

San José State University
CASA/Kinesiology
KIN 272 Evidence Based Research in the Practice of Therapeutic
Exercise Fall 2017

Course and Contact Information

Instructor:	Masaaki Tsuruike, PhD, ATC
Office Location:	SPX 115
Telephone:	(408) 924-3040
Email:	masaaki.tsuruike@sjsu.edu
Office Hours:	Tues and Wed: 2:30 - 3:30 pm
Class Days/Time:	Monday 7 - 9:50 pm
Classroom:	YUH 128
Prerequisites:	Students must have the background of athletic training education or equivalent to the knowledge

Course Format

Course materials such as syllabus, handouts, notes, assignment instructions, etc. can be found on the Canvas learning management system used at SJSU. You are responsible for changing the settings so that e-mail that is sent to your Canvas account is forwarded to your regularly used email account. Announcements will be posted on Canvas and should be checked on a regular basis; students may choose to be alerted via text or email that announcements have been made.

Course Description

This is a graduate course designed to those who passed the Board of Certification, ATC and admitted to the Graduate Athletic Training Education Program. The course is also designed to critically examine current practices in therapeutic exercise and rehabilitation-specific interventions with regard to athletic injuries. The course will take a multidisciplinary approach, incorporating scientific (research) and philosophical bases. The course is intended to provide the student with the information necessary to perform prudent clinical applications of therapeutic exercise programs and athletic rehabilitation-specific interventions.

Department of Kinesiology Graduate Program Learning Outcomes (GPLO)

Upon completion of the Master's degree program in the Department of Kinesiology, students should be able to:

1. Demonstrate the ability to conduct and critique research using theoretical and applied knowledge.

2. Interpret and apply research findings to a variety of disciplines within Kinesiology.
3. Effectively communicate essential theories, scientific applications, and ethical considerations in each student's Kinesiology program concentration.
4. Interpret and apply research findings through acquired skills in order to become agents of change to address issues in Kinesiology through the application of knowledge and research.

Graduate Athletic Training Education Program Learning Outcomes (GATEPLO)

The mission of the Graduate Athletic Training Program is to enhance the mastery of athletic training discipline through a sound theoretical and research base, as well as diversity of thought and experiences. The Graduate Athletic Training Education Program seeks to:

1. Develop critical and independent thinkers
2. Facilitate and promote community interaction/aid in sports medicine with other health care providers
3. Foster scholarly and research activities
4. Develop exemplary athletic training professionals
5. Enhance and augment athletic training skills through evidence based exploration

Course Learning Outcomes (CLO)

Upon successful completion of this course, students will be able to:

CLO 1. Develop the concept of therapeutic exercises designed to facilitate the physical re-conditioning after injury and strength of collagenous tissues.

1.1. Purpose of exercises

- 1.1.1. Regain or improve range of motion (ROM)
- 1.1.2. Strength of muscles
- 1.1.3. Coordination through dual tasks
- 1.1.4. Differentiate the theory of neuromuscular control of movement from proprioception
- 1.1.5. Concept of motor learning in therapeutic exercises
- 1.1.6. Outcomes of assessment testing algorithm
- 1.1.7. Isokinetic tests

1.2. Intensity /weight loads

1.3. Planes of motion

1.4. Volumes of exercise (repetitions and sets, frequencies per week)

CLO 2. Identify the principle of kinetic chain

2.1. The concept of total arm strength and total leg strength

CLO 3. Demonstrate types of muscular contractions in therapeutic exercises

CLO 4. Apply physiological and biomechanical effects of muscle activity on postural control with a variety of body positions: lying, quadruped, kneeling, and standing position, to the common treatment/exercise techniques employed in the rehabilitation process.

4.1. Balance Error Scoring System

4.2. Y-Balance/Star Excursion Balance Test

CLO 5. Evaluate critical thought and scientific evidence to make sound decisions regarding the ACL injury prevention, and identify updated assessments of interventions and exercises including double legged drop jump

5.1. Landing error scoring system

5.2. Double legged drop jump

CLO 6. Identify the theory of rhythmical movement

6.1. The mechanism of preprogram and anticipation in the view point of core and proximal extremity

CLO 7. Demonstrate core stability exercises for injured athletes

CLO 8. Demonstrate the shoulder rehabilitation techniques with evidences (research findings)

CLO 9. Demonstrate the conceptual framework of therapeutic exercises

9.1. Hamstring Injury

9.2. Chronic Ankle Instability

9.3. Post ACL Reconstruction

9.4. Low Back Pain

9.5. Post Tommy John Surgery

Required Readings

Selected readings to be provided by the instructor. All readings are shown in the end of syllabus.

