professional Development

- PD-C13: Describe and differentiate the types of quantitative and qualitative research and describe the components and process of scientific research (including statistical decision-making) as it relates to athletic training research.
- PD-C14: Interpret the current research in athletic training and other related medical and health areas and apply the results to the daily practice of athletic training.

V. Course Objectives/Learning Outcomes

This course is designed to enable students to:

1. Describe the physiological and pathological processes of trauma, wound healing and tissue repair and their implications on the selection and application of therapeutic modalities used in a treatment and/or rehabilitation program.
2. Become familiar with numerous therapeutic modalities that are used today in Athletic Training and Physical Therapy clinics.
3. Experience the modalities on themselves so they know what to tell the patient to expect.
4. Describe different pain control theories and the neuroscience of pain modulation.
5. Identify indications for application of modalities and contraindications for the non-use of modalities.
6. Develop a systematic approach to problem solving, enabling the student to treat the individual patient.
7. Learn how to write SOAP notes and proper documentation of treatments and progress of the injury.
8. Understand how therapeutic modalities are beneficial when combined with therapeutic exercise.

VI. Course Topics

The major topics to be considered are:

- How inflammation, pain, and tissue healing affect which therapeutic modality is appropriate.
- Pain theories and associated neuroscience.
- How, why, and when to select certain modalities based off of what therapeutic effect they possess combined with the state of tissue healing.
- Describe all indications and contraindications for all of the therapeutic modalities taught in this course.
- Re-evaluation and how to progress and adjust therapeutic modality usage.
- The role that current research plays in selecting and setting up treatment parameters to provide the most effective and beneficial treatment for your patient (Evidence-Based Medicine).

VII. Instructional Methods and Activities

Methods and activities for instruction include:

A. Traditional Experiences: 90% (lecture/discussion; demonstration; guest speaker)
B. Clinical Experiences 10% (laboratory demonstrations in the Athletic Training Center – IH 179)
C. Field Experiences 0%

VIII. Evaluation and Grade Assignment

The methods of evaluation and the criteria for grade assignment are:
A. Methods and Percentage of Final Course Grade Each Assessment Constitutes

1. Traditional Assessment
   - Written Exams (4) = 100pts/apiece
   - Comprehensive Final Exam = 150pts
   - Quizzes (~10) = 10-15pts/apiece
   - Labs (4) = 25 pts/apiece
   - Assignments (1-2) = 20pts/apiece
   - Projects/Papers (2) = 50pts/apiece
   - Class Participation = 25pts
   Total = ~950pts

2. Performance Assessment
   There will be a performance assessment (25 points) of your class participation. To receive all 25 points you must be present and participate in class discussions and laboratory activities. Your 3rd unexcused absence and every absence thereafter will result in the reduction of 5 points.

B. Grading Scale

   90.00-100% = A  
   80.00-89.99% = B  
   70.00-79.99% = C  
   60.00-69.99% = D  
   < 60.00% = F

IX. Course Schedule and Policies

A. A tentative course schedule (see appendix)
B. Class Policies

Written Exams & Final
Four written exams will be given at the conclusion of their respective section. Material covered on the exam will mainly be from class lectures & notes as well as the Starkey textbook. One cumulative Final exam will be given on Monday, December 10th @ 8:00am – 10:30am. The final exam will include test questions from the previous exams as well as a portion of questions over new information covered since the 4th exam. No make-up exams will be given except under extreme circumstances.

Extra Credit on exams: There will be 5-8 points of extra credit on each exam. This is your opportunity to “bump” your grade up if you are on the border. The substance of these questions will be from the lectures.

When taking an exam or quiz – you may not use your cell phone or any other electronic device until you have left the room. All bags, etc. must be kept under your desk. Not adhering to these rules will be considered an attempt to cheat.

