
College of Education and Human Development
Health/Sport Sciences- Exercise Physiology
HSS- XXX-XX-XXXX Days/Time Building/Room
Introduction to Exercise Physiology
Spring 20XX

Course Instructor: Instructor Name
Instructor Role
Office: Blg/Room
Phone: Number
Email: Email Address
Office Hours: Day/Time

Course TA (if applicable)

Prerequisites: None

Recommended Text: American College of Sports Medicine. *ACSM's Introduction to Exercise Science, 4th ed.* ISBN # 9781975176297

Course Description

- Introduction to Exercise Physiology is designed to answer the most basic question- What is Exercise Physiology? The concept of homeostasis will be analyzed in detail, followed by a wide overview of how exercise poses a challenge to homeostasis. Next, an overview of physical activity, and lack thereof, and how it relates to chronic disease will be presented- specifically touching on the most common chronic diseases of modern times (heart disease, metabolic syndrome, etc...). Finally, an in-depth look at the various career paths available to individuals with a degree in Exercise Physiology will be examined, with guest speakers invited in to speak about specific jobs/careers related to the field of Exercise Physiology. Additional specific topics will include:
    - Exercise Science: A Systems Approach
    - History of Exercise Physiology
    - Clinical Exercise Physiology
    - Exercise and Sport Nutrition
    - Exercise and Sport Psychology
    - Equipment and Assessment in Exercise Physiology
    - Careers and Professional Issues in Exercise Physiology

Course Learning Objectives (based on ACSM KSA's- see below)

Students in the course can expect to learn the following:

- Knowledge of pre-activity screening techniques
- Knowledge of the effects on physical inactivity on health
- Knowledge of major components of physical fitness
- Knowledge of purpose of fitness testing protocols
- Knowledge of strength, aerobic, and flexibility exercise

- Knowledge of acute response to exercise
- Knowledge of chronic response to exercise trainings
- Knowledge of components and sequence of an exercise session
- Knowledge of energy balance and weight management
- Knowledge of interventions strategies and stress management
- Knowledge of behavior modification strategies
- Knowledge of career paths in Exercise Physiology

American College of Sports Medicine (ACSM) Knowledge, Skills, and Abilities (KSA's)

	DOMAIN I: HEALTH AND FITNESS ASSESSMENT
I.A.1.a	a) Knowledge of pre-activity screening procedures and tools that provide accurate information about the individual's health/medical history, current medical conditions, risk factors, sign/symptoms of disease, current physical activity habits, and
I.A.1.b	b) Knowledge of the key components included in informed consent and health/medical history.
I.B.1.a	development of CVD.
I.B.1.h	h) Knowledge of risk factors that may be favorably modified by physical activity habits.
I.C.1.a	Knowledge of the physiological basis of the major components of physical fitness: cardiorespiratory fitness, body composition, flexibility, muscular strength, and muscular endurance
I.C.1.d	Knowledge of the purpose and procedures of fitness testing protocols for the components of health related fitness.
I.C.2.b	Skill in modifying protocols and procedures for testing children, adolescents, older adults and individuals with special considerations.
I.D.1.a	Knowledge of common submaximal and maximal cardiorespiratory fitness assessment protocols.
I.D.1.e	Knowledge of techniques of measuring heart rate and heart rate response to exercise.
I.D.1.m	Knowledge of methods of calculating VO2max.
I.D.2.d	Skill in conducting submaximal exercise tests (e.g., cycle ergometer, treadmill, field testing,
I.D.2.e	Skill in determining cardiorespiratory fitness based on submaximal exercise test results.
I.E.1.a	Knowledge of common muscular strength, muscular endurance, and flexibility assessment protocols.
I.F.1.a	Knowledge of the advantages, disadvantages and limitations of body composition techniques (e.g., air displacement plethysmography (BOD POD®), duel-energy x-ray absorptiometry (DEXA), hydrostatic weighing, skinfolds, and bioelectrical impedance.
	Domain II: Exercise Prescription and Implementation
II.B.1.a	Knowledge of strength, aerobic, and flexibility based exercise.
II.B.1.e	Knowledge of the physiologic changes associated with an acute bout of exercise.
II.B.1.f	Knowledge of the physiologic adaptations following chronic exercise training.
II.B.1.g	Knowledge of ACSM exercise prescription guidelines for strength, aerobic, and flexibility based exercise for apparently healthy clients, clients with increased risk, and clients with controlled disease.
II.B.1.h	Knowledge of the components and sequencing incorporated into an exercise session (e.g., warm-up, stretching, conditioning or sports related exercise, cool-down).
II.C.1.a	Knowledge of the recommended FITT framework for the development of cardiorespiratory fitness.
II.D.1.a	Knowledge of the recommended FITT framework for the development of muscular strength, muscular endurance and flexibility.
II.E.1.d	Knowledge of the training principles that promote improvements in muscular strength, muscular endurance, cardiorespiratory fitness, and flexibility.
II.F.1.a	Knowledge of exercise prescriptions for achieving weight management, including weight loss, weight maintenance and weight gain goals.
II.F.1.b	Knowledge of energy balance and basic nutritional guidelines (e.g., MyPyramid, USDA Dietary Guidelines for Americans).
II.F.1.d	Knowledge of the relationship between body composition and health.
	Domain III: Exercise Counseling and Behavioral Strategies
III.B.1.c	Knowledge of intervention strategies and stress management techniques.
III.B.1.e	Knowledge of behavioral strategies for enhancing exercise and health behavior change (e.g., reinforcement, S.M.A.R.T. goal setting, social support).
III.C.1.a	Knowledge of the relationship between physical inactivity and common chronic diseases (e.g., Atherosclerosis, type II diabetes, obesity, dyslipidemia, arthritis, low back pain, hypertension).

