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 Program (AT Program) 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. TExES Competencies & CAATE Competencies/Proficiencies

a. TExES COMPETENCIES

N/A

b. NATIONAL COMPETENCIES & PROFICIENCIES FOR ATHLETIC TRAINING (CAATE 5th Ed.)
Evidence-Based Practice (EBP):

EBP-1. Define evidence-based practice as it relates to athletic training clinical practice.
EBP-2. Explain the role of evidence in the clinical decision making process.
EBP-3. Describe and differentiate the types of quantitative and qualitative research, research components, and levels of research evidence.
EBP-4. Describe a systematic approach (eg, five step approach) to create and answer a clinical question through review and application of existing research.
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-8. Describe the differences between narrative reviews, systematic reviews, and meta-analyses.
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.

Acute Care (AC):

AC-36. Instruct the patient in home care and self-treatment plans for acute conditions.

Therapeutic Interventions (TI):

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-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-11d. Apply the intervention, using parameters appropriate to the intended outcome.
TI-11e. 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-14. Describe the use of joint mobilization in pain reduction and restoration of joint mobility.
TI-15. Perform joint mobilization techniques as indicated by examination findings.
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.

Psychosocial Strategies and Referral (PS):
PS-9. Describe the psychosocial factors that affect persistent pain sensation and perception (eg, emotional state, locus of control, psychodynamic issues, sociocultural factors, personal values and beliefs) and identify multidisciplinary approaches for assisting patients with persistent pain.
TI-20. Inspect therapeutic equipment and the treatment environment for potential safety hazards.
V. Course Objectives/Learning Outcomes

This course is designed to enable students to:

- Demonstrate how to apply therapeutic modalities in a proper and safe manner.
- Explain the theory behind electrical stimulation, thermal and non-thermal modalities, manual techniques, and acoustical energy and their effects on tissues in the body.
- Apply each type of therapeutic modality in a supervised setting.

<table>
<thead>
<tr>
<th>Class</th>
<th>Course Objectives/Learning Outcomes</th>
<th>Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>KINE 3320</td>
<td>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.</td>
<td>Exams, Final exam, Quizzes - multiple choices, short answers, essay questions, true and false Final Project - 4-week treatment plan for an condition assigned</td>
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<tr>
<td>Therapeutic Modalities</td>
<td>2. Become familiar with numerous therapeutic modalities that are used today in Athletic Training and Physical Therapy clinics.</td>
<td>Exams, Final exam, Quizzes - multiple choices, short answers, essay questions, true and false 4 Labs Final Project - 4-week treatment plan for an condition assigned</td>
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<td>3. Be able to administer therapeutic modalities to a patient while effectively communicating with him/her about indications, contraindications, precautions, normal/abnormal sensations etc.</td>
<td>4 Labs</td>
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<td></td>
<td>4. Describe different pain control theories and the neuroscience of pain modulation.</td>
<td>Exam #1, Final exam, Quiz</td>
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<td>5. Identify indications for application of modalities and contraindications for the non-use of modalities.</td>
<td>Exam #2-4, Final exam, Quiz, Labs</td>
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<td>6. Develop a systematic approach to problem solving, enabling the student to treat the individual patient.</td>
<td>Exams, Quizzes, Paper, Final Project</td>
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<td>7. Learn the importance of proper documentation of treatments.</td>
<td>Exam #1, Quiz</td>
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<td>8. Understand how therapeutic modalities are beneficial when combined with therapeutic exercise.</td>
<td>Exams, Final exam, Quizzes - multiple choices, short answers, essay questions, true and false Final Project - 4-week treatment plan for an condition assigned</td>
</tr>
</tbody>
</table>

VI. Course Topics

The major topics to be considered are:

1. How inflammation, pain, and tissue healing affect which therapeutic modality is appropriate.
3. How, why, and when to select certain modalities based off of what therapeutic effect they possess combined with the state of tissue healing.
4. Describe all indications and contraindications for all of the therapeutic modalities taught in this course.
5. Re-evaluation and how to progress and adjust therapeutic modality usage.
6. 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 pts) receive all 25 points you must be present and participate in laboratory activities. Your 3rd unexcused absence 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**

  **Dropping a Class**
  I hope that you never find it necessary to drop this or any other class. However, events can sometimes occur that make dropping a course necessary or wise. Please consult with me before you decide to drop to be sure it is the best thing to do. Should dropping the course be the best course of action, you must initiate the process to drop the course by going to the Student Services Center and filling out a course drop form. Just stopping attendance and participation WILL NOT automatically result in your
being dropped from the class. (Include date for semester) is the last day to drop a
class with an automatic grade of “W” this term.

