

BIOEN 520 / ME 599R: MUSCULOSKELETAL BIOMECHANICS

Winter Quarter 2008 (Tu/Th 8:30 – 10:20 am, Art 006)

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Course Overview

An introduction to musculoskeletal biomechanics – “Engineering mechanics applied to the musculoskeletal system.” Examines: (1) the experimental tools and techniques used in biomechanical research; (2) the basic structure-function-property relationships for musculoskeletal tissues (bone, ligament, tendon, muscle, cartilage, etc.); and (3) the implementation of these biomechanical tools and techniques in various research and industrial applications.

Course Objectives

Using the framework of a “scientific study” (**Background, Methods, Results, Discussion, and Conclusions**), introduce the student to the fundamental tools, techniques, and concepts employed in musculoskeletal biomechanics research. The specific course objectives for the student are:

- Become aware of the scope and practice of the field of musculoskeletal biomechanics, both past and present.
- Understand the basic experimental tools and techniques used in musculoskeletal biomechanics research; and be able to identify/select appropriate tools for specific applications.
- Examine and grasp the biomechanical structure-function-property relationships for musculoskeletal tissues.
- Explore the implementation of these biomechanical tools and techniques in research and industrial applications.
- Demonstrate proficiency in developing a musculoskeletal biomechanics research project incorporating the above objectives.

Course Grading

Homework	15%
Labs	30%
Exams	30%
Final Project	20%
Class Participation	<u>5%</u>
	100%