Conceptual Framework
The conceptual framework, Shaping Tomorrow: Ideas to Action, embodies a unified rationale for our diverse programs that includes three constructs: Inquiry, Action, and Advocacy. Under the construct of **Inquiry,** and through active engagement and skilled training in methods of rigorous **Research**, candidates develop the knowledge, skills, and dispositions to become **Critical Thinkers**. Scholarship, informed practice through inquiry and reflection, is performed not in isolation but in communion with others, both within the university and in the world (Shulman, 2004). Under the construct of **Action,** and through continual **Practice**, candidates develop the knowledge, skills, and dispositions to become **Problem Solvers** in the community. They are encouraged to apply knowledge and change practice to solve real world problems. Under the construct of **Advocacy,** and through dedicated, committed **Service** to their peers, university, community, and world, candidates develop the knowledge, skills, and dispositions to become **Professional Leaders**. Our candidates are empowered to participate fully in the life of the metropolitan community in which we live, to practice social justice, and to seek equity of educational access for all the constituents.

Conceptual Framework Constructs	Inquiry	Action	Advocacy
Constructs as Learned and Applied	Research	Practice	Service
Constructs Reflected in Candidates	Critical Thinkers	Problem Solvers	Professional Leaders
Unit Dispositions Reflected in Candidates	Exhibits a disposition to inform practice through inquiry and reflection	Exhibits a disposition to improve practice through information, knowledge, and understanding	Exhibits a disposition to affirm principles of social justice and equity and a commitment to making a positive difference

Policy on instructional modifications
Students with disabilities, who need reasonable modifications to complete assignments successfully and otherwise satisfy course criteria, are encouraged to meet the instructor as early as possible to identify and plan specific accommodations. Students may be asked to supply a letter from the Disability Resource Center or other documents which will assist in planning and modification.

CEHD Diversity Statement
The College of Education and Human Development is committed to the promotion of antiracism. Diversity, equity and inclusion is a shared vision for our efforts in preparing teachers, administrators, school counselors and other professionals. The CEHD has zero tolerance for discrimination of any kind (racism, sexism, classism, homophobia, ageism, ableism, xenophobia, etc.). Students will be encouraged to investigate and gain a current perspective of diversity issues (race, ethnicity, language, religion, culture, SES, gender, sexual identity, disability, ability, age, national origin, geographic location, military status, etc.) related to their chosen fields. Students will examine critically how issues of equity, inclusion, and belonging apply to and affect theory, sociological issues, and current events (discrepant outcomes in education, hiring practices, and daily operations) in a variety of areas. Students will be encouraged to identify and challenge their belief systems that are often rooted in larger systems that perpetuate injustices, and be encouraged to reexamine and develop more critical perspectives and practices regarding equity and inclusion. By grounding their practices in these critical perspectives, students will learn to be empowered and informed leaders in their fields whose actions reflect this commitment to equity and inclusion. Students experiencing harassment and discrimination in the college should report this behavior through the Climate Accountability Reporting System via the CEHD website or to the CEHD Assistant Dean of Diversity, Equity, & Inclusion.

Title IX/Clery Act Notification
Sexual misconduct (sexual harassment, sexual assault, and any other nonconsensual behavior of a sexual nature) and sex discrimination violate University policies. Students experiencing such behavior may obtain <u>confidential</u> support from the PEACC Program 852-2663, Counseling Center 852-6585 and Campus Health Services 852-6479. To report sexual misconduct or sex discrimination, contact the Dean of Students (852-5787) or University of Louisville Police (852-6111).

Disclosure to <u>University faculty or instructors</u> of sexual misconduct, domestic violence, dating violence, or sex discrimination occurring on campus, in a University-sponsored program, or involving a campus visitor or University student or employee (whether current or former) is <u>not confidential</u> under Title IX. Faculty and instructors must forward such reports, including names and circumstances, to the University's Title IX officer.

For more information, see the Sexual Misconduct Resource Guide

(http://louisville.edu/hr/employeerelations/sexual-misconduct-brochure).

Academic Integrity and Dishonesty
All contributions and assessments in this course, including any field placement requirements, will demonstrate academic integrity which means that submitted work is of high quality, is original, and represents a single submission, unless otherwise noted through explicit and appropriate citations.

