

**MICHIGAN STATE UNIVERSITY  
SCHOOL OF EDUCATION  
COURSE SYLLABUS  
Spring 2017**

**Department and Number:** KIN 423

**Title:** Therapeutic Modalities

**Prerequisite:** None

**Course Location:** IM Circle Teaching Laboratory

**Bulletin Description:** The course presents principles of therapeutic modalities used to manage athletic injuries and their indications and contraindications. The course will also cover the rationale for and techniques of using thermal and electrical modalities for athletic injuries.

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**Required Text:** Denegar C (2016). Therapeutic Modalities for Musculoskeletal Injuries. 4<sup>th</sup> Ed. Human Kinetics Publishing.  
ISBN: 9781450469012

**Office Hours:** By appointment as needed

**Course Learning Objectives:**

1. Demonstrate and apply knowledge of physiological effects of various therapeutic modalities.
2. Demonstrate a working knowledge of the inflammatory response to tissue injury.
3. Demonstrate an understanding of the physical principles of thermal, acoustic, electrical, light and mechanical modalities.
4. Demonstrate appropriate patient education skills with utilization of therapeutic modalities.
5. Design and carry out a structured treatment program for an athletic injury, utilizing appropriate therapeutic modality and exercise selection.
6. Understand legal guidelines, state and national, under which therapeutic modalities and exercise may be administered.
7. Apply these understandings for safe and effective application of therapeutic modalities.

**Attendance:**

Students are expected to attend every class unless absence occurs for an approved purpose including:

1. A student has participated in an activity approved by the Academic Deans' Policy Council, such as music and debate activity, R.O.T.C. function, or varsity athletic trip.
2. A student has participated in a special academic activity, such as a field trip or other special event connected with course-work.
3. A student has been a patient of the Health Center, as certified by the Student Health Service, or has suffered a **serious illness or hospitalization**, as documented by a note from a physician verifying the illness or hospitalization.
4. Religious holiday with written request to the professor within the first 2 weeks of class.

It is the responsibility of the student to communicate with the professor and provide any documentation related to the absence as soon as possible. Attendance will be confirmed randomly via short in class quizzes or assignments based on past lectures or readings.

**Academic Dishonesty:**

Article 2.III.B.2 of the Student Rights and Responsibilities (SRR) states that "The student shares with the faculty the responsibility for maintaining the integrity of scholarship, grades, and professional standards." In addition, the Department of Kinesiology adheres to the policies on academic honesty as specified in General Student Regulations 1.0, Protection of Scholarship and Grades; the all-University Policy on Integrity of Scholarship and Grades; and Ordinance 17.00, Examinations. (See Spartan Life: [Student Handbook and Resource Guide](#) and/or the MSU Web site: [www.msu.edu](http://www.msu.edu).)

Therefore, unless authorized by your instructor, you are expected to complete all course assignments, including homework, lab work, quizzes, tests and exams, without assistance from any source. You are expected to develop original work for this course; therefore, you may not submit course work you completed for another course to satisfy the requirements for this course. Also, you are not authorized to use the [www.allmsu.com](http://www.allmsu.com) Web site to complete any course work in this course. Students who violate MSU academic integrity rules may receive a penalty grade, including a failing grade on the assignment or in the course. Contact your instructor if you are unsure about the appropriateness of your course work. (See also the Academic Integrity webpage.)

**Academic Pledge:**

This course will be conducted in a manner consistent with the values and expectations of Michigan State University as summarized in the MSU Code of Honor Academic Pledge:

“As a Spartan, I will strive to uphold values of the highest ethical standard. I will practice honesty in my work, foster honesty in my peers, and take pride in knowing that honor is worth more than grades. I will carry these values beyond my time as a student at Michigan State University, continuing the endeavor to build personal integrity in all that I do.”

### **Accommodations for Students with Disabilities:**

Michigan State University is committed to providing equal opportunity for participation in all programs, services and activities. Requests for accommodations by persons with disabilities may be made by contacting the Resource Center for Persons with Disabilities at 517-884-RCPD or on the web at [rcpd.msu.edu](http://rcpd.msu.edu). Once your eligibility for an accommodation has been determined, you will be issued a Verified Individual Services Accommodation ("VISA") form. Please present this form to me at the start of the term and/or two weeks prior to the accommodation date (test, project, etc.). Requests received after this date may not be honored.

