

**KINE 3333**  
**Therapeutic Modalities**  
**(3 credit hours)**  
Spring 2013  
T/TH 8:00 – 9:20 am

**Instructor:** Dr. Cindy Trowbridge, ATC, CSCS, LAT  
**Office:** 228 Maverick Activities Center  
**Office Phone:** (817) 272-3134  
**E-mail:** [ctrowbridge@uta.edu](mailto:ctrowbridge@uta.edu)  
**Office Hours:** MW: 1-3; or by appointment



**Course Material:**

**All course updates and material will be posted on Blackboard.**

Blackboard: <http://www.uta.edu/blackboard/index.html>.

Visit <http://www.uta.edu/blackboard/students/index.html> for valuable information on how to navigate Blackboard.

**Primary Texts**

- Knight KL and Draper DO. ***Therapeutic Modalities: The Art and Science***. 2<sup>nd</sup> ed. Lippincott Williams & Wilkins. Baltimore, MD. 2012.

**Supplemental Texts, CD-ROMS, Websites, and Videos: (available in library, ATEP lab, or Dr. T's office)**

- Athletic Training Educational Competencies. 5<sup>th</sup> ed. NATA. 2011.
- Denegar C et al. ***Therapeutic Modalities for Musculoskeletal Injuries***. 3<sup>rd</sup> Edition. Human Kinetics. 2009.
- Houglum P. ***Therapeutic Exercise for Athletic Injuries***. 3<sup>rd</sup> Edition. Human Kinetics. 2010.
- Watson T. Electrotherapy on the Web. <http://www.electrotherapy.org/>

**Prerequisites**

BIOL 2457; BIOL 2458; Admission into the Professional Phase of the Athletic Training Education Program or permission from the instructor. **For Athletic Training Majors - Concurrent enrollment in KINE 4131.**

**Course Description**

This course is designed to provide the student with an understanding of the theory and application of common therapeutic modalities for the treatment of musculoskeletal injuries. Active learning and critical thinking will be emphasized throughout this course. Cognitive and psychomotor competencies addressed in class will be applied to the real world clinical settings throughout the students' clinical/field experience rotations.

*It is a true health professional that understands how all the various therapeutic modalities operate and what the underlying principles and application techniques are for each modality. All modalities have the capability to minimize or stop abnormal physiological functions or to enhance normal physiological functions. Your goal is to know these capabilities and then apply them through a critical thinking process that involves scientific knowledge and problem solving.*

If you are an athletic training major, the clinical proficiencies derived from the cognitive and psychomotor competencies addressed in this lecture class will be practiced and evaluated in the accompanying clinical practicum course KINE 4131. If you are an exercise science major, this class will provide you with a foundation for future study in therapeutic modalities and rehabilitation.

**Active Learning**

Your active participation in this class will be required. You will be responsible for your own learning by reviewing class material before and after class. I will guide you in this process; however, in the end the onus of learning will be your responsibility.

Here are your **KEYS** to success:

- **EFFORT** (*Work hard*)
- **APPROACH** (*Work smart*)
- **ATTITUDE** (*Think positively*)

Synthesize the information you are learning and apply it whenever you get the chance. Do not be afraid to ask questions or challenge the current medical or scientific assumptions. In fact, when you study the material, participate in class, ask thoughtful questions, and accept my help you will be able to apply your knowledge to any clinical situation. Your brain will only grow in response to how much it is challenged and used.

Become intrinsically motivated to improve yourself and your understanding of therapeutic modality treatments and techniques; if you do this you will succeed every time.

### Course Objectives

1. To instruct and evaluate the following competencies contained in the 5<sup>th</sup> edition of the Athletic Training Educational Competencies.
  - a. **Therapeutic Interventions – TI #1-13, #19 & #20.**
  - b. **Evidence Based Practice – EBP #1-14**
  - c. **Acute Care of Injuries and Illnesses – AC #38 and #43**
2. To provide students with further understanding and application of the Foundational Behaviors of Professional Practice.
  - a. **Primacy of patient; Teamed approach to patient; Legal practice; Ethical practice; Advancing knowledge; Cultural competence; Professionalism.**
3. To provide understanding of the underlying principles and techniques of effective and safe selection and application of therapeutic modality techniques.
4. To present the art and science of evidence based learning as it pertains to therapeutic modalities and musculoskeletal rehabilitation.
5. To allow for critical thinking that involves application of scientific knowledge and problem solving to therapeutic modality selection and application.
6. To teach techniques on how to critically read and assess peer-reviewed research and case studies as they relate to therapeutic modalities including evidence-based medicine.
7. To continue practice and application of the problem solving approach to effective and safe selection and application of therapeutic modality and rehabilitation techniques. There are four main components: 1) assess needs, 2) develop plan, 3) implement plan, and 4) evaluate plan.
8. To assess knowledge and skills through a variety of assignments and examinations.
9. To allow for active learning and active participation throughout class.