Course Requirements and Assignments

SJSU classes are designed such that in order to be successful, it is expected that students will spend a minimum of forty-five (45) hours for each unit of credit (normally three hours per unit per week), including preparing for class, participating in course activities, completing assignments, and so on. More details about student workload can be found in [University Policy S12-3](http://www.sjsu.edu/senate/docs/S12-3) at <http://www.sjsu.edu/senate/docs/S12-3.pdf>.

Each student will be required to:

1. Review the articles selected in each of the topics to discuss proficiency in using numerous psychomotor skills to rehabilitate various anatomical and supportive structures.
2. Participate in class discussions and hands-on practices actively.
3. Present the aforementioned rehabilitation program for extremities and core stability exercises and demonstrate the techniques to the class.
4. Critically review selected literature.

Grading Information

- Midterm Exam: 25%
- Conceptual Framework for Therapeutic Exercises: 40%
- Summary of Conceptual Frameworks (individual): 10%
- Final Exam (comprehensive) : 20%
- Presentation: 5%

Determination of Grades

The course is based on a percentage scale (100%). The breakdown is as follows:

A: 100-93% A-: 92.9-90%
B+: 89.9-87% B: 86.9-83% B-: 82.9-80%
C+: 79.9-77% C: 76.9-73% C-: 72.9-70%
D+: 69.9-67% D: 66.9-63% D-: 62.9-60% F: <60%

Midterm Exam: 25%

There will be one midterm exam covering all materials (lectures, labs, discussions, readings, etc.) to date from ALL units discussed up to the purpose of therapeutic exercises, neuromuscular control of movement, proprioception, postural balance, chronic ankle instability, and knee injury prevention program.

The exam will be comprehensive, including true-false, multiple choice, and short essay questions that require integration and synthesis of knowledge. Excellent responses will demonstrate advanced and in-depth understanding of therapeutic exercises for injured athletes. Responses should include material from assigned readings and class discussions. (GPLO 1-4) (GATEPLO 1, 3, 5) (CLO 1-5)

Midterm Exam Date: October 23

Conceptual Framework for Therapeutic Exercises: 40%

This is part of active learning for you to enhance your critical thinking in the field of athletic training. You will be randomly assigned to a group with 3 - 4 members to develop the conceptual framework for therapeutic exercise.

Each of the four assignments will give groups a certain theme with some type of injury either of chronic or acute injury: 1) hamstring injury, 2) chronic ankle sprain, 3) Post-ACL reconstruction, 4) low back pain, and 5) Post-Tommy John surgery.

The conceptual framework must be developed with two kinds with three dimension. The three dimension, for instances, consist of the planes of motion in exercise, intensity (weight loads), and postural positions (lying, quadruped, kneeling, and standing position). The two kinds of exercises consist of open kinetic chain and closed kinetic chain exercise.

You will bring the exercises you have demonstrated for your injured athletes or learned from other athletic trainers to the class, and discuss with your member to conclude the conceptual framework for the theme each time. In the end of the class, a member of the group will demonstrate some exercises with rationales. Also, each of the groups develop two-page report with appropriate tables describing the exercises you discussed in the group (research). (**8 pts each**). (GPLO 1-4) (GATEPLO 1, 3, 5) (CLO 9)

Each of the group report due is by the following week class

*This conceptual framework assignments are important to enhance your active learning. **All students are expected to actively participate in group discussion and hands-on exercise work-out.**

Your absence more than two times will affect your conceptual framework points (-2 per each absence after two times). Students who consider missing the class due to their clinical duties, such as travelling with your team, may make up the class absence to submit the assignment **individually only if a student asks at least a week prior to the class he or she misses.** However, no more than three assignments are given to make up in this assignment.