Academic dishonesty is prohibited at the University of Louisville…Academic dishonesty includes, but is not limited to, the following:

- **Cheating** [Using or attempting to use unauthorized materials during any academic exercise, copying or attempting to copy another person's work during any academic exercise, preparing work for another student, procuring or using tests or examinations, etc.]
- **Fabrication** [Inventing or making up data, research results, information, or procedures]
- **Falsification** [Altering or falsifying information]
- **Multiple Submission** [the same assignment should not be submitted for more than one course]
- **Plagiarism** [Representing the words or ideas of someone else as one's own in any academic exercise]
- **Complicity in Academic Dishonesty** [Helping or attempting to commit an academically dishonest act] (UofL Code of Conduct, Section 5)

Undergraduate Catalog link: http://louisville.edu/undergraduatecatalog

Graduate Catalog link: http://louisville.edu/graduatecatalog

University Academic Calendar

Classes start	
Last day to drop/add	
MLK Holiday	
Midterm Break	
Last Day to Withdraw	
Spring Break	
Last Day of Classes	
Reading day	
Final exams	

Criteria for Determination of Grade

Grades will be based on a plus-minus system and the point values are listed on the following table:

RANGE	LETTER GRADE
97-100	A+
94-96	A
90-93	A-
87-89	B+
84-86	B
80-83	B-
77-79	C+
74-76	C
70-73	C-
67-69	D+
64-66	D
60-63	D-
0-59	F

Grading will be done on a strictly by the number of points accumulated out of the number of points possible. There will be a total of XXX points* in this course. Final grades will be rounded utilizing traditional methods (i.e. if you receive an 89.5% or higher, I will round the grade up to a 90%; if you receive an 89.4% or lower, I will not). There will be no extra credit and no curve. **(*This number is subject to change based on the number of class meetings missed due to weather, illness, etc..).** Possible point breakdown is as follows: TBD.

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Course Requirements

Participation

Assignments

Lecture Study Question Assignments (XX points)
Each Week/Lecture will have a participation assignment that will consist of 5-10 questions relating to the lectures for the week. Each of these assignments will be worth 5 points. There are XX Lecture Study Question assignments, each worth 5 points, for a total of XX points. Refer to the schedule below for specific due dates; all assignments will be due by 8PM on the assigned due date.

Critical Thinking Assignments (XXX points)
In addition to the Lecture Study Questions, there will be a Critical Thinking Assignment associated with each Lecture/Week. These assignments are worth 10 points, and will require you to answer in 1-2 paragraphs of original thought- the idea being to promote CRITICAL THINKING. There are XX Critical Thinking Assignments, each worth 10 points, for a total of XXX points. Refer to the schedule below for specific due dates; all assignments will be due by 8PM on the assigned due date.

Exams (XXX points)
There will be XX exams in this course, each worth 100 points. Format will be multiple choice, short answer, short essay. Exams will not be cumulative and will focus on the most recently covered material. For specific chapter breakdowns for each exam, see the course schedule.

Hallmark Assessment (100 points)
The Hallmark Assessment project is worth 100 points, and is described in detail below. The Hallmark will be submitted on both Blackboard and Foliotek by the due date listed below.

In the case of a documented university excused absence (athletics/severe illness/family emergency) you will be able to complete an alternate assignment to make-up the lab assignment points- this often will consist of completing the critical thinking question portion of the lab only- ask the professor!

Exams

MAKE-UP WORK POLICY

Students must submit all assignments on time according to the syllabus in order receive credit. No credit will be given to any assignment submitted after the due date; this includes In-Class "POP" Quizzes, Weekly Blackboard Quizzes, Homework Assignments, and the Hallmark. **No exceptions will be granted**.

Exams: Make-up Exams may be arranged *ONLY* under the following conditions with proper documentation:

1. The student missing the exam contacts the professor before the administration of the exam.
2. The student takes the make-up exam within 48 hours of the originally scheduled deadline.
3. The student has a legitimate and serious medical condition (authenticated by a physician) or an extreme unforeseeable reason for which the exam was missed. This will be evaluated on a case-by-case basis and the instructor has the right to deny make-up requests if reasons are not deemed appropriate or substantial.
4. Make-up written exams will be different than those taken by other students in the class. Exams will be timed.

Note: A physician's note does not dictate if and when an exam may be taken after the initial exam administration – it only notifies the instructor of the reason for which the student has missed the exam. It is up to the instructor's discretion as to whether or not the student will be allowed to make-up the exam. Students can refer to the Dean of Students' Absence Policy for further information or clarification: http://louisville.edu/dos/facultystaff/absence-notification

*Note: If the exam is scheduled on a religious holiday a student normally enjoys, arrangements must be made at the beginning of the semester, prior to the exam day. In this instance, exams must be completed prior to the scheduled due date. If excusable events/conflicts (i.e. university and/or athletics related) are known in advance, the student must notify the instructor at the beginning of the semester, prior to the exam. In those cases, all exams must be completed **prior** to the scheduled due date. If scheduling conflicts do not permit the student to take the exam with another class section, practical exams may be administered orally in the instructor's office.*

NOTE: The course professor has the right to modify the course contents, schedules, and/or course regulations in order to attain the course objectives with the mutual agreement between the course professor and the enrolled students. Notification of schedule changes will be made in class and via email/blackboard. It is the student's responsibility to stay informed.