### Student Learning Outcomes

After completing this course, students should be able to:

1. Understand the terminology, principles, properties and basic concepts of thermal, acoustic, electrical, and manual therapeutic modalities.
2. Develop a treatment plan based on the results of a thorough injury evaluation.
3. Integrate the use of therapeutic exercise and therapeutic modalities to meet the needs of the individual patient.
4. Critically think and problem solve using the most recent evidence based medicine.

### Tentative Evaluation Guidelines:

<b>Knowledge and Skills</b>	<b>90%</b>
<b>Written Exams</b>	
Test 1	10%
Test 2	10%
Test 3	10%
Final Exam (comprehensive)	15%
<b>Quizzes</b>	5%
<b>Worksheets</b>	10%
<b>Problem Solving</b>	5%
<b>Evidence Based Medicine Moments/Articles</b>	10%
<b>Evidence Based Medicine Project</b>	15%
<b>Professional Development</b>	<b>10%</b>
Class Notebook	5%
Attendance/ Active Class participation	5%
<b>TOTAL</b>	<b>100%</b>

**Grading Scale:** A = 100-90%; B = 89-80%; C = 79-70%; D = 69-60%; F = 59% and below

### Cell Phone Policy

**No cell phones in class for verbal or text message conversations.** Please turn them off or silence them during our class period. If you actively perform or receive cell phone calls or text messaging during class, I will deduct points from your final grade.

### Attendance and Class Preparation

Class attendance is **required**. Excused absences include university approved absences or those that I receive notification of (i.e. illness, doctor appointments, etc.) in a timely manner. Class begins at 8:00 a.m. Tardiness is **NOT** acceptable. After three late arrivals you will be given one unexcused absence. **Two unexcused absences will automatically drop your grade by one letter (i.e., A to B, B to C, etc.).**

Each student is expected to prepare for class by reading the assigned chapter(s) and handouts **prior** to class. If you miss a class, you are responsible for obtaining all information presented. Remember: *Poor planning on your part is not an emergency on my part.* Three unexcused absences will automatically drop your grade by one letter (i.e., A to B, B to C, etc.).

### Assignments:

Each student is expected to prepare for class by reading the assigned chapter(s) and handouts **prior** to class. Assignments are **DUE** on the posted or announced date at the beginning of class. If an assignment is turned in late, points will be deducted from the assignment. Missed assignments can **only** be made up if absence was excused. All missed and late assignments **must** be made up within **one** week of original due date unless prior arrangements are made with instructor or you will receive a zero grade.

There will be three unit exams and one comprehensive final exam for this class. **The three (3) unit exams will be offered in class, via Blackboard, and/or through take home packets, Dates on syllabi are tentative, but will be officially announced 1 week prior to date.** Exams will be multifaceted with recall, application, and analysis questions throughout. Exams will include multiple choice, short answer, and problem solving questions. Use your lecture notes, textbooks, and assignments to prepare yourself for the exams.

Missed exams can **only** be made up if absence was excused. All missed and late exams **must** be made up within **one** week of original due date unless prior arrangements are made with instructor or you will receive a zero grade.

***"Life is what happens, while you are busy making other plans" John Lennon***

So, remember: Communication is the key.

### Quizzes

Quizzes will be given throughout the semester. These quizzes will be both **announced and unannounced**, so be prepared every lecture period. Quizzes will contain material from previous lectures and discussions. Be prepared for short answer, labeling, and multiple choice questions. Missed quizzes can **only** be made up if absence was excused. Same rules apply for make-ups.

### Worksheets

Throughout the semester there will be worksheets posted on the Blackboard. Each worksheet should be handed in according to due dates posted on Blackboard. **You may work together on these worksheets; however, each student must turn in his/her own work to receive credit.**

### Problem Solving

Each activity will pertain to specific topic areas and should be handed in or presented according to due dates announced in class. These will be individual and group led discussions involving clinical practice. They may occur live or over Blackboard. They will include modalities and rehabilitation exercises.

