

**GEORGE MASON UNIVERSITY**  
**School of Recreation, Health and Tourism**

**ATEP 350 — Therapeutic Modalities (3) Fall 2010**

Day/Time:	M/W 9-10:15am	Location:	BRH 249
Professor:	Brandon Holland, MS, ATC	Email Address:	Bhollan3@gmu.edu
Office Location:	Bull Run Hall 208A	Phone Number:	443-865-4473
Office Hours:	By Appointment	Fax Number:	703-993-2025
Department Website	www.rht.gmu.edu	Class Website	Gmu.blackboard.edu

**PRE/CO-REQUISITES**

**Pre-requisites:** Formal acceptance to the professional phase of the ATEP; ATEP 150, 180, 250, 255, 256, 260, 265, 266, 270; BIOL 124, 125; HEAL 110, 230; PHED 300

**Co-requisites:** Concurrent enrollment in ATEP 355 and 356

**COURSE DESCRIPTION**

Study of the physical principles, physiological effects, indications, and contraindications of therapeutic modalities used in athletic training. Also covers indications, contraindications, physiological effects, special programs, and resistance methods used in the prevention and rehabilitation of athletic injuries.

**COURSE OBJECTIVES**

At the completion of this course students should be able to:

1. Describe physiological effects of therapeutic modalities;
2. Identify therapeutic modalities used in athletic training;
3. Describe effects of electricity on the muscular, skeletal, circulatory and nervous system;
4. Describe the therapeutic effects of electricity on soft tissue injuries;
5. Describe effects of ultrasound on the muscular, skeletal, circulatory and nervous system;
6. Describe the therapeutic effects of ultrasound on soft tissue injuries;
7. Describe the effects of mechanical and manual therapy techniques on the muscular, skeletal, circulatory and nervous system;
8. Describe the therapeutic effects of mechanical and manual therapy on soft tissue injuries;
9. Describe the effects of light therapy on the muscular, skeletal, circulatory and nervous system;
10. Describe the therapeutic effects of light therapy on soft tissue injuries;
11. Describe the therapeutic effects of emergent therapeutic modalities;
12. Identify the indications and contraindications of therapeutic modalities; and
13. Demonstrate an appreciation for and ability to apply evidence-based clinical practices.

**COURSE OVERVIEW**

This didactic course will focus on the development of cognitive competencies necessary for the safe, effective, and evidenced-based application of therapeutic modalities in a physically active patient population.

### **Attendance**

Students are expected to be on time, attend all class meetings and be prepared for in class assignments and projects. Excused absences include the following: illness (must bring a receipt or note from a doctor), family death, athletic/academic event, and others at the discretion of the instructor. For known upcoming absences, students must contact the instructor at least one week in advance to the missed class to make up work. In the case of illness or some other unforeseen absence, the student must contact the instructor via e-mail or telephone. At the next attended class meeting the student will discuss material that is to be completed. It is the student's obligation to pursue any make-up work.

### **Technology Use During Class**

As per GMU policy, all sound emitting technology is required to be turned off during the class meeting time. Additionally, no laptop computers will be permitted for use during class time; the only exception is for use during presentations and projects.

### **Accreditation Standards**

Upon completion of this course, students will meet the following Commission on Accreditation of Athletic Training Education (CAATE) competencies and proficiencies:

<b>Code</b>	<b>Competency</b>
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.
TM-P6	Document treatment goals, expectations, and treatment outcomes.
TM-CP1	Synthesize information obtained in a patient interview and physical examination to determine the indications, contraindications and precautions for the selection, patient set-up, and evidence-based application of therapeutic modalities for acute and chronic injuries. The student will formulate a progressive treatment and rehabilitation plan and appropriately apply the modalities. Effective lines of communication should be established to elicit and convey information about the patient's status and the prescribed modality(s). While maintaining patient confidentiality, all aspects of the treatment plan should be documented using standardized record-keeping methods.
TM-CP1.1	Infrared Modalities
TM-CP1.2	Electrical Stimulation Modalities
TM-CP1.3	Therapeutic Ultrasound
TM-CP1.4	Mechanical Modalities
TM-CP1.5	Massage and other Manual Techniques

### **REQUIRED READINGS**

- 1) Knight, K.L., and Draper, D.O. (2008). Therapeutic modalities: The art and science. Lippincott, Williams & Wilkins.