**Academic Honesty:**
As per the university catalog, “university students are expected to conduct themselves in
accordance with the highest standards of academic honesty. Academic misconduct for
which a student is subject to penalty includes all forms of cheating, such as illicit
possession of examinations or examination materials, forgery, or plagiarism. (Plagiarism
is the presentation of the work of another as one’s own).

Penalties that may be applied to individual cases of academic dishonesty include one or
more of the following:
1. Written reprimand.
2. Requirement to re-do work in question.
3. Requirement to submit additional work.
4. Lowering of grade on work in question;
5. Assigning grade of ‘F’ to work in question;
6. Assigning grade of ‘F’ for course;
7. Recommendation for more severe punishment.

**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 during Finals week in December. 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.**

**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.** 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.

**Pre-class Quizzes**
At the beginning of every class period there will be a pre-class quiz worth 5 points total.
Questions may be based off of either information learned in the previous class sessions,
or information that can be found in the required reading for the current class session. If
you do not read the associated reading in a timely manner it will be very difficult to earn
all points possible for the quizzes. These quizzes will only be available for the **first five
minutes** of each class period. If you enter class more than five minutes after the class
period begins you will not be eligible to take the pre-class quiz. Pre-class quizzes may
only be made up in the event of an excused absence.
**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. **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.

**Attendance, Excused Absences, and Make Up Work/Tests**
Attendance in class is not calculated into your grade, but it is necessary for your education, however strictly consuming oxygen does not qualify as attendance, be prepared to take a pre-lab quiz and answer questions when called upon. Tests and homework will only be permitted to be made up in the event of an excused absence. In order for an absence to be classified as excused one of several criteria must be met;

1. For homework- your instructor must be informed by email prior to the beginning of the class period.
2. For a test- your instructor must be informed by email at least 24 hours prior to the class period in which the test will be taken. In the case of a missed test due to an excused absence it is the responsibility of the student to make an appointment with the professor to make up the missed test, within one week of the missed exam.
3. Note from a physician stating that you missed class for a medical issue including date and time of class missed.
X. Textbook(s)

The textbook(s) adopted for this course is/are:
Starkey, C. Therapeutic Modalities. 4th Ed. F.A. Davis Company. 2012

Recommended but not required supplementary textbook(s) is/are:

XI. Bibliography

The knowledge bases that support course content and procedures include:
6. 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 CCH 117. 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.
*Required by SACS

XIV. Statement of Civility

Texas A&M University-Corpus Christi has a diverse student population that represents the population of the state. Our goal is to provide you with a high quality educational experience that
is free from repression. You are responsible for following the rules of the University, city, state and federal government. We expect that you will behave in a manner that is dignified, respectful and courteous to all people, regardless of gender, ethnic/racial origin, religious background, age, sexual orientation or disability. Behaviors that infringe on the rights of another individual will not be tolerated. http://falcon.tamucc.edu/~students/JAffairs/ja_hndbk_academic_info.htm

XV. Statement of Academic Continuity
In the event of an unforeseen adverse event, such as a major hurricane and classes could not be held on the campus of Texas A&M University–Corpus Christi; this course would continue through the use of Blackboard and/or email. In addition, the syllabus and class activities may be modified to allow continuation of the course. Ideally, University facilities (i.e., emails, web sites, and Blackboard) will be operational within two days of the closing of the physical campus. However, students need to make certain that the course instructor has a primary and a secondary means of contacting each student.
### APPENDIX

