

KINE 4336
Musculoskeletal Rehabilitation
(3 credit hours)
FALL 2011
TR 8 – 9:20 am
MAC 223

Instructor: Dr. Cindy Trowbridge, ATC, CSCS, LAT
Office: 228 Activities Building
Office Phone: (817) 272-3134
E-mail: ctrowbridge@uta.edu
Website: <http://www3.uta.edu/faculty/ctrowbridge/>
Office Hours: MW: 10-12; TR: 1-2; or by appointment

Required Texts:

- Houghlum P (2010). *Therapeutic Exercise for Athletic Injuries*. 3rd Edition
- *Athletic Training Educational Competencies*. 5th Edition. National Athletic Trainers' Association.

Supplemental Texts: Available in Dr. Trowbridge's Office or Library

- Nyland J (2006). Clinical Decisions in Therapeutic Exercise: Planning and Implementation. 1st Edition.
- Andrews J, Harrelson G, and Wilk K (2004). Physical Rehabilitation of the Injured Athlete. 3rd Edition.
- Hall C and Thein L (2011). Therapeutic Exercise: Moving Toward Function. 3rd Edition.
- Higgins M (2011). Therapeutic Exercise: From Theory to Practice. 1st edition.

Course Description

This course is designed to provide the student with an understanding of the theory and the basic principles of musculoskeletal rehabilitation including: planning, implementing, documenting, and evaluating programs for the rehabilitation and reconditioning of injuries and illnesses of athletes and others involved with physical activity. Both surgical and non-surgical rehabilitation models will be discussed with a special emphasis on the use of functional progressions. Emphasis is also placed upon the musculoskeletal rehabilitation of common athletic injuries. Active learning and critical thinking will be emphasized throughout this course. Educational competencies addressed in class will be applied to the real world clinical settings throughout the students' clinical experience rotations. **For ATEP students, concurrent enrollment in KINE 4130.**

Course Objectives

1. To provide kinesiology students with the knowledge of therapeutic musculoskeletal rehabilitation and reconditioning necessary for effective performance as rehabilitation specialist.
2. To provide kinesiology 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 safe and efficient musculoskeletal rehabilitation program prescription.
4. To expose kinesiology students to the four main components of problem solving approach of therapeutic exercise design: 1) assess needs, 2) develop plan, 3) implement plan, and 4) evaluate plan.
5. To allow for critical thinking that involves application of scientific knowledge and problem solving to musculoskeletal rehabilitation program prescription.

6. To present the art and science of evidence based learning as it pertains to musculoskeletal rehabilitation and conditioning. Students will be taught how to critically read and assess peer-reviewed literature as it relates to musculoskeletal rehabilitation.
7. To assess knowledge and skills through assignments and examinations.
8. To allow for **active learning** and active participation throughout class.
9. To provide athletic training students with knowledge and skills related to the following educational competencies contained in the Athletic Training Education Competencies (5th ed).
 - a. **Therapeutic Interventions: TI 1,4-8,10-12, 14-15, 17-20.**
 - b. **Clinical Examination: CE 4,5,10,14,16.**
 - c. **Evidence Based Practice: EBP 1-14.**
 - d. **Prevention and Health Promotion: PHP 19**
 - e. **Psychosocial Strategies and Referral: PS 2, 7-9**

Active Learning

Your active participation in this class will be required. As a result you will self-direct your studies by being responsible for your own learning. I will guide you in this process; however, in the end the **onus of learning will be your responsibility**. Organize your learning around the tasks and problems you encounter as an athletic training or kinesiology student. Use the vast number of resources (ACIs, CIs, internship mentors, books, ATEP lab, and articles) around you to 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. Your brain will only grow in response to how much it is challenged and used. Become **intrinsically motivated** to improve yourself and your musculoskeletal rehabilitation skills and techniques; if you do this you will succeed every time.

Student Learning Outcomes

After completing this course, students should be able to:

1. understand the terminology, principles, and basic concepts of musculoskeletal rehabilitation planning.
2. understand the terminology, principles, and basic concepts of tissue healing.
3. understand the terminology and process of different types of orthopedic surgeries.
4. integrate the use of musculoskeletal exercises and techniques to meet the needs of the individual patient.
5. develop a rehabilitation treatment plan based on the results of a thorough injury assessment and evaluation.
6. critically think and problem solve using the most recent evidence based medicine.

Tentative Evaluation:

Knowledge and Skills	90%
Written Exams	
TEST 1	10%
TEST 2	10%
TEST 3	10%
Comprehensive Final Exam	20%
Worksheets	15%
Quizzes	5%
Research Article presentations – Review/Critiques	5%
Clinical Case Study/Evidence Based Medicine Project	15%

Professional Development	10%
---------------------------------	------------

Complete Course Notebook, Attendance, and Active class participation
 Membership in professional or University associations

Grading Scale: A = 90%; B = 80%; C = 70%; D = 60%; F = 59% and below

Assignments and Exams

Assignments are **DUE** on the posted or announced date at the beginning of class or via Blackboard submission. If an assignment is turned in late, points will be deducted from the assignment. If an assignment is not completed within one week of posted due date you will receive a zero grade for that assignment.