Summary of Therapeutic Exercise: 10%

This is an opportunity for each of the students to organize the therapeutic exercises discussed in the class including all materials as well as the conceptual frameworks: 1) hamstring injury, 2) chronic ankle sprain, 3) Post-ACL reconstruction, 4) Low Back Pain, and 5) Post-Tommy John surgery. You can develop this summary assignment along with the course note which I prepared for the class. The idea of this assignment is for you to utilize as the references. (GPLO 1-4) (GATEPLO 1, 3, 5) (CLO 1, 9)

Final Exam: 20%

The final exam will be given to students who demonstrate mastery of course content through the Canvas (an online exam).

The exam will be comprehensive short essay questions that require integration and synthesis of knowledge for the concept of core stability and shoulder exercises in overhead athletes. Excellent responses will demonstrate advanced and in-depth understanding of therapeutic exercises for injured athletes. Responses should include material from assigned readings and class discussions. (GPLO 1-4) (GATEPLO 1, 3, 5) (CLO 7, 8)

Final Exam Date: December 18

Exams are to be taken on the dates scheduled. Make-up exams are permitted only for illness and emergency (TRULY EXTRAORDINARY CIRCUMSTANCES). The student is responsible for notifying the instructor and making arrangements at the earliest possible time. In most cases, the midterm exam must be completed before the next class meeting. All requests for make-up exams will be evaluated on an individual basis.

Presentation: 5%

Each of students is required to present your tentative research activity for project (KIN 298) or thesis (KIN 299) with slides for 10 min. The presentation includes as follows: 1) the background of study, 2) the purpose of study, 3) hypotheses of study (expectation of outcome), and 4) methods of study. All students is required to submit **one page summary of your study** (**Due on November 20**)

Date of Presentations: December 4 and 11.

Classroom Protocol

- All students in the class must be required to set a silent mode for your cell phone. Students are allowed to use your PC in the class. However, you are not allowed to access any unnecessary internets or emails.
- No food is allowed in the class.
- The class will basically have no break.

University Policies (Required)

Per University Policy S16-9, university-wide policy information relevant to all courses, such as academic integrity, accommodations, etc. will be available on Office of Graduate and Undergraduate Programs' [Syllabus Information web page](http://www.sjsu.edu/gup/syllabusinfo/) at <http://www.sjsu.edu/gup/syllabusinfo/>

KIN 272, Evidence-Based Research in the Practice of Therapeutic Exercise, Fall, 2017

Course Schedule (Subject to change with advance notice)

Week	Date	Topics	Assignment Dues
1	8/28	Introduction to EBP in Therapeutic Exercise Discuss the purpose of therapeutic exercise	
2	9/4	Labor Day - Campus Closed	
3	9/11	Neuromuscular control of movement vs. proprioception in therapeutic exercise Motor learning in therapeutic exercise	
4	9/18	Conceptual Framework for Therapeutic Exercise I (<i>Hamstring Injury</i>)	
5	9/25	Mulligan concept by Eitan Gelber, MA, ATC, Director of Athletic Training, Stanford University	Conceptual framework report 1 (<i>hamstring injury</i>) is due.
6	10/2	Postural Balance Balance Error Scoring System (BESS) Y-Balance/Star Excursion Balance Test	
7	10/9	Conceptual Framework for Therapeutic Exercise II (<i>Chronic Ankle Instability</i>)	
8	10/16	Knee (ACL) Injury Prevention Program Updated double legged drop jump test <i>Review the first course sessions</i>	Conceptual framework report 2 (<i>chronic ankle instability</i>) is due.
9	10/23	Midterm	
10	10/30	Conceptual Framework for Therapeutic Exercise (<i>Post ACL Reconstruction</i>) III	
11	11/6	Core Stability Exercise Category A CEU (2 units)	Conceptual framework report 3 (<i>Post ACL Reconstruction</i>) is due.
12	11/13	Conceptual Framework for Therapeutic Exercise (<i>Low Back Pain</i>) IV	
13	11/20	Shoulder Rehabilitation Exercise in Overhead Athletes EBP CEU Seminar (3 units) starting from 6:45 pm	Conceptual framework report 4 (<i>low back pain</i>) is due.
14	11/27	Stretching the shoulder and scapula Conceptual Framework for Therapeutic Exercise V (Post Tommy John Surgery)	
15	12/4	Concept of warm-up, stretching the lower extremity Student Presentation I	Conceptual framework report 5 (post-Tommy John Surgery) is due.
16	12/11	Student Presentations II	
Final Exam	12/18	Final Exam	