## Evidence Based Medicine

**Evidence based medicine (EBM)** is the integration of clinically relevant research, clinical skills and experience, and patient preferences and values (Sackett et al 2000). The increased awareness and focus on the practice of Evidence Based Medicine comes from our daily need for **valid** information about diagnosis, prognosis, therapy, and prevention. We want to ask local questions about the effectiveness of therapeutic modalities and design ways to find answers. The EBM portion of this course is designed so students can explore therapeutic modalities commonly used in the athletic training setting and determine what evidence is available to support their current uses.

### Evidence Based Moments

You will be required to present **research article(s)** within the topic of therapeutic modalities. Dr. Trowbridge will provide these articles and assigned dates will be given at least **one week** prior to presentation. Each student will summarize the article (Background, Purpose, Methods, Results, and Conclusions) and present to the class using PowerPoint and handouts as appropriate. Presentations should not be longer than 10 minutes. Grades will be assigned based on quality of presentation. Specific examples will be provided for assistance.

### Evidence Based Project

A complete project will consist of a **PowerPoint presentation and Research Paper**. This project is designed to allow students to present the clinical and research evidence relating to a common use of a therapeutic modality.

You will choose a modality, develop a clinical question (P.I.C.O), and provide evidence for its use in clinical rehabilitation.

- Cryotherapy, Thermotherapy, Electrotherapy, Ultrasound, Shortwave Diathermy, Laser, Manual Therapy (Traction, Massage, Muscle Energy, or Positional Release), Complementary therapy (Dry needling, acupuncture/acupuncture, Tuina etc...)

PowerPoint will consist of:

- Brief introduction to the science of the therapeutic modality.
- Presentation of clinical question (P.I.C.O).
- Clinical Bottom Line(s) or clinical recommendations in reference to your clinical question and specific aims. Use GRADE technique to assign a level of evidence.
- One (1) piece of evidence from research to support grading of clinical bottom line. i.e., present findings of research study that investigated your research question.
- List of references in AMA format.

Research paper will consist of:

- Introduction to the modality and its common uses.
- Science of modality – Physics and Physiology
- Clinical question (P.I.C.O).
- **Clinical Bottom Line(s)** or clinical recommendations. Use GRADE technique to assign a level of evidence.
- Use peer-reviewed case studies, research reports, experiments, or systematic reviews to provide evidence for your clinical recommendation. Presenting evidence from a variety of sources to support your assigned level of evidence.
- Conclusions and recommendations for further research.
- Full list of references using AMA format.

More details regarding the project will be posted via Blackboard and discussed in class.

### Class Notebook/Binder

At the end of the semester, each student is required to turn in his/her course notebook for a grade. The **three-ring notebook** is expected to be neat and organized with section tabs and a table of contents OR you may submit a small notebook with table of contents and returned assignments along with a “thumb drive” that is neatly organized and contains all lecture material. **The notebook should include lecture notes, articles, handouts, quizzes, tests, article presentations, worksheets, evidence based moments, and your evidence based project.** When returned, this notebook should be saved and used as a reference point for future study.

## **UNIVERSITY POLICIES**

**Drop Policy:** Students may drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period. After the late registration period, students must see their academic advisor to drop a class or withdraw. Undeclared students must see an advisor in the University Advising Center. Drops can continue through a point two-thirds of the way through the term or session. It is the student's responsibility to officially withdraw if they do not plan to attend after registering. **Students will not be automatically dropped for non-attendance.** Repayment of certain types of financial aid administered through the University may be required as the result of dropping classes or withdrawing. For more information, contact the Office of Financial Aid and Scholarships (<http://www.uta.edu/ses/fao>).

**Americans with Disabilities Act:** The University of Texas at Arlington is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including the *Americans with Disabilities Act (ADA)*. All instructors at UT Arlington are required by law to provide "reasonable accommodations" to students with disabilities, so as not to discriminate on the basis of that disability. Any student requiring an accommodation for this course must provide the instructor with official documentation in the form of a letter certified by the staff in the Office for Students with Disabilities, University Hall 102. Only those students who have officially documented a need for an accommodation will have their request honored. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at [www.uta.edu/disability](http://www.uta.edu/disability) or by calling the Office for Students with Disabilities at (817) 272-3364.

**Academic Integrity:** At UT Arlington, academic dishonesty is completely unacceptable and will not be tolerated in any form, including (but not limited to) "cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts" (UT System Regents' Rule 50101, §2.2). Suspected violations of academic integrity standards will be referred to the Office of Student Conduct. Violators will be disciplined in accordance with University policy, which may result in the student's suspension or expulsion from the University.