Foliotek Electronic Assessment System (EAS)

The Foliotek electronic assessment system will replace LiveText in Spring 2020. This web-based system contains portfolios of courses and assessments based on requirements outlined on programs' curriculum sheets. Faculty and students will use a Foliotek Single Sign On (SSO) link in Blackboard to log in to Foliotek. Students are associated with portfolios respective to the program(s) they pursue. **The Hallmark Assessment will be submitted to Foliotek (linked off Blackboard).**

Foliotek resources for you are located on the College's website, www.louisville.edu/education/foliotek . These include step-by-step guides and videos. You can also access the "Resources" and "Help" areas in Foliotek to find information on getting support via telephone, live chat, and email.

Several critical aspects of Foliotek that you need to know are listed below.

- You are not charged for the use of Foliotek.
- Faculty will create a Foliotek SSO link in your Blackboard course. The SSO links are the portals through which you will access the Foliotek system.
- You should click on the Foliotek SSO link for each course in which you are currently registered at least once during the semester. This first click will integrate Blackboard and Foliotek, associating you with your courses and instructors in Foliotek.
- After you have clicked on each SSO course link once, you can open your Foliotek-hosted courses from any current course listed in Blackboard to access portfolios, courses, and assignments.
- You can submit coursework in numerous formats, including Microsoft Word, Excel, PowerPoint, link(s), PDF files, video files, etc.
- If there is an issue with the system, you can click on "Resources" or the "Help" link to find appropriate resources.
- The "Help" menu offers directions for contacting Foliotek via email, live chat, or toll-free phone number.
- CEHD email and phone number for assistance with assignments are foliotek@louisville.edu or 502-852-1360.

Hallmark Assessment-

PURPOSE:

PROCESS:

PRODUCT: **Students will answer the following questions pertaining to the assigned case study, in the following format:**

Consult course calendar for Hallmark Due Date. Submit on Blackboard and Foliotek*.
There are no exceptions to this deadline; you will receive a zero for the assignment if it is not turned in on time.

Component	Insufficient (0-8 pts)	Developing (9-16 pts)	Target (17-21)	Exemplary (22-25)
Accuracy* Information Concepts	Information in testing battery is inaccurate in many places and incomplete	Information in testing battery is mostly accurate and complete	Information in testing battery is *accurate* but incomplete.	Information in testing battery is *accurate* and complete.
Inferences * (conclusions) Accuracy Concepts* Depth Information Logic	Provides descriptions but uses inappropriate terminology and/or does not relate the Preparticipation information presented to the questions asked.	Provides accurate descriptions using appropriate terminology. Draws little conclusions about the interrelationship between the Preparticipation information presented and the questions asked.	Provides mostly *accurate*, *deep,* and comprehensive analysis using appropriate terminology. Draws somewhat *logical conclusions* about the interelationship between the Preparticipation *information* presented and the questions asked.	Provides *accurate*, *deep,* and comprehensive analysis using appropriate terminology. Draws *logical conclusions* about the interelationship between the Preparticipation *information* presented and the questions asked.

Inference Breadth*	Student provides an incomplete/or no description of the various fitness tests. Student does not draw any inferences about equipment required or any special considerations needed for the client to be tested appropriately.	Student provides a despcription of the various fitness tests. Student draws inferences about equipment required/and special considerations needed for the client to be tested appropriately. However, the inferences are not relevent to the client being tested.	Student provides a good description of the various fitness tests. Student *draws some inferences* about equipment required/and special considerations needed for the client to be tested appropriately.	Student provides a *broad* description of the various fitness tests. Student *draws inferences* about equipment required/and special considerations needed for the client to be tested appropriately.
Clarity* Logic Relevant	Student presents some of the required components as described in the assignment in a poorly organized manner (i.e., has no clear progression, lacks focus, and provides no transition statements).	Student presents the required components as described in the assignment in a somewhat organized manner (i.e., has some relevant progression throughout the document, stays somewhat focused, and provides some transition statements).	Student presents the required components as described in the assignment in an organized manner (i.e., has some relevant progression throughout the document, stays somewhat focused, and provides some transition statements).	Student presents the required components as described in the assignment in a well-organized and *logical* manner (i.e., has a *clear* and *relevant* progression throughout the document, stays focused, and provides transition statements).