### **Counseling Center:**

University students may experience a great deal of stress during the course of their academic experiences. Depression, anxiety, relationship problems, and academic concerns - these are just some of the issues that affect many MSU students. While most students cope successfully with the challenges these years bring, some students find the various pressures of life unmanageable or unbearable. Many students have not sought counseling and may be unaware of the services available to them. The information below will provide suggestions for students in distress.

- 1) Talk to Tracey, Tom, or me. We can talk to Dr. Rosen and see if we can get you in either Duffy or his office in Olin.
- 2) Call the Counseling Center to check available times: 517-355-8270. The MSU Counseling Center is located in the Student Services building on the second floor.
- 3) Psychiatry Services are located at Olin Health Center: 517.353.8737 Consultation and treatment are provided for a wide range of mental health concerns including: mood and anxiety disorders, eating disorders, attention deficit hyperactivity disorder, alcohol/substance abuse, and psychosis. Olin Psychiatry works in collaboration with the MSU Counseling Center and the Olin Primary Care clinic.

### **Commercialized Lecture Notes**

Commercialization of lecture notes and university-provided course materials is not permitted in this course.

### **Evaluation:**

Evaluation will be based on a total of 640 points. The following section describes the types of assignments that will be included in this class as well as the points assigned to each assignment classification.

1. Chapter Study Guides (10 points each, 20 total points): You will complete 2 chapter study guides over the course of the semester in small groups. These study guides will be due on the class prior to the exam reviews. Your group must submit their study guide on D2L and bring enough copies to be distributed to your classmates. Study guides may only be 2 pages maximum.
2. Lab Reports (10 points each, 50 total points): You will complete 5 lab reports which will consist of two parts. Part A is report that encompasses the important components of each modality. Part A must be completed by each individual and turned in prior to the start of the lab session. Part B is a checklist for group members to assess their lab partners' ability to use

and explain the modalities in a format similar to the practical examinations. Part B will be completed during the lab session.

3. Chapter Quizzes (10 points each, 100 total points): Prior to beginning each chapter you will take a quiz on basic information from the assigned textbook reading. There will be a total of 11 quizzes; your lowest score will be dropped. You will be expected to have read and studied the material prior to coming to class. Quizzes will be administered at during the first 10-12 minutes of class on announced days. If you are late to class on a quiz day you will not be given additional time to complete the quiz. If you miss a chapter quiz you will not be able to make it up and will receive 0 points.
4. Online Modules (10 points each, 20 total points): There will be 2 online modules that you must independently complete on D2L during the semester. The topics that will be covered include Biofeedback and Spinal Traction. You must review the posted information and complete an assignment for each module. A small amount of information from these modules will be included on the exams.
5. Case Study Presentations (50 points): Students will present a 5 minute summary of an interesting clinical case in which therapeutic modalities were consistently utilized in order to promote tissue healing or achieve rehabilitation goals. Additional information regarding this assignment will be provide following exam 1.
6. Exams (100 points each, 300 total points): There will be two exams and a final exam. The final will consist of 50% new material and 50% cumulative. The written exams will be on material from the lectures and class readings. They could include true/false, multiple choice, matching, short answer and/or essay questions.
7. Practical Exams (100 total points): There will be 3 practical examinations given throughout the semester.
  - a. Practical exams 1 and 2 (25 points each): will be completed during the class period following Exam 1 and 2. They will cover the same modalities as their corresponding written exam. These practical exams will be completed individually with an emphasis on technical application skills.
  - b. Final practical exam (50 points): will be scheduled during finals week. The final practical exam will focus on technical application skills and clinical application. Each student will be presented with a different clinical scenario and will be asked to select/administer the best modality to use to assist tissue healing or promote rehabilitation goals. The student will also provide background information (indications, contraindications, etc.) on the modality selected.

