

Syllabus for
HLSS 316—Kinesiology and Biomechanics
3 Credit Hours
Spring 2023

I. COURSE DESCRIPTION

An applied study of human performance, including musculoskeletal actions, analysis of sports skills, and training and conditioning techniques, with application of mechanical laws and principles to basic performance patterns.

Prerequisites: HLSS 319 or PHS 223.

II. STUDENT LEARNING OUTCOMES FOR THIS COURSE

As a result of successfully completing this course, the student will be able to do the following:

- A. Demonstrate and apply basic mechanical and physics principles to human movements and implements used in various sports.
- B. Identify the relationship between anatomical structure, physiological function, and mechanical principles as they relate to the performance of basic and complex motor skills.
- C. View the performance of physical activity skills critically and evaluate performance in terms of principles of efficient movement.

III. ASSOCIATED PROGRAM

This course meets degree completion requirements for the Health and Exercise Science program.

1. Use critical thinking skills within the content of the field of health and exercise.
2. Apply current research findings to issues in the field of health-fitness, exercise science, and sport.

IV. UNIVERSITY OUTCOMES

This course aligns with the following University Outcomes as indicated on the last page.

1. Personal Resilience
2. Intellectual Pursuit
3. Bold Vision

IV. TEXTBOOK AND OTHER LEARNING RESOURCES

A. Required Materials

1. Textbooks
McGinnis, Peter M. (2013). *Biomechanics of Sport and Exercise* (3rd ed.). Champaign, IL: Human Kinetics. ISBN 978-0-7360-7966-2

- 2. Other
 - None
- B. Optional Materials
 - 1. Textbooks
 - None
 - 2. Other
 - None

V. POLICIES AND PROCEDURES

A. Department Policies and Procedures

- 1. Class Attendance
 - a. Student is expected to attend and participate in all class activities unless administratively excused. Excessive absences can reduce a student’s grade or deny credit for the course. **Illness and injuries are not considered excused absences.**

Unexcused Absences

Based on Days Each Week Class Meets During Semester			Letter Grade Reduced From Final Grade
1/Week	2/Week	3/Week	
1-2	1-4	1-6	0
3	5	7	1
4	6	8	2
5	7	9	3
6	8	10	Fail the Course

- b. Every two tardies are considered an unexcused absence. Arriving late to class causes disruption and demonstrates a lack of respect for the instructor and the University.
- 2. Completion of a Course

All assignments are due on the dates assigned by the professor and announced in class. Any assignment received after the scheduled due date is penalized one letter grade per day, including weekends, breaks, and holidays.
- 3. Incompletes

An incomplete is given only after the student establishes, with the professor and the department chair by written petition, that his or her work is incomplete for good cause (i.e., lengthy illness, death in the family). A Petition for Incomplete Grade with all supporting documentation must be submitted for approval at least one week prior to final exam week.
- 4. Students are to be in compliance with University, school, and departmental policies regarding the Whole Person Assessment requirements. Students should consult the Whole Person Assessment handbooks for requirements regarding general education and the students’ majors.

- a. The penalty for not submitting electronically or for incorrectly submitting an artifact is a zero for that assignment.
- b. By submitting an assignment, the student gives permission for the assignment to be assessed electronically.

B. Course Policies and Procedures

- 1. Evaluations:
 - a. Grading percentages:

(1) Exam #1	10%
(2) Exam #2	10%
(3) Exam #3	20%
(4) Project #1	20%
(5) Project #2	20%
(6) Final Comprehensive Exam	<u>20%</u>
Total	100%
 - b. Grading scale:
 - A = 90%
 - B = 80%
 - C = 70%
 - D = 60%
 - F = 59% and below
- 2. Whole Person Assessment Requirements

None
- 3. Other Policies and Procedures

By submitting an assignment in any form, the student gives permission for the assignment to be checked for plagiarism, either by submitting the work for electronic verification or by other means. Penalties for any of the above infractions may result in disciplinary action including failing the assignment or failing the course or expulsion from the University, as determined by department and University guidelines.

Course Laboratory Project Description Procedures

 - a. Project #1–Muscle Analysis of a Sports Skill

Students select a sports skill and a muscular analysis of the skill. Approval of the skill must be obtained from the professor.
 - b. Project #2–Mechanical Analysis of a Sports Skill

Students video tape, digitize, and mechanically analyze the performing the sport skill.
 - c. Receiving or giving unauthorized help on assignments.
- 4. Incompletes
 - a. An Incomplete or Extension of an Incomplete is given only after the student establishes, with the instructor and the department chair by an online “Petition for Incomplete or Extension of Incomplete” form, that his or her work is incomplete for good cause (i.e., lengthy illness, death in the family). Petition for an Incomplete Grade with all supporting documentation must be submitted for approval at least one week prior to the last day this class meets.

- b. It is the student's responsibility to meet with the instructor and (if approved) complete all course required work by the following semester.

VI. COURSE CALENDAR

Week	Chapter	Topic
1		Introduction
2		The Skeletal and Muscular Systems
3	EXAM 1	Lower Extremity Muscles
4		The Neck and Trunk Muscles
5	EXAM 2	The Upper Extremity Muscles
6	PROJECT 1	Muscular Analysis of a Skill
7	2	Linear Kinematics
	3	Linear Kinetics
8	1	Forces
	4	Work, Power and Energy
9	6	Angular Kinematics
	7	Angular Kinetics
10	5	Torques and Moments of Force
	8	Fluid Mechanics
11	EXAM 3	
11-12	PROJECT 2	Muscle and Mechanical Analysis of a Sport Skill Using mechanical and physics principles, analyze the Motion of the sport skill used in the previous muscle analysis project with video digitizing.

**Course Inventory for ORU's Student Learning Outcomes
HLSS 316 – Kinesiology and Biomechanics
Spring 2023**

This course contributes to the ORU student learning outcomes as indicated below:

Significant Contribution – Addresses the outcome directly and includes targeted assessment.

Moderate Contribution – Addresses the outcome directly or indirectly and includes some assessment.

Minimal Contribution – Addresses the outcome indirectly and includes little or no assessment.

The Student Learning Glossary at <http://ir.oru.edu/doc/glossary.pdf> defines each outcome and each of the proficiencies/capacities.

OUTCOMES	Significant Contribution	Moderate Contribution	Minimal Contribution
Spiritual Integrity			
Personal Resilience			
HLSS 316 B. Identify the relationship between anatomical structure, physiological function, and mechanical principles as they relate to the performance of basic and complex motor skills.		X	
Intellectual Pursuit			
HLSS 316 A. Demonstrate and apply basic mechanical and physics principles to human movements and implements used in various sports.	X		
HLSS 316 C. View the performance of physical activity skills critically and evaluate performance in terms of principles of efficient movement.	X		
HES 1. Use critical thinking skills within the content of the field of health and exercise.	X		
Global Engagement			
Bold Vision			
HES 2. Apply current research findings to issues in the field of health-fitness, exercise science, and sport.		X	