**Student Support Services:** UT Arlington provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and information related to their courses. Resources include tutoring, major-based learning centers, developmental education, advising and mentoring, personal counseling, and federally funded programs. For individualized referrals, students may contact the Maverick Resource Hotline by calling 817-272-6107, sending a message to [resources@uta.edu](mailto:resources@uta.edu), or visiting [www.uta.edu/resources](http://www.uta.edu/resources).

**Electronic Communication:** UT Arlington has adopted MavMail as its official means to communicate with students about important deadlines and events, as well as to transact university-related business regarding financial aid, tuition, grades, graduation, etc. All students are assigned a MavMail account and are responsible for checking the inbox regularly. There is no additional charge to students for using this account, which remains active even after graduation. Information about activating and using MavMail is available at <http://www.uta.edu/oit/cs/email/mavmail.php>.

**Student Feedback Survey:** At the end of each term, students enrolled in classes categorized as lecture, seminar, or laboratory will be asked to complete an online Student Feedback Survey (SFS) about the course and how it was taught. Instructions on how to access the SFS system will be sent directly to students through MavMail approximately 10 days before the end of the term. UT Arlington's effort to solicit, gather, tabulate, and publish student feedback data is required by state law; student participation in the SFS program is voluntary.

**Final Review Week:** A period of five class days prior to the first day of final examinations in the long sessions shall be designated as Final Review Week. The purpose of this week is to allow students sufficient time to prepare for final examinations. During this week, there shall be no scheduled activities such as required field trips or performances; and no instructor shall assign any themes, research problems or exercises of similar scope that have a completion date during or following this week *unless specified in the class syllabus*. During Final Review

Week, an instructor shall not give any examinations constituting 10% or more of the final grade, except makeup tests and laboratory examinations. In addition, no instructor shall give any portion of the final examination during Final Review Week. During this week, classes are held as scheduled. In addition, instructors are not required to limit content to topics that have been previously covered; they may introduce new concepts as appropriate.

#### Librarian to Contact:

For assistance with your library needs in this course, please consult:  
Andy Herzog ([amherzog@uta.edu](mailto:amherzog@uta.edu)); 817-272-7517; Central Library, Rm. 313

The following web links are provided to help you navigate the library system.

- Find a journal: <http://liblink.uta.edu/UTAlink/az>
- Interlibrary Loan: <https://illiad.uta.edu/illiad/>
  - Search a subject in Kinesiology: <http://libguides.uta.edu/kinesiology?hs=a>
  - These are my favorite search engines
    - SportsDiscus, Science Direct, Medline (FirstSearch), Medline (EBSCO), CINAHL
    - Google Scholar is also a resource <http://scholar.google.com/schhp?hl=en>



"Time out! Get the athletic trainer.  
Randy's shedding."



"Go tell the athletic trainer  
that we need an optometrist."