Course Content (Readings listed on PowerPoint presentations)

WEEK	TOPICS & LAB ACTIVITES	DATES	ASSIGNMENTS	DUE DATE
Week #1	Introduction/Syllabus/ Emergency Procedures		Class Introduction Questions	
	What is Exercise Physiology? History of Exercise Physiology		Lecture Study Questions Critical Thinking Assignment	
Week #2	Concept of Homeostasis			
	Disruption of Homeostasis and Chronic Disease		Lecture Study Questions Critical Thinking Assignment	
Week #3	Physiology of Inactivity			
	Chronic Disease and Physical Inactivity		Lecture Study Questions Critical Thinking Assignment	
Week #4	Chronic Disease and Physical Inactivity			
	Exam 1			
Week #5	Physiology of Exercise			

	Physiology of Exercise		Lecture Study Questions Critical Thinking Assignment	
Week #6	Cardiovascular Exercise and Health			
	Resistance Training and Health		Lecture Study Questions Critical Thinking Assignment	
Week #7	Exercise and Nutrition			
	Sports Nutrition		Lecture Study Questions Critical Thinking Assignment	
Week #8	Exercise Psychology			
	Exam 2			
Week #9	Laboratory Methods in Exercise Physiology			
	Field Testing Lab		Lecture Study Questions Critical Thinking Assignment	
Week #10	Clinical Exercise Physiology			
	Clinical Testing Lab		Lecture Study Questions Critical Thinking Assignment	
Week #12	Careers in Exercise Physiology-Fitness and Wellness			
	Guest Speaker (Fitness)			
Week #13	Careers in Exercise Physiology-Strength and Conditioning			
	Guest Speaker (S&C)			
Week #14	Careers in Exercise Physiology-Physical and Occupational Therapy			
	Guest Speaker (PT and OT)			
Week #15	Careers in Exercise Physiology-Athletic Training and Injury Prevention			
	Guest Speaker (AT)			
Week #16	Careers in Exercise Physiology-Research and Academia			

	Guest Speaker (Ex Phys Faculty)			
Week #17	Final Exam			

These descriptions and timelines are subject to change at the discretion of the Instructor. Any changes will be posted on the Announcements page of Blackboard and emailed to students' official UofL email account.

Prepared by INSTRUCTOR **Date Prepared: XX/XX/XX**

UNIVERSITY OF LOUISVILLE
COLLEGE OF EDUCATION & HUMAN DEVELOPMENT

Advanced Biomechanics (3CR)
HSS 4XX – Fall 2024 Syllabus

1. Course Name and Number (Credit Hours)

HSS 4XX (3 credit hours): Advanced Biomechanics

2. Instructor's Name, Pronouns, Office Hours, Phone and E-mail Address

TBD

3. Catalog Description, Including Prerequisites

This course provides a foundation for the analysis of the human movement from a biomechanical perspective, via the use of kinematic, kinetic and electromyographic techniques. Pre-Requisites: HSS 202 or BIOL 260, Anatomy & Physiology and HSS 387 (Biomechanics).

4. Course Purpose

The purpose of this course is to provide a combination of theoretical knowledge and practical skills that will help the students to understand the biomechanics of human movement using kinematic, kinetic and electromyographic analyses.

5. Required Resources (Technology, Textbooks and/or Readings)

Lecture contents, labs and research articles posted on Blackboard.

6. CEHD Diversity Statement

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7. CEHD Conceptual Framework

Our College Conceptual Framework, *Ideas to Actions*, focuses on three guiding constructs – inquiry, action, and advocacy. These ideas shape our courses and programs to ensure that you are well prepared for your professional pursuits.

8. Student Learning Outcomes and Relevant Professional Standards Met by Course

Student Learning Outcomes:

1) Through the content presented during the lectures and labs, the students will discover the methods used to study the kinematics (motion capture systems, Inertial Measurement Units, Accelerometers), kinetics (force transducers, force plates, isokinetic dynamometers) and neuromuscular (surface electromyography) dimensions of human performance.

2) Through the lectures and labs, students will learn how to interpret the basic features of kinematic (linear and angular position, displacement, velocity and acceleration), kinetic (forces, torques, Newton's laws of motion)

and neuromuscular (surface electromyography) analyses that are commonly studied in the field of biomechanics.

3) Through the delivery of an oral presentation to be developed based on the content from lectures, labs and a series of research articles, the students will learn how to present the biomechanical features of a specific movement identified from either the sport performance or clinical assessment fields.

4) Through the preparation of a case study, the students will learn how to propose interventions aimed at improving the biomechanical features of a specific movement identified from either the sport performance or clinical assessment fields.

All biomechanical, anatomical, physiological and neuromuscular principles included within this course are based on guidelines set forth by the American College of Sports Medicine (ACSM) and the National Strength and Conditioning Association (NSCA). This course provides content to meet the NSCA and ACSM standards for anatomy, physiology and mechanics for individuals in athletics and community based recreational activities. Both organizations are leaders in the field of Exercise Science and Sports Medicine.

This course covers the following American College of Sports Medicine Performance Domains & Associated Competencies: I.E.1.d-j; I.E.2.a-b, d; II.E.1.a-c, e-f, j, l-n; II.E.2.a-c; II.D.1.c-d, h-i, l, n; II.E.1.a-d; II.E.1.a.

Course Objectives

The students will know how motion capture systems and wearable sensors can be used to implement linear and angular analyses of movement kinematics. The students will know how force plates, force transducers and isokinetic dynamometers can be used to implement linear and angular analyses of movement kinetics. The students will know how to calculate changes in mechanical energy, mechanical work and power production during human performances. The students will know how to use surface electromyography signals to study how the central nervous system activate muscles to produce movements presenting specific kinematic and kinetic characteristics.