### **EVALUATION**

Students will be evaluated on content standards (knowledge gained). Content standards will be assessed via projects, written quizzes and exams.

### **Article Reviews**

Throughout the semester you will be assigned various articles for review. You will write a reflective summary that is typed (12pt, times new roman font), double spaced with the AMA citation listed at the top of the page along with your first/last name, course number and date.

**Quizzes**

Quizzes will be given during the first 10 minutes of classes as designated on the Course Calendar. The quizzes will be based on the required reading for the class day.

**Examinations:**

Three examinations will be administered. The format of these examinations may be multiple choice, true/false, short answer, matching, essay and fill in the blank type questions. Each of the examinations will test the material covered in the reading and during the prior class meetings.

**Evidence Based Systematic Review**

The purpose of this assignment is to provide an understanding of relevant research literature that justifies why and how therapeutic modalities are applied to patients. Using research based evidence; the clinician makes practice decisions based on the best available research evidence, clinical experience and a patient’s values. You will be required to write a research paper discussing the relevant research pertaining to the use of a specific modality (to be assigned). There are a number of databases on the web available to support evidence-based clinical practice through peer reviewed journals. Students are encouraged to use databases such as PubMed, CINAHL and SPORT Discuss to identify pertinent resources. Students are also strongly encouraged to explore the Cochrane (<http://www.cochrane.org/reviews/clibintro.htm>) and The Physiotherapy Evidence Database (<http://www.pedro.fhs.usyd.edu.au/index.html>) to identify pertinent systematic reviews and graded clinical trials. These sites also provide excellent tutorials related to assessing the methodological quality of clinical trials. The paper must be in American Medical Association format (Journal of Athletic Training) and be supported by a sufficient number of peer reviewed scholarly sources.

**Presentation Evidence Based Systematic Review**

A formal presentation of the Evidence Based Systematic Review will be demonstrated to the entire class during the last two course meetings. This will include a Power Point presentation and a one page hand out summary of the most relevant evidence related to your topic that will be given to the entire class.

**Class Participation:**

Attending, being prompt, and active participation are important components of this course. Therefore, students will earn credit for attending and contributing to the class.

**GRADING: Course Grading Scale**

ASSESSMENT METHOD	NUMBER	POINTS EACH	POINTS TOTAL
Class Participation	24	2	48
Article Review	5	20	100
Quizzes	17	5	85
Written Examinations	4	75	300
Evidence Based Systematic Review	1	100	100
Presentation of Evidence Based Review	1	50	50
<b>TOTAL</b>	—	—	<b>683</b>

The student's final letter grade will be earned based on the following scale:

- A: 635.2 – 683 pts. (93%)
- A-: 614.7– 634.1 pts (90%)
- B+: 594.2– 517.99 pts. (87%)
- B: 566.9 – 584.1 pts. (83%)

B-: 546.4 – 566.8 pts. (80%)

C+: 525.9 – 546.3 pts. (77%)

C: 498.5 – 525.8 pts. (73%)

C-: 478.1 – 498.4 pts. (70%)

D: 430.3 – 478 pts. (63%)

F: < 430.2 pt

## 2010 Fall Semester at a Glance

Class	Date	Objective
1	8/30/2010	Intro, Begin Ch 1
2	9/1/2010	Ch 1 cont, Ch 2
3	9/8/2010	Ch3
4	9/13/2010	Ch4
5	9/15/2010	Ch5
6	9/20/2010	Ch6
7	9/22/2010	Ch7
8	9/27/2010	Ch8
9	9/29/2010	Review
10	10/4/2010	Exam: Ch 1-8
11	10/6/2010	Ch 9
12	<b>***10/12/2010 (Tues)</b>	Ch 10
13	10/13/2010	Ch 11
14	10/18/2010	Ch 12
15	10/20/2010	Ch 13
16	10/25/2010	Ch 14
17	10/27/2010	Ch 15
18	11/1/2010	Review
19	11/3/2010	Exam: Ch 9-15
20	11/8/2010	Ch 17
21	11/10/2010	Ch 18
22	11/15/2010	Ch 19
23	11/17/2010	Compression
24	11/22/2010	Review
25	11/24/2010	Exam: Ch 17-19, Compression
26	11/29/2010	Additional Coursework
27	12/1/2010	Additional Coursework
28	12/6/2010	Additional Coursework
29	12/8/2010	Quiz on Additional Coursework
***	12/14-12/17	Available for Final Exam Review, attendance not mandatory.