	<b>Therapeutic Modalities (KINE 3333) – Spring 2013 Tentative Schedule</b>	
<b><u>Date</u></b>	<b><u>Topic</u></b>	<b><u>Book Chapter(s)</u></b>
T 1/15	Course Introduction & Syllabus Foundations of Therapeutic Modalities	CH 1 & CH 3
TH 1/17	Evidence Based Medicine	CH 2
T 1/22	Science of Therapeutic Modalities and Record Keeping	p. 183-192, CH 4
TH 1/24	Understanding inflammation, proliferation, and maturation with respect to therapeutic modalities	CH 5 & 7
T 1/29	The Good, the Bad, and the Ugly parts of inflammation	CH 5 & 7
TH 1/31	Physiology and Psychology of Pain	CH 8 & 9
T 2/5	Pain Control Theories and Therapeutic Modalities	Handouts/Articles
TH 2/7	<b>Exam #1 – Material up to and through pain</b>	
T 2/12	Principles and Physiology of Cryotherapy	CH 6, 12, & 13
TH 2/14	Principles and Physiology of Thermotherapy	CH 11
T 2/19	Cryotherapy and Thermotherapy <i>Evidence Based Moments - Articles</i>	Handouts/Articles
TH 2/21	Principles of Electrotherapy	Ch 16 & 17
T 2/26	Principles and Physiology of Electrotherapy	Handouts/Articles
TH 2/28	Physiology and Clinical Use of Electrotherapy	Handouts/Articles
T 3/5	Clinical Use of Electrotherapy <i>Evidence Based Moments - Articles</i>	Handouts/Articles
TH 3/8	<b>Exam #2 – Cryotherapy, Thermotherapy, and Electrotherapy</b>	
<b>3/11-3/15</b>	<b>SPRING BREAK</b>	
T 3/19	Clinical Use of Electrotherapy <i>Evidence Based Moments - Articles</i>	Handouts/Articles
TH 3/21	Principles and Physiology of Massage & Myofascial Release/Clinical Use of Manual Techniques	CH 18
T 3/26	Clinical Use of Manual Therapy <i>Evidence Based Moments - Articles</i>	Handouts/Articles
TH 3/28	Principles of Therapeutic Ultrasound	CH 14
T 4/2	Principles and Physiology of Therapeutic Ultrasound	Handouts/Articles
TH 4/4	Clinical Use of Therapeutic Ultrasound	Handouts/Articles
T 4/9	Principles and Physiology of Pulsed Shortwave Diathermy	CH 15
TH 4/11	Clinical Use of Pulsed Shortwave Diathermy	Handouts/Articles
T 4/16	Ultrasound and Diathermy <i>Evidence Based Moments - Articles</i>	Handouts/Articles
TH 4/18	<b>Exam #3 – Massage &amp; Myofascial; Ultrasound, Diathermy</b>	
T 4/23	Principles and Physiology of Light and Laser Modalities	CH 20
TH 4/25	Clinical Use of Light and Laser Modalities <i>Evidence Based Moments - Articles</i>	Handouts/Articles
T 4/30	Principles and Physiology/Clinical Use of Traction	CH 19
TH 5/2	<b>Beginning of EBM PowerPoint presentations</b>	
	<b>EBM PowerPoint presentations Tuesday May 7, 2013 8:00 – 10:30 am</b>	



## The University of Texas at Arlington College of Education

### Mission, Core Values and Professional Dispositions



**MISSION:** To develop and deliver an educational program that ensures the highest teacher, administrator and allied health science preparation and performance and

To be a recognized contributor in the field of educational and allied health science research and practice through effective teaching, quality research and meaningful service.

The Educator and Administrator Preparation units' collaboratively developed shared vision is based on these **CORE VALUES**, dispositions and commitments to:

- Excellence
- Learner-centered environment
- Research-based
- Collaboration
- Diversity
- Technology
- Field Experiences
- Life-long Learning

Each candidate in the Educator and Administrator Unit of the College of Education of UT-Arlington will be evaluated on **PROFESSIONAL DISPOSITIONS** by faculty and staff. These dispositions have been identified as essential for a highly-qualified educator. Instructors and program directors will work with candidates rated as "unacceptable" in one or more stated criteria. The candidate will have an opportunity to develop a plan to remediate any deficiencies.

#### Demonstrates excellence

- Meets stated expectations of student performance.
- Keeps timelines. Arrives on time for class and other activities.
- Produces significant artifacts of practitioner evidence.
- Possesses a willingness to set goals.
- Attends all classes/trainings and practicum experiences.
- Completes activities as assigned.
- Has appropriate personal appearance and/or hygiene for professional setting.

#### Participates in a learner centered environment and shows respect for self and others

- Uses appropriate and professional language and conduct.
- Supports a "high quality" learning environment.
- Shows respect and consideration for the thoughts and feelings of others.

#### Research-based pedagogy

- Has an awareness of and willingness to accept research-based concepts.
- Identifies important trends in education.
- Demonstrates interests in learning new ideas and strategies.
- Relates class discussions and issues to current events in education.

#### Participates in on-going collaboration with peers and professionals

- Demonstrates kindness, fairness, patience, dignity and respect in working with peers, staff and instructors.
- Works effectively with others.
- Assists others in the university classroom or practicum setting.
- Demonstrates an openness to assistance from others.
- Receives feedback in a positive manner and makes necessary adjustment.

#### Exhibits stewardship of diversity

- Shows appropriate stewardship and tolerance to diverse people, environments, and situations.

#### Advocates use of technology

- Uses and applies existing technologies sufficiently in work.
- Shows a willingness to use and apply emerging technologies in work.

#### Shows interest in the learner and the learning-process

- Demonstrates significant learning improvement over time.
- Shows interest in the learning process and demonstrates the necessary amount of time, energy, and enthusiasm for becoming better learners, teachers, and practitioners.