9. Course Content and Requirements

Course content will be articulated around the various units:

- Unit# 1: Biomechanical analysis of Linear motion
- Unit# 2: Biomechanical analysis of Angular motion
- Unit# 3: Fluid mechanics, body mechanics, work/power/energy and motor control
- Unit# 4: Technologies in Biomechanics
- Unit# 5: Types of biomechanical analyses

Course content will be presented using a combination of lectures and labs delivered by the instructor. Course content will also be based on a series of presentations from the students (case studies and research articles) related to all units.

10. Criteria for Determination of Grade

Final grade will be determined based on the following assignments:

- **Unit#1 - Test of knowledge (8% of final grade):** The students will answer a series of questions related to the course content delivered by the instructor on the topic of Biomechanical analysis of Linear motion. A combination of different types of questions will be used (Multiple choice, Multiple answers, True/false, Short answers, Problems solving).
- **Unit#2 - Test of knowledge (8% of final grade):** The students will answer a series of questions related to the course content delivered by the instructor on the topic of Biomechanical analysis of Angular motion. A combination of different types of questions will be used (Multiple choice, Multiple answers, True/false, Short answers, Problems solving).
- **Unit#3 - Test of knowledge (8% of final grade):** The students will answer a series of questions related to the course content delivered by the instructor on the topics of Fluid mechanics, body mechanics,

work/power/energy and motor control. A combination of different types of questions will be used (Multiple choice, Multiple answers, True/false, Short answers, Problems solving).

- **Unit#4 - Test of knowledge (8% of final grade):** The students will answer a series of questions related to the course content delivered by the instructor on the topic of Technologies in Biomechanics. A combination of different types of questions will be used (Multiple choice, Multiple answers, True/False, Short answers, Problems solving).
- **Unit#5 - Test of knowledge (8% of final grade):** The students will answer a series of questions related to the course content delivered by the instructor on the Types of biomechanical analyses. A combination of different types of questions will be used (Multiple choice, Multiple answers, True/False, Short answers, Problems solving).
- **Hallmark Assessment Task (60% of final grade):**
    - **Written report to present the biomechanical analysis of a specific movement (40% of final grade):** Each student will prepare a written report (between 8 and 10 pages) to perform a biomechanical analysis of a specific movement in the field of sport performance or clinical assessment. Students will be assessed on the quality of the kinematic analysis (10% of final grade), the kinetic analysis (10% of final grade), and the movement control analysis (10% of final grade) and the relevance of the scientific articles they identified and used (10% of final grade).
    - **Powerpoint + Oral presentation to present a case study (20% of final grade):** Each student will prepare a PowerPoint document (maximum of 10 slides) and an oral presentation (7-8 minutes presentation + 2-3 min QA for a total of 10 min) to present a case study where they will present an intervention aimed at improving the biomechanical characteristics of the specific movement they studied.

Correspondence of % final grades to letter grades:

Grade letter	%
A+	96.66-100
A	93.33-96.65
A-	90-93.32
B+	86.66-89.99
B	83.33-86.65
B-	80-83.32
C	70-79.99
D	60-69.99
F	0-59.99

HAT rubric posted on Blackboard.

11. Policy on Instructional Modifications:
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http://louisville.edu/hr/employeerelations/sexual-misconduct-brochure.

Course schedule and learning objectives

Week#	Day	Content	Learning objectives
Week 1	Tuesday	Course Introduction + prior knowledge	
	Thursday	Forces: Maintaining Equilibrium or Changing Linear Motion	What Are Forces? Classifying Forces Friction Addition of Forces: Force Composition Resolution of Forces Static Equilibrium
Week 2	Tuesday	Linear Kinematics: Describing Objects in Linear Motion	Motion Linear Kinematics Uniform Acceleration and Projectile Motion
	Thursday	Linear Kinetics: Explaining the Causes of Linear Motion using Newton's laws of motion	Newton's First Law of Motion: Law of Inertia Conservation of Momentum Newton's Second Law of Motion: Law of Acceleration Impulse and Momentum Newton's Third Law of Motion: Law of Action-Reaction Newton's Law of Universal Gravitation
Week 3	Tuesday	Torques and Moments of Force: Maintaining Equilibrium or Changing Angular Motion	What Are Torques? Forces and Torques in Equilibrium What Is Center of Gravity?
	Thursday	Angular Kinematics: Describing Objects in Angular Motion	Angular Position and Displacement Angular and Linear Displacement Angular Velocity Angular and Linear Velocity Angular Acceleration Angular and Linear Acceleration Anatomical System for Describing Limb Movements
Week 4	Tuesday	Angular Kinetics: Explaining the Causes of Angular Motion using Newton's laws of motion	Angular Inertia Angular Momentum Angular Interpretation of Newton's First Law of Motion Angular Interpretation of Newton's Second Law of Motion Angular Impulse and Angular Momentum Angular Interpretation of Newton's Third Law of Motion
	Thursday	Fluid Mechanics: The Effects of Water and Air	Buoyant Force: Force Due to Immersion Dynamic Fluid Force: Force Due to Relative Motion
Week 5	Tuesday	Mechanics of Biological Materials: Stresses and Strains on body tissues	Stress Strain Mechanical Properties of Materials: The Stress–Strain Relationship Mechanical Properties of the Musculoskeletal System
	Thursday	Control of the Musculoskeletal System	The Nervous System and the Neuron The Motor Unit