The following scale will be used to assign course grades:

% of Total Points	Grade Achieved
100-93	4.0
92-85	3.5
84-80	3.0
79-75	2.5
70-74	2.0
65-59	1.5
60-64	1.0
≤60	0.0

**D2L Web Site:**

This class will use D2L as a course management tool. **YOU ARE RESPONSIBLE FOR CHECKING THIS SITE ON A REGULAR BASIS.** It will contain information such as PowerPoint notes, review questions, and all other course materials. Reading for each class will be posted on D2L and the majority of class discussion will revolve around the provided reading. You can access the site by going to the following site <http://angel.msu.edu>.

**Course Content (Schedule is subject to change, including exam dates/weeks)**

	Date	Chapter/Reading	Assignments
Week 1	8/30/2017	• Course Introduction	
Week 2	9/6/2017	• Chapter 1: Fundamental of Therapeutic Modalities	Quiz 1
Week 3	9/11/2017	• Chapter 2: Physiological Aspects of Injury	Quiz 2
	9/13/2017	• Chapter 3: Evidence-Based Application of Modalities	
Week 4	9/18/2017	• Chapter 4: Tissue Healing	Quiz 3
	9/20/2017	• Chapter 5: Pain and Pain Relief	
Week 5	9/25/2017	• Chapter 6: Clinical Management of Pain	Quiz 4
	9/27/2017	• Chapter 6: Clinical Management of Pain	Quiz 5
Week 6	10/2/2017	• Chapter 7: Principals of Electrical Modalities	Quiz 6
	10/4/2017	• Chapter 8: Clinical Application of Electrical Stimulation for Pain	Quiz 7
Week 7	10/9/2017	• Chapter 9: AMI and Clinical Application of Electrical Stimulation and Biofeedback • Chapter 8: Clinical Application of Electrical Stimulation for Pain	
	10/11/2017	• Electrical Stimulation Lab	Quiz 8
Week 8	10/16/2017	• Exam 1 and Schedule Practical	
	10/18/2017	• Chapter 10: Principals of Cold and Superficial Heat Therapies	Quiz 9 Lab Report Due
Week 9	10/23/2017	• Chapter 11: Clinical Applications of Cold and Superficial Heat • Rupp et al. 2012	Quiz 10
	10/25/2017	• Cold and Superficial Heat Lab	Quiz 11
Week 10	10/30/2017	• Chapter 12: Principals of Ultrasound and Diathermy • Weaver 2016	Quiz 12
	11/1/2017	• Chapter 13: Clinical Application of Ultrasound and Diathermy	Lab Report Due Quiz 13
Week 11	11/6/2017	• Sound Energy Lab	Quiz 14
	11/8/2017	• Chapter 14: Principals of Low-Level Laser Therapy	Quiz 15
Week 12	11/13/2017	• Chapter 15: Clinical Application of Low-Level Laser Therapy • Hopkins et al. 2004	Lab Report Due Quiz 16
	11/15/2017	• Exam 2	

	Date	Chapter/Reading	Assignments
Week 13	11/20/2017	• Practical Exam 2	
	11/22/2017	• Chapter 16: Mechanobiology • Killian et al. 2011	Quiz 17
Week 14	11/27/2017	• Chapter 17: Applications of Exercise and Manual Therapy to Promote Repair	Quiz 18
	11/29/2017	• Chapter 18: Mechanical Energy and Manual Therapies	Quiz 19
Week 15	12/4/2017	• Manual Therapies Lab	Quiz 20
	12/6/2017	• Case Study Presentations	Lab Report Due
Final Exam			

## CAATE Competencies and Proficiencies

- 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-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 reassessment.
- TM-C9e: Determine the criteria for progression and return to activity based on the level of functional outcomes.
- TM-C9f: Describe appropriate methods of assessing progress when using therapeutic modalities and interpret the results.

- TM-C9h: Describe appropriate medical documentation for recording progress in a therapeutic modality program.
- TM-C10: Identify manufacturer, institutional, state, and federal standards for the operation and safe application of therapeutic modalities.
- TM-C11: Identify manufacturer, institutional, state, and federal guidelines for the inspection and maintenance of therapeutic modalities.
- TM-P1: Assess patient to identify indications, contraindications, and precautions applicable to the application of therapeutic modalities.
- 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.