#### A. Tentative Course Schedule for KINE 3320 – Therapeutic Modalities (Fall 2015)

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Associated Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>8/26</td>
<td>Introduction to Therapeutic Modalities, Intervention Strategies</td>
<td>Ch. 3</td>
</tr>
<tr>
<td>8/28</td>
<td>Administrative Considerations</td>
<td>Ch. 4</td>
</tr>
<tr>
<td>8/31</td>
<td>Tissue Response to Injury</td>
<td>Ch. 1</td>
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<tr>
<td>9/2</td>
<td>Tissue Response to Injury</td>
<td>Ch. 1</td>
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<tr>
<td>9/4</td>
<td>LABOR DAY HOLIDAY</td>
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<tr>
<td>9/7</td>
<td>Physiology and Psychology of Pain</td>
<td>Ch. 2</td>
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<tr>
<td>9/9</td>
<td>Physiology and Psychology of Pain</td>
<td>Ch. 2</td>
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<tr>
<td>9/11</td>
<td>Review Exam I</td>
<td>Ch. 1-4</td>
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<tr>
<td>9/14</td>
<td>Exam I</td>
<td>Ch. 1-4</td>
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<tr>
<td>9/16</td>
<td>Thermal Modalities</td>
<td>Ch. 5</td>
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<tr>
<td>9/18</td>
<td>Thermal Modalities</td>
<td>Ch. 5</td>
</tr>
<tr>
<td>9/21</td>
<td>Application of Thermal Modalities</td>
<td>Ch. 6</td>
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<td>9/23</td>
<td>Application of Thermal Modalities</td>
<td>Ch. 6,14</td>
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<tr>
<td>9/25</td>
<td>Lab Day - Thermal Modalities</td>
<td>Ch. 5,6,14</td>
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<tr>
<td>9/28</td>
<td>Review Exam II</td>
<td>Ch. 5,6,14</td>
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<td>9/30</td>
<td>Exam II</td>
<td>Ch. 5,6,14</td>
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<tr>
<td>10/2</td>
<td>Principles of Electrical Stimulation</td>
<td>Ch. 11</td>
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<td>10/5</td>
<td>Electrical Stimulation</td>
<td>Ch. 12</td>
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<td>10/7</td>
<td>Electrical Stimulation</td>
<td>Ch. 12</td>
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<td>10/9</td>
<td>Application of Electrical Stimulation</td>
<td>Ch. 13</td>
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<td>10/12</td>
<td>Application of Electrical Stimulation</td>
<td>Ch. 13</td>
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<td>10/14</td>
<td>Electromyographic Biofeedback</td>
<td>Ch. 18</td>
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<td>10/16</td>
<td>Lab Day - Electrical Modalities</td>
<td>Ch. 11-13</td>
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<td>10/19</td>
<td>Review Exam III</td>
<td>Ch. 11-13, 18</td>
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<td>Exam III</td>
<td>Ch. 11-13, 18</td>
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<td>10/23</td>
<td>Therapeutic Ultrasound</td>
<td>Ch. 7</td>
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<td>Therapeutic Ultrasound</td>
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<td>10/28</td>
<td>Application of Therapeutic Ultrasound</td>
<td>Ch. 8</td>
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<td>10/30</td>
<td>Shortwave Diathermy</td>
<td>Ch. 9</td>
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<td>11/2</td>
<td>Application of Shortwave Diathermy</td>
<td>Ch. 10</td>
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<td>11/11</td>
<td>Low-Level Laser Therapy</td>
<td>Ch. 19</td>
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<td>11/13</td>
<td>Lab Day - Thermal &amp; Light Modalities</td>
<td>Ch. 7-10, 19</td>
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<td>11/16</td>
<td>Review for Exam IV</td>
<td>Ch. 7-10, 19</td>
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<td>11/18</td>
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<td>Ch. 7-10, 19</td>
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<td>11/20</td>
<td>Therapeutic Massage</td>
<td>Ch. 17</td>
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<tr>
<td>11/23</td>
<td>Muscle Energy Techniques</td>
<td>Ch. 15, 16</td>
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<td>11/25</td>
<td>Continuous Passive Motion &amp; Spinal Traction</td>
<td>Ch. 15, 16</td>
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<td>11/27</td>
<td>Joint Mobilization</td>
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<td>11/30</td>
<td>Lab Day - Manual Techniques</td>
<td>Ch. 15-17</td>
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<td>Reading Day - No Class</td>
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<td></td>
<td><strong>FINAL</strong></td>
<td><strong>FINAL EXAM</strong></td>
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