
HPHY 684 Kinematics of Human Movement – Fall 2006

University of Oregon, Department of Human Physiology

Course Director: Andrew Karduna, PhD, Assistant Professor
phone: 346-0438; office: 304 Gerlinger
e-mail: karduna@uoregon.edu

Credits: 4 credits

Meeting: Monday and Wednesday, 12-1:50 pm, Gerlinger 303

Website: blackboard.uoregon.edu

Textbook: *Research Methods in Biomechanics* by Robertson, et al.

Course Overview: This course is the first of a three-course sequence in graduate biomechanics that also includes HPHY 684 and HPHY 683. This course will provide students with both theoretical and applied knowledge required to perform a kinematic analysis of human motion. By the completion of this course, students should have a working understanding of the entire process of 2D and 3D kinematics, including data collection, analysis and modeling.

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.

Course Preparation: Although there are no formal prerequisites for this class, it is expected that students have foundational knowledge of biomechanics, physicals and mathematics. Students are encouraged to review relevant content for successful completion of this course.

Grading: Grades will be determined from an equal weighting of the following:

- Mid-term exam
- Final exam
- Final project
- Homework assignments

The grading policy is as follows:

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

Weekly Course Outline

WEEK	TOPIC	READINGS	DATES
1	Overview	Introduction	September 25
	Data Collection (1)	Chapter 1 (9-19, 22-23, 31-33), Chapter 2 (37-38), Crisco and McGill articles	September 27
2	Data Collection (2)		October 2
	2D Kinematics	Chapter 1 (19-34)	October 4
3	TBD		October 9
	Signal Processing (1)	Chapter 1 (22) and chapter 11	October 11
4	Signal Processing (2)		October 16
	Signal Processing (3)		October 18
5	Rigid Body Formation (1)	Chapter 2 (42-43) Review appendices D and E	October 23
	Rigid Body Formation (2)		October 25
6	MIDTERM EXAM		October 30
	Anatomic/Neutral Coordinate System (1)	Chapter 2 (43-45) Chapter 7 (148-149, 151-154)	November 1
7	Anatomic/Neutral Coordinate System (2)		November 6
	Modeling of Motion (1)	Chapter 2 (45-52), Zatsiorsky chapter, Grood and Woltring articles	November 8
8	Modeling of Motion (2)		November 13
	Modeling of Motion (3)		November 15
9	Modeling of Motion (4)		November 20
	Skin Motion Artifact (1)	Chapter 2 (39-41), Reinschmidt, Lundberg and Karduna articles	November 22
10	Skin Motion Artifact (2)		November 27
	PRESENTATIONS		November 29
11	FINAL EXAM		