The final exam is scheduled for December 10th @ 8:00am – 10:30am. Do not be late! Once the exam has begun, nobody will be allowed to enter the room. If you are late, you must immediately contact the instructor after I have completed giving the final exam. If your tardiness is excused, you may be allowed to take the exam at a later time. The exam will be cumulative, covering material from all prior exams as well as the material covered since the last exam.

Quizzes
There will be 6~10 announced quizzes throughout the semester over the material that was taught the prior week or the assigned reading material. There will be a ~10 minute time limit for the quizzes beginning when I hand out the
If you are late to class and don’t have time to finish the quiz you will NOT get extra time. If you have an unexcused absence, you will not be able to make up the quiz unless you have a physician’s note. If you must miss class for a sport or other school related activity, let me know ahead of time to arrange a time for you to take the quiz. No retakes of any quizzes will be permitted without my permission.

Labs
Tentatively, four laboratory opportunities will be held in IH 179 for students to experience these modalities. If scheduled, there will be 25 points given for attendance and participation.

Assignments
Examples are: handouts, critiques of journal articles, outlines of chapters, or in-class activities.

Paper/Project
- **Paper:** Due on THE MONDAY BEFORE THANKSGIVING. As we go through the semester we will be discussing research and therapeutic effects of modalities quite often. I will teach you how to find journal articles, what to look for when you read them, and how to discern what the findings of the study are. For the assignment you will take a similar approach as I have modeled in class and find two peer-reviewed journal articles over the same topic that is closely related to the content of this class and write a 2-page discussion on how what they discover affects your use/application of that certain modality. These will tentatively be presented to the class after Thanksgiving (~5 min). FORMATTING: 12 point Times New Roman font, double-spaced, your name & date on the top right corner. You should also include citations for both of the articles you are discussing in APA format. More specific directions will be given later.
- **Project:** Due on the last day of class. You will put together a 4-week treatment plan for a scenario that I will give you. Focus your treatment from the time that you start treating the patient through the next four weeks. You should focus your treatment and writing on explaining what stage of healing the patient is in, when and why you would use a treatment, how long you would use it for, and when you change up the treatment, what you are changing to. More specific directions will be given later.

Class Participation & Attendance
Each student is eligible for twenty-five (25) participation points during the semester. You are expected to be present and actively involved with the lecture each time the class meets; however, I will allow for two (2) unexcused absences this semester. Your third unexcused absence, and every unexcused absence thereafter, will result in 5 points being deducted from your participation points. It’s to your benefit to attend class and participate daily. This course is challenging and it’s to your own benefit to be present to ask questions and get the notes.

An unexcused absence is any absence that is not an emergency or not due to a university related function/event in which you are required to participate. An emergency constitutes you going to the ER and bringing me a note from the ER doctor. A university event would be an athlete traveling with their team, traveling to represent the university, and similar situations. If you know you will miss a day of class for a university event you MUST communicate this with me beforehand or else you will not be able to make up the points from that day AND it will be counted as an unexcused absence. If you have a situation occur out of your control that you feel is an emergency then let me know ASAP and I will handle these situations with discretion. Obviously, communication is of most importance in all of these situations. You may call me or email me to communicate these circumstances; my contact information is at the beginning of this syllabus.

X. **Textbook(s)**

*The textbook(s) adopted for this course is/are:*

*Recommended but not required supplementary textbook(s) is/are:*
N/A
XI. Bibliography

*The knowledge bases that support course content and procedures include:*

5. Peer-reviewed literature related to therapeutic modalities.

XII. Grade Appeals

As stated in University Rule 13.02.99.C2, Student Grade Appeals, a student who believes that he or she has not been held to appropriate academic standards as outlined in the class syllabus, equitable evaluation procedures, or appropriate grading, may appeal the final grade given in the course. The burden of proof is upon the student to demonstrate the appropriateness of the appeal. A student with a complaint about a grade is encouraged to first discuss the matter with the instructor. For complete details, including the responsibilities of the parties involved in the process and the number of days allowed for completing the steps in the process, see University Rule 13.02.99.C2, Student Grade Appeals, and University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures. These documents are accessible through the University Rules Web site at http://www.tamucc.edu/provost/university_rules/index.html. For assistance and/or guidance in the grade appeal process, students may contact the Office of Student Affairs.