			Receptors and Reflexes
Week 6	Tuesday	Technologies in Biomechanics for kinematic analysis	Motion Capture systems and Inertial Measurement Units
	Thursday	Technologies in Biomechanics for kinetic analysis	Force plates and isokinetic dynamometers
Week 7	Tuesday	Technologies in Biomechanics for movement control analysis	Electromyography
	Thursday	Assessing fatigue in Biomechanics	Central and peripheral components of fatigue
Week 8	Tuesday	Biomechanical Analysis to Improve Technique	Types of Biomechanical Analysis Steps of a Qualitative Biomechanical Analysis
	Thursday	Biomechanical Analysis to Improve Training	Biomechanics and Training Qualitative Anatomical Analysis Method
Week 9	Tuesday	Biomechanical Analysis to Understand Injury Development	Mechanical Stress and Injury Tissue Response to Stress Mechanism of Overuse Injury Individual Differences in Tissue Threshold Intrinsic and Extrinsic Factors Affecting Injury
	Thursday	Explaining motion using Work, Power, and Energy	Work Energy The Work–Energy Principle Power
Week 10	Tuesday	Biomechanical analysis of gait 1	Temporal analysis
	Thursday	Biomechanical analysis of gait 2	Kinematic and kinetic analysis
Week 11	Tuesday	Biomechanical analysis of sprint running performance 1	Temporal analysis
	Thursday	Biomechanical analysis of sprint running performance 2	Kinematic and kinetic analysis
Week 12	Tuesday	Biomechanical analysis of muscle function 1	Isometric testing on isokinetic ergometer
	Thursday	Biomechanical analysis of muscle function 2	Concentric testing on isokinetic ergometer
Week 13	Tuesday	HAT - Case study presentations	Application of concepts for the definition of an intervention aimed at improving the biomechanical characteristics of a specific movement
	Thursday	HAT - Case study presentations	
Week 14	Tuesday	HAT - Case study presentations	
	Thursday	HAT - Case study presentations	
Week 15	Tuesday	HAT - Case study presentations	
	Thursday	HAT - Case study presentations	

HALLMARK ASSESSMENT TASK

Purpose: The ability to performing a biomechanical analysis of human movements is essential in professions such as fitness/exercise specialist, athletic coach, PE teacher, and clinician. Such analyses rely on assessing the movement from kinematic, kinetic and neuromuscular perspectives using the concepts and techniques presented in this course.

The purpose of this assignment is for you to identify a movement of your interest and to search the scientific literature to gather information that will allow you to provide a detailed presentation of the movement from the three different angles considered in biomechanics: kinematic, kinetic and neuromuscular.

Submission: The assignment should be submitted in Blackboard AND FolioTek (link in Blackboard) in PDF format with the student's last name in the document title. If assignment is not submitted to FolioTek, no grade is given to the assignment. During submission of the paper portion of the assignment, the paper should be assessed for plagiarism using the Safe Assign function in Blackboard. The submission due date is indicated on the course calendar in the syllabus.

Process:

1. Identify a movement of special interest to you and verify its validity for the assessment with the instructor.
2. Identify a series of at least 3 articles published in peer-reviewed scientific journals where information is provided to characterize the kinematics of the movement. Use this information to provide a precise description of the linear and/or angular motions associated to the movement. The kinematic analysis should include diagrams or a series of photos illustrating the linear and/or angular motions.
3. Identify a series of at least 3 articles published in peer-reviewed scientific journals where information is provided to characterize the kinetics of the movement. Use this information to provide a precise description of the forces and torques contributing to the linear and/or angular motions associated to the movement. The kinetic analysis should include diagrams or a series of photos illustrating the magnitude and orientation of the forces at the origin of the movement.
4. Identify a series of at least 3 articles published in peer-reviewed scientific journals where information is provided to characterize the neuromuscular aspect of the movement. Use this information to provide a precise description of the contribution made by skeletal muscles to generate forces and torques which are contributing to the linear and/or angular motions associated to the movement. The neuromuscular analysis should include diagrams showing the muscles producing the forces at the origin of the movement.
5. Identify 1 article published in peer-reviewed scientific journals which describe an intervention aimed at improving the biomechanics of the movement for either a performance improvement or an injury prevention objective.
6. Students can use the same article to obtain information related to the kinematic, kinetic and neuromuscular aspects of the movement.
7. For the paper portion of the Hallmark assignment, students will write an 8-10 pages document that will describe the kinematic, kinetic and neuromuscular aspects of the movement. The paper portion of the Hallmark assignment must be assed for plagiarism using the Safe Assign feature in Blackboard prior to submission in FolioTek. Students must upload their completed paper to Blackboard and select the Safe Assign feature on the submission link under the Hallmark Tab. Without a plagiarism assessment, no grade will be given to the Hallmark task and students will receive a zero. No exceptions will be granted. All documents uploaded to Blackboard and FolioTek must be in PDF format and the student's last name must be saved in the document title. Points will be deducted if assignments are not submitted properly.
8. For the presentation portion of the Hallmark assignment, students will prepare a PowerPoint document (maximum of 10 slides) and deliver an oral presentation (7-8 minutes presentation + 2-3 min QA for a total of 10 min) during class time to present an intervention aimed at improving the biomechanical characteristics of the specific movement they studied.