## **MAKE UP WORK**

Students who are absent or who arrive late without an official university or a medical doctor's excuse may miss quizzes or other in-class activities. There will be no make-up quizzes or exams unless an excused absence has been warranted. Students who miss an examination quiz or other class activity because of an excused absence must complete the assignment on their first time back in class. All make-up work must be completed within one week of the missed class unless other approved arrangements are made. It is the student's obligation to pursue any make-up work.



- ❖ All students are held to the standards of the George Mason University Honor Code [See <http://www.gmu.edu/catalog/apolicies/#Anchor12>]
- ❖ *University policy states that all sound emitting devices shall be turned off during class unless otherwise authorized by the professor*
- ❖ Students with disabilities who seek accommodations in a course must be registered with the Office of Disability Services (ODS) and inform the instructor, in writing, at the beginning of the semester [See [www.gmu.edu/student/drc](http://www.gmu.edu/student/drc)]
- ❖ For additional School of Recreation, Health, and Tourism information, please visit the website at <http://rht.gmu.edu>

**ATEP 350 TENTATIVE COURSE SCHEDULE: Faculty reserves the right to alter the schedule as necessary**

DAY	DATE	TENTATIVE TOPIC	ASSIGNMENT
1	8-31	Course introduction	
2	9-2	Modalities...when, how, where?; Application Procedures	Ch 1, 2 <i>Quiz</i>
3	9-9	Tissue Response to Injury	Chapter 4 <i>Quiz</i>
4	9-14	Healing process	Chapter 6 <i>Quiz</i>
5	9-16	Healing process	
6	9-21	Pain: Theories	Ch 7 <i>Quiz</i>
7	9-23	Pain: Physiology and psychology	Ch 8 <i>Quiz</i>
8	9-28	Care of Acute Orthopedic Injuries	Ch 5 <i>Quiz</i>
9	9-30	Developing a treatment protocol; Documentation	Ch3 <i>Quiz</i>
10	10-5	<b>Written Examination #1</b>	
11	10-7	Thermal modalities: cold and heat	Ch 11 <i>Quiz</i>
12	10-13	Thermal modalities: cold and heat	Ch 13 <i>Quiz</i>
13	10-14	Clinical application of thermal modalities; Diathermy	Ch 12, 14 16 <i>Quiz</i>
14	10-19	Therapeutic ultrasound	Ch 15, pg 254-269 <i>Quiz</i>
15	10-21	Clinical application of therapeutic ultrasound; Phonophoresis	Ch 15, pg 270-278 <i>Quiz</i>
16	10-26	Principles of electrotherapy	Ch 9 <i>Quiz</i>
17	10-28	Principles of electrotherapy	
18	11-2	Electrotherapy techniques	Ch10 <i>Quiz</i>
19	11-4	Clinical application of electrical agents; Iontophoresis	
20	11-9	<b>WRITTEN EXAMINATION #2</b>	
21	11-11	Mechanical Modalities; Therapeutic massage	Chapter 17 <i>Quiz</i>
22	11-16	Compression	
23	11-18	Cervical and lumbar traction	Chapter 18 <i>Quiz</i>
24	11-23	Light Therapy	Ch 19 <i>Quiz</i>
25	11-30	Modalities: Current and future practice	Ch 20 & 21 <i>Quiz</i>
26	12-2	<b>WRITTEN EXAMINATION #3</b>	
27/28	12-7/9	<b>PRESENTATION ORAL EXAM</b>	
FINAL	12-14	<b>COMPREHENSIVE FINAL EXAMINATION 7:30-10:15am</b>	