
HPHY 410/510 Biomechanics of Human Joints – Spring 2006

University of Oregon, Department of Human Physiology

Instructor: Andrew Karduna, PhD
346-0438
304 Gerlinger
karduna@uoregon.edu

Prerequisites: HPHY 381 or equivalent

Meeting: TR, 2-3:50 pm, 301 Gerlinger

Textbook: Basic Biomechanics of the Musculoskeletal System, 3rd Edition, Nordin and Frankel

Course Description: This course has been designed as a follow-up class to Biomechanics (HPHY 381) and students are expected to come in with a basic understanding of biomechanics principals. We will take a regional approach to the musculoskeletal system and explore the biomechanics of all of the major joints of the human body. Throughout the class, physicians with specific expertise will introduce a clinical connection with the basic science material.

Course Readings: You are responsible for the assigned readings from the text and any other materials that may be assigned. It is suggested that you come to class having already read the assigned reading as this will make the lectures more informative for you.

Attendance Policy: Consistent attendance reflects professional behavior and it is expected that students attend class on a regular basis. In the event of an emergency or illness, students should notify the Course Director. Students are responsible for all missed course content and assignments.

Grading Criteria:

Midterm exam **25%**

Final exam **25%**

Project **40%**

Class Participation **10%**

Course grade will be on the following scale:

| | |
|----------------|---------|
| A-/A/A+ | 90-100% |
| B-/B/B+ | 80-89% |
| C-/C/C+ | 70-79% |
| D | 60-69% |
| F | <60% |

Updated Weekly Course Outline

| Week | Date | Topic | Instructor | Reading |
|------|----------|--------------------------|--------------------|-------------------------------------|
| 1 | April 4 | Overview/Review | Karduna | Chapter 1 - Introduction |
| | April 5 | Bone | Karduna | Chapter 2 - Bone |
| 2 | April 11 | Cartilage | Karduna | Chapter 3 - Articular Cartilage |
| | April 13 | Tendon and Ligament | Karduna | Chapter 4 - Tendons and Ligaments |
| 3 | April 18 | Skeletal Muscle | Karduna | Chapter 5 - Skeletal Muscle |
| | April 20 | Knee | Chou | Chapter 7 - Knee, Chapter 18 – Gait |
| 4 | April 25 | Hip | Chou | Chapter 8 - Hip |
| | April 27 | Foot and Ankle | Chou | Chapter 9 - Foot and Ankle |
| 5 | May 2 | Knee Arthroplasty | Walton | Chapter 16 - Arthroplasty (knee) |
| | May 4 | ACL | Lantz | |
| 6 | May 9 | Hip Arthroplasty | Jewett | Chapter 16 - Arthroplasty (hip) |
| | May 11 | Lumbar Spine | Karduna | Chapter 10 - Lumbar Spine |
| 7 | May 16 | Cervical Spine | Karduna | Chapter 11 - Cervical Spine |
| | May 18 | Shoulder | Karduna | Chapter 12 - Shoulder |
| 8 | May 23 | Elbow | Karduna | Chapter 13 - Elbow |
| | May 25 | Wrist and Hand | Karduna | Chapter 14 - Wrist and Hand |
| 9 | May 30 | Shoulder | Shapiro | |
| | June 1 | Fracture Fixation | Fitzpatrick | Chapter 15 - Fracture Fixation |
| 10 | June 6 | Presentations | | |
| | June 8 | Presentations | | |
| 11 | | Final Exam | Take Home | |