XIII. Disabilities Accommodations

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please call or visit Disability Services at (361) 825-5816 in Driftwood 101.

If you are a returning veteran and are experiencing cognitive and/or physical access issues in the classroom or on campus, please contact the Disability Services office for assistance at (361) 825-5816.
## Appendix

A. Tentative Course Schedule for KINE 3320 – Therapeutic Modalities (Fall 2012)

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Associated Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>22-Aug</td>
<td>Introduction to Therapeutic Modalities</td>
<td>Ch. 3,4</td>
</tr>
<tr>
<td>24-Aug</td>
<td>Introduction to Therapeutic Modalities</td>
<td>Ch. 3,4</td>
</tr>
<tr>
<td>27-Aug</td>
<td>Tissue Response to Injury</td>
<td>Ch. 1</td>
</tr>
<tr>
<td>29-Aug</td>
<td>Tissue Response to Injury</td>
<td>Ch. 1</td>
</tr>
<tr>
<td>31-Aug</td>
<td>Physiology &amp; Psychology of Pain</td>
<td>Ch. 2</td>
</tr>
<tr>
<td>3-Sep</td>
<td><strong>NO CLASS – LABOR DAY HOLIDAY</strong></td>
<td></td>
</tr>
<tr>
<td>5-Sep</td>
<td>Physiology &amp; Psychology of Pain</td>
<td>Ch. 2</td>
</tr>
<tr>
<td>7-Sep</td>
<td>Finish Pain / Review for Exam I</td>
<td>Ch. 1-4</td>
</tr>
<tr>
<td>10-Sep</td>
<td><strong>Exam I over Chapters 1-4</strong></td>
<td>Ch. 1-4</td>
</tr>
<tr>
<td>12-Sep</td>
<td>Thermal Modalities</td>
<td>Ch. 5</td>
</tr>
<tr>
<td>14-Sep</td>
<td>Thermal Modalities</td>
<td>Ch. 5</td>
</tr>
<tr>
<td>17-Sep</td>
<td>Application of Thermal Modalities</td>
<td>Ch. 6</td>
</tr>
<tr>
<td>19-Sep</td>
<td>Application of Thermal Modalities &amp; Compression</td>
<td>Ch. 6,14</td>
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<tr>
<td>21-Sep</td>
<td>Application of Thermal Modalities &amp; Compression</td>
<td>Ch. 6,14</td>
</tr>
<tr>
<td>24-Sep</td>
<td><strong>Laboratory Day in Island Hall 179 – Thermal Modalities</strong></td>
<td>Ch. 5,6,14</td>
</tr>
<tr>
<td>26-Sep</td>
<td>Review for Exam II</td>
<td>Ch. 5,6,14</td>
</tr>
<tr>
<td>28-Sep</td>
<td><strong>EXAM II over Chapters 5-6, 14</strong></td>
<td>Ch. 5,6,14</td>
</tr>
<tr>
<td>1-Oct</td>
<td>Principles of Electrical Stimulation</td>
<td>Ch. 11</td>
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<tr>
<td>3-Oct</td>
<td>Electrical Stimulation Techniques</td>
<td>Ch. 12</td>
</tr>
<tr>
<td>5-Oct</td>
<td>Electrical Stimulation Techniques</td>
<td>Ch. 12</td>
</tr>
<tr>
<td>8-Oct</td>
<td>Application of Electrical Stimulation Techniques</td>
<td>Ch. 13</td>
</tr>
<tr>
<td>10-Oct</td>
<td>Application of Electrical Stimulation Techniques</td>
<td>Ch. 13</td>
</tr>
<tr>
<td>12-Oct</td>
