

Course Syllabus
HSS 409 and HSS 409 Lab : Kinesiology and HSS 537: Biomechanics
Fall 2009

(Honors Students enrolled in HSS 409 section H1, and Graduate students enrolled in HSS 537, see XVI on last page)

Professor: Dr. Paul M Vanderburgh
email: vanderburgh@udayton.edu
TEL: 937.229.4213
Office: Frericks rm 40
Office hours: T, Th 2-4:30pm

- I. Course Number: HSS 409 + HSS 409L, or HSS 537**
- II. Course Title: Kinesiology + Lab**
- III. Text (Required):**
 - a. Kinesiology: Scientific Basis of Human Movement. By Hamilton N, Weimar W, & Luttgens K. New York: McGraw Hill. 2008.
 - b. Zip Publishing Booklet (Bookstore)
- IV. Terms Offered: Fall and Winter**
- V. Catalogue Description:** This course will examine the kinematics and kinetics of the musculoskeletal system, both *in vitro* and *in vivo*, as it relates to the generation and maintenance of human movement. The laboratory portion of the course will concentrate on the mathematical concepts and problem solving associated with human movement.
- VI. Academic Credit:**
 - a. Undergraduates: HSS 409: 3 Credit Hour, HSS 409L: 1 Credit Hour
 - b. Graduates: HSS 537: 3 Credit Hour
- VII. Prerequisites (Specific courses or requirements; indicate recommended or required):** HSS 305: Human Anatomy recommended
- VIII. Course Goals:** Students will fulfill two of the School of Education and Allied Professions key student outcomes: Scholarly Practitioner and Reflective Practice. Students who successfully complete the course will be able to:
 - a. Make connections between anatomical concepts, physiology, and human movement
 - b. Think critically and reflectively about the mathematical complexities of static and dynamic principles involving force generation and movement.
 - c. Solve basic biomechanical linear and angular kinetics/kinematics problems involving typical sports and activities of daily living
 - d. “Learn how to learn” when considering all problems of human movement
 - e. Apply the concepts learned to clinical situations
- IX. Course Objectives:** Apply the basic principles of human anatomy to higher levels of thought involving human movement, both qualitatively and analytically.

X. Course Topics (Bold = HSS 409L, other = HSS 409 Lecture)

DATE	EVENT	COMMENTS
W 8/26	Ch. 10 Terminology in Biomechanics	
F 8/28 LAB 1	Vectors	50 points for lab course
M 8/31	Ch. 11 Description of Human Motion I	
W 9/2	Ch. 11 Description of Human Motion II	
F 9/4 LAB 2	Projectile Motion I	50 points for lab course
W 9/9	Quiz 1	80 pts for lecture course
F 9/11 LAB 3	Projectile Motion II	50 points for lab course
M 9/14	Ch. 12 Conditions of Linear Motion I	
W 9/16	Ch. 12 Conditions of Linear Motion II	
F 9/18 LAB 4	Muscle Statics I	50 points for lab course
M 9/21	Quiz 2	80 pts for lecture course
W 9/23	Ch. 13 Conditions of Rotary Motion I	
F 9/25 LAB 5	Muscles Statics II	50 points for lab course
M 9/28	Ch. 13 Conditions of Rotary Motion II	
W 9/30	Lab Exam I Review Session	
Th 10/1	Dr. Wayne Westcott Presentation	7pm Chudd Auditorium
F 10/2	Lab Exam I	250 points for lab course
M 10/5	Ch. 14 Center of Gravity and Stability	
W 10/7	No Class – comp time Wayne Westcott Pres	
M 10/12	Quiz 3	80 pts for lecture course
W 10/14	Lecture Exam 1 Review Session	
F 10/16	LECTURE EXAM I	300 POINTS FOR LECTURE COURSE
M 10/19	Scaling Introduction	
W 10/21	Scaling and endurance events	
F 10/23 LAB 6	Scaling I	50 points for lab course
M 10/26	Scaling and strength	
W 10/28	Scaling and muscle endurance tests	
F 10/30 LAB 7	Scaling II	50 points for lab course
M 11/2	Correction Factors	
W 11/4	Quiz 4	80 pts for lecture course
F 11/6 LAB 8	Correction Factors	50 points for lab course
M 11/9	The Flyer Handicap I	
W 11/11	The Flyer Handicap II	
F 11/13 LAB 9	Flyer Handicap	50 points for lab course
M 11/16	The Pump and Run I	
W 11/18	The Pump and Run II	
F 11/20 LAB 10	Balanced Fitness Tests	50 points for lab course
M 11/23	Quiz 5	80 pts for lecture course
M 11/30	Occupational Fitness Tests	
W 12/2	Lab Exam 2 Review Session	
F 12/4	Lab Exam 2	250 pts for Lab Course
M 12/7	Honors + Graduate Students Presentations I	
W 12/9	Honors + Graduate Students Presentations II	
F 12/11	Lecture Exam 2 Review Session	
Th 12/17 10:10am–12:00pm	LECTURE EXAM 2	300 POINTS FOR LECTURE COURSE

XI. Teaching Methods: HSS 409 will be primarily a lecture course with emphasis on problem solving in biomechanical problems. The lab course is student group problem solving of biomechanical math problems.

XII. Instructional technology that will be integrated into the course: Computer projection with internet as the primary presentation medium

XIII. Student Evaluation Criteria (graduate students and honors students enrolled in HSS 409 section H1, see XVII below as well):

HSS 409 Lecture Course:

Quizzes	5 @ 80 pts ea	= 400 pts
Lecture Exam 1	1 @ 300 pts	= 300 pts
Lecture Exam 2 (Final)	1 @ 300 pts	= 300 pts
Total		= 1000 pts

HSS 409 Lab Course:

Lab Exercises	10 @ 50 pts each	= 500 pts
Lab Exam I	1 @ 250 pts	= 250 pts
Lab Exam II (Final)	1 @ 250 pts	= 250 pts
Total		= 1000 pts

Grading Scale: A; $\geq 93\%$, A-; 90-92%, B+; 87-89%, B; 83-86%, B-; 80-82%, C+; 79-77%, C; 76-73, C-; 72-70, D; 60-69%, F; $<60\%$

XIV. Field-Based Experiences: none

XV. Text (s): Zip Publishing – available in bookstore under course name/number AND Kinesiology: Scientific Basis of Human Motion by Hamilton et al.

XVI. Disability Statement: To request academic accommodations due to a disability, please contact the office of Professional Support Services in the Department of Learning Enhancement and Academic Development (LEAD) (937) 229-3684. If you have a self-identification form from the Professional Support Services indicating that you have a disability, which requires accommodation, please present it to Dr. Vanderburgh so we can discuss the accommodations you might need in the class.

XVII. Honors Students and Graduate Students: Student enrolled in HSS 409, section H1 (honors students) and graduate students enrolled in HSS 537 (Biomechanics), will have an additional course requirement of a class presentation (Apr 20 or Apr 22) on a topic relevant to kinesiology. Dr. Vanderburgh will meet with these students individually to discuss. This presentation will be worth an additional 200 points for their lecture course grade. As such, undergraduate honors students' total points possible will be 1200, not 1000. The same percentages in XII above apply for final grades. *This presentation material will be testable to all other HSS 409/537 students taking the lecture final on Apr 27.* Graduate students, who get a grade for HSS 537 only (no lab grade), will have their points computed as follows: The lecture final points will be multiplied by 2 and added to the lab final points. Total possible points = 3400 or $(1200 \times 2 + 1000)$. Same percentages apply as in XII above for final grades.

XVIII. Date of Syllabus Development or Revision: June 16, 2009