There will be three unit exams and one comprehensive final exam for this class. 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.

- **Exams may be in-class portions or they may be take-home.**

Missed exams, quizzes, and homework can **only** be made up if absence was excused. All missed exams, quizzes, and homework **must** be made up within **one** week of original due date.

Worksheets

Throughout the semester there will be worksheets posted on Blackboard. Each worksheet will pertain to specific topic areas and should be handed in according to due date on tentative schedule. **You may work together on these worksheets; however, each student must turn in his/her own work to receive credit. Worksheet MUST be submitted via Blackboard.**

Article Presentation

You will be required to present **two research articles** within the topic of therapeutic exercise. This article will be provided by Dr. Trowbridge 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 15 minutes. Grades will be assigned based on quality of presentation. Specific examples will be provided for assistance.

Clinical Case Studies/Evidence Based Medicine Project

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. The Evidence Based Project is designed so each student can explore a common therapeutic rehabilitation technique used in the athletic training setting and determine what evidence is available to support one of its current uses. It is also structured so logical questions about the effectiveness of therapeutic exercise will be developed so future study and exploration can occur.

Students will be allowed to choose their own topic, but must receive approval from Dr. Trowbridge. Because the EBM project will involve a case study, the topic must be related to a patient that is being treated in your clinical setting. Ideally, you will be directly involved in the clinical decision-making during the patient's musculoskeletal rehabilitation.

More details regarding the project will be posted on Blackboard and discussed in class. **Important due dates will be posted on Blackboard site as this project will be completed in steps.**

Clinical Case Studies/Evidence Based Medicine Project (cont'd)

Possible Evidence Base Medicine Questions to Guide Project Development:

These are only suggested EBM questions. You may come up with others.

- Neuromuscular training – Does it hasten return to play? Does it reduce the incidence of injury?
- Core strengthening – Is it essential for proper sport motion? Does it cure back pain? Can it play a role in all injury management?
- Joint mobilizations – Do they improve ROM faster? Decrease pain quicker? Restore normal capsule?
- Isokinetic testing and training – Does it serve a purpose? How does it compare to other means of testing and training?
- Strength training – Should it be one planar or multiplanar? One set or three sets? What kind works the best? Eccentric vs. Concentric?
- Stretching – Is it important? Static or PNF? Is warming muscle important prior to?
- Immobilization vs. Early mobilization – Which is better and when?
- Closed vs. Open Kinetic Chain strength training
- Accelerated vs. Conservative Rehabilitation for ACLs – Does one work better? Do they produce problems down the line?
- Achilles tendon rupture – Surgery or no surgery? Rehab principles
- Rotator cuff repair – Rehab principles and role of the scapula
- Ulnar collateral repair – Principles and key exercises
- Throwing and Running progressions for return to sport – What does the research say?

Notebook

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. **The notebook should include lecture notes, handouts, tests, quizzes, worksheets, EBM projects.** When returned, this notebook should be placed in your athletic training portfolio.

Attendance

Class attendance is **required**. Excused absences include university approved absences or those that I receive prior notification of (i.e. illness, doctor appointments, etc.). Each student is expected to prepare for class by reading the lab material **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.* Two unexcused absences will automatically drop your grade by one letter (i.e., A to B, B to C, etc.).

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 confiscate your electronic device. No exceptions.

University Policies

Grade Grievances

Any appeal of a grade in this course must follow the procedures and deadlines for grade-related grievances as published in the current undergraduate / graduate catalog. For undergraduate courses, see http://wweb.uta.edu/catalog/content/general/academic_regulations.aspx#10. Paperwork can be obtained in MAC 147.

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://wweb.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 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, or visiting 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.

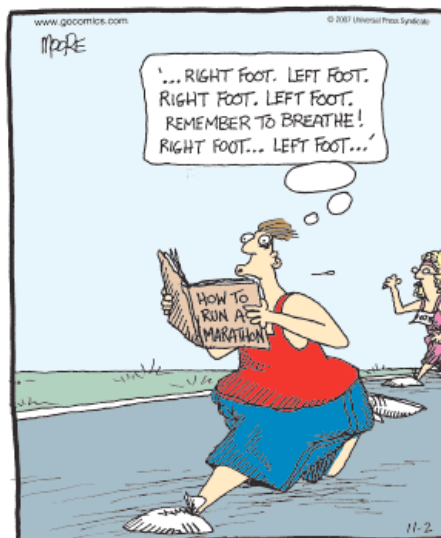
Librarian to Contact

For assistance with your library needs in this course, please consult:

Andy Herzog (amherzog@uta.edu); 817-272-7517; Central Library, Rm. 313

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

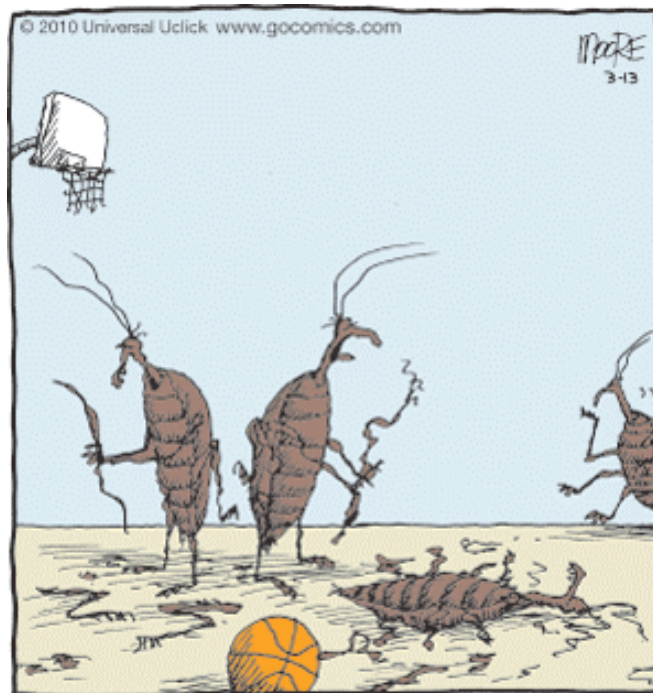
- Find a journal: <http://library.uta.edu/researchResources/findJournals.jsp>
- Interlibrary Loan: <https://illiad.uta.edu/illiad/>
- Search a subject in Kinesiology: <http://libguides.uta.edu/kinesiology>
 - These are my favorite search engines
 - SportsDiscus, Medline (FirstSearch), Medline (EBSCO), Science Direct, CINAHL



**KINE 4336 Musculoskeletal Rehabilitation
Tentative Schedule – Fall 2011**

Date	Topic	Chapter(s)/Materials
TH 8/25	Course introduction and Syllabus Foundations and Goals of Musculoskeletal Rehabilitation	
T 8/30	Problem Solving Approach to Rehabilitation Goal Setting	CH 1; Handouts
TH 9/1	Evaluation, Assessment, and SOAP notes Psychology of Rehabilitation	CH 1, CH 4 Handouts
T 9/6	Concepts of Healing	CH 2
TH 9/8	Tissue Healing and Rehabilitation Time Frames	CH 2 and CH 15
T 9/13	Restoring Range of Motion Flexibility (Tissue and Neuromuscular Factors)	CH 5 and CH 11
TH 9/15	Proprioceptive Neuromuscular Facilitation Stretching	CH 7 (p.242-248) Handouts
T 9/20	EXAM #1 Includes up to PNF	
TH 9/22	Effects of Immobilization on Joints Principles and the Practice of Joint Mobilization	Articles CH 6
T 9/27	Introduction to Manual Therapy	CH 6
TH 9/29	Putting the pieces together for affective treatment ROM, Flexibility, Joint Mobilizations, and Manual Therapy	Handouts
T 10/4	Gait Assessment	CH 12
TH 10/6	Muscles and Functional Anatomy/Review of Biomechanics Functional Movement Screening	Handouts CH 7
T 10/11	Muscle Physiology and Energy Systems Muscle Imbalances	CH 7 and CH 11
TH 10/13	Muscle Strength/Endurance Principles, Applications, and Exercise Progressions	CH 7
T 10/18	EXAM #2 Includes Manual Therapy, Gait, & Muscle	
TH 10/20	Neuromuscular Rehabilitation Concepts of Lower Extremity Rehabilitation "It's a Kinetic Chain"	CH 8 and 10
T 10/25	Rehabilitation of Foot and Ankle	CH 22
TH 10/27	Rehabilitation of Foot and Ankle	CH 22
T 11/1	Rehabilitation of Lower Leg	CH 22
TH 11/3	Rehabilitation of Knee	CH 23
T 11/8	Rehabilitation of Knee	CH 23

<u>Date</u>	<u>Topic</u>	<u>Chapter(s)/Materials</u>
#####	EXAM #3 – Take home	
TH 11/10	Rehabilitation of Thigh and Hip	CH 23 and CH 24
T 11/15	Rehabilitation of Spine and Sacroiliac Region	CH 14 & 16
TH 11/17	Rehabilitation of Spine and Sacroiliac Region	CH 16
T 11/22	Concepts of Upper Extremity Rehabilitation "It's a Kinetic Chain" Functional Progressions	CH 17, 18, 19 CH 10
TH 11/24	Happy Thanksgiving	
T 11/29	Rehabilitation of Shoulder	CH 19
TH 12/1	Rehabilitation of Shoulder	CH 19
T 12/6	Rehabilitation of Elbow and Forearm	CH 20
TH 12/8	Rehabilitation of Wrist and Hand	CH 21
	FINAL EXAM TUESDAY DECEMBER 13, 2011 8:00 am – 10:30 am	



"Is this a foreleg? Back leg? Antenna?
It's hopeless! We'll never ... Oh, thank God.
Here comes an athletic trainer!"

The University of Texas at Arlington College of Education and Health Professions

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.