<td><strong>Laboratory Day in Island Hall 179 – Electrical Modalities</strong></td>
<td>Ch. 11-13</td>
</tr>
<tr>
<td>15-Oct</td>
<td>Review for Exam III</td>
<td>Ch. 11-13</td>
</tr>
<tr>
<td>17-Oct</td>
<td><strong>EXAM III over Chapters 11-13 &amp; AMI</strong></td>
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</tr>
<tr>
<td>19-Oct</td>
<td>Therapeutic Ultrasound</td>
<td>Ch. 7</td>
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<tr>
<td>22-Oct</td>
<td>Therapeutic Ultrasound</td>
<td>Ch. 7</td>
</tr>
<tr>
<td>24-Oct</td>
<td>Application of Therapeutic Ultrasound</td>
<td>Ch. 8</td>
</tr>
<tr>
<td>26-Oct</td>
<td>Application of Therapeutic Ultrasound</td>
<td>Ch. 8</td>
</tr>
<tr>
<td>29-Oct</td>
<td>Pulsed-Shortwave Diathermy</td>
<td>Ch. 9</td>
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<tr>
<td>31-Oct</td>
<td>Application of Pulsed-Shortwave Diathermy</td>
<td>Ch. 10</td>
</tr>
<tr>
<td>2-Nov</td>
<td>Laser &amp; Low Level Light Therapy &amp; Infrared Modalities</td>
<td>Ch. 19</td>
</tr>
<tr>
<td>5-Nov</td>
<td><strong>Laboratory Day in Island Hall 179 – Thermal &amp; Light Modalities</strong></td>
<td>Ch. 7-10,19</td>
</tr>
<tr>
<td>7-Nov</td>
<td>Finish Deep-heating Modalities / Review for Exam IV</td>
<td>Ch. 7-10,19</td>
</tr>
<tr>
<td>9-Nov</td>
<td><strong>EXAM IV over Chapters 7-10,19</strong></td>
<td>Ch. 7-10,19</td>
</tr>
<tr>
<td>12-Nov</td>
<td>Therapeutic Massage</td>
<td>Ch. 16</td>
</tr>
<tr>
<td>14-Nov</td>
<td>Muscle Energy Technique</td>
<td>Article on BBoard</td>
</tr>
<tr>
<td>16-Nov</td>
<td>Continuous Passive Motion &amp; Spinal Traction (<em>No Class - Assignment</em>)</td>
<td>Ch. 15,17</td>
</tr>
<tr>
<td>19-Nov</td>
<td>Joint Mobilizations</td>
<td>Article on BBoard</td>
</tr>
<tr>
<td>21-Nov</td>
<td>Finish Manual Therapy Techniques</td>
<td>Ch. 15-17</td>
</tr>
<tr>
<td>23-Nov</td>
<td><strong>HAPPY THANKSGIVING HOLIDAY!</strong></td>
<td></td>
</tr>
<tr>
<td>26-Nov</td>
<td><strong>Laboratory Day in Island Hall 179 – Manual Techniques</strong></td>
<td>Ch. 15-17</td>
</tr>
<tr>
<td>28-Nov</td>
<td>Presentations</td>
<td></td>
</tr>
<tr>
<td>30-Nov</td>
<td>Presentations</td>
<td></td>
</tr>
<tr>
<td>3-Dec</td>
<td>Presentations / Review for Final</td>
<td>Ch. 15-17</td>
</tr>
<tr>
<td>5-Dec</td>
<td><strong>NO CLASS – READING DAY!</strong></td>
<td>Comprehensive!!</td>
</tr>
</tbody>
</table>

*Each unit will discuss the theory, physiological effects, indications, contraindications, precautions and clinical applications of modalities.

*The instructor reserves the right to change the schedule to cover all subjects thoroughly. Any changes in test dates will be announced in class at least one class prior to the tentative exam date.