13. Bibliography

Suggested text: Biomechanics of Sport and Exercise 4th Edition – Peter McGinnis – Human Kinetics
Articles posted on Blackboard.

14. Date Prepared and by Whom

March 27, 2023 - David Rouffet, PhD.

Additional Recommended Content

(as it applies to your course and program)

RESOURCES

CEHD Wellness Nook. The Wellness "Nook" , a corner or recess, especially one offering seclusion or security, is a safe space for wellness of the mind, body and spirit to flourish. Individuals and groups are empowered to identify problems, form plausible solutions, establish goals and create desired change.

Minding your Well-being. Your well-being is of critical importance! This includes getting a good night's sleep, having enough to eat, and other resources. If you are having any difficulties with necessities, UofL has resources to assist you. The Cardinal Cupboard in SAC W312 offers free food items, in addition to some household and toiletry items. A Student Success Coordinator in the Student Success Center can work with you individually to provide guidance and support, and connect you to resources when you are experiencing any academic, financial, or personal difficulties. And the UofL Concern Center offers a searchable web site to address a wide range of concerns you may have. Please reach out to me or to one of these great resources if you find yourself in need at any time during this course or after.

Foliotek Support. Foliotek is a web-based portfolio system wherein students post their Hallmark Assessment Tasks (HATs). The College offers Foliotek instructions and support web site to answer your questions or to help you troubleshoot problems you may have.

POLICIES

Academic Integrity. All contributions and assessments in this course, including any field placement requirements, will demonstrate academic integrity which means that submitted work is of high quality, is original, and represents a single submission, unless otherwise noted through explicit and appropriate citations.

Academic Dishonesty. The University of Louisville pursues excellence in its work to educate and serve its community with integrity. Academic dishonesty is prohibited at the University of Louisville because it diminishes the quality of scholarship, prohibits independent thought that is essential to intellectual growth and development, makes accurate evaluation of student progress impossible, and defrauds those in society who must ultimately depend upon the knowledge and integrity of the institution and its students and faculty. Academic dishonesty includes, but is not limited to, the following:

- Cheating [Using or attempting to use unauthorized materials during any academic exercise, copying or attempting to copy another person's work during any academic exercise, preparing work for another student, procuring or using tests or examinations, etc.]
- Fabrication [Inventing or making up data, research results, information, or procedures]
- Falsification [Altering or falsifying information]
- Multiple Submission [the same assignment should not be submitted for more than one course]
- Plagiarism [Representing the words or ideas of someone else as one's own in any academic exercise]. The Writing Center offers guidance on how to avoid plagiarism.
- Complicity in Academic Dishonesty" [Helping or attempting to commit an academically dishonest act] (UofL Code of Conduct, Section 5)

COVID-19. As a Community of Care, all Cardinals are expected to abide by public health guidelines and regulations as published by the University: https://louisville.edu/coronavirus

HSS 5XX: Neuromuscular Aspects of Human Performance (3 credit hours)

Semester, Year
Class Hours:
Class Location:

Instructor:
Email Address:
Office Location:
Office Hours:

Emails will receive a response within 24 hours in most cases. If you do not receive a response within 48 hours, please reach out again. Emails sent after work hours, on weekends, or holidays will receive a response as soon as possible on the next business day.

COURSE DESCRIPTION

This course provides a foundation for the interaction of the nervous system and the muscular system in relation to human performance.

PREREQUISITES

HSS 394 - Foundations of Exercise Physiology

COURSE PURPOSE

This course provides an in-depth exploration of neuromuscular structure and function in respect to control of exercise and human movement, specifically as it relates to human performance and athletic adaptation. Emphasis will be placed on bioenergetics, muscle plasticity, neural control of exercise, acute responses and chronic adaptations to various exercise training, and a variety of neuromuscular disorders.

REQUIRED TEXT

Advanced Neuromuscular Exercise Physiology, 1st edition
Publisher: Human Kinetics
Author: Gardiner
ISBN: 978-0736074674

ADDITIONAL READINGS

Will be available via Blackboard

COURSE OBJECTIVES

Upon successful completion of this course, the student will be able to:

1. Describe the structure and function of skeletal muscle
2. Discuss the neural control of exercise
3. Evaluate the causes and factors involved in fatigue (central & peripheral)
4. Describe the acute responses to exercise demonstrated by the neuromuscular systems
5. Describe the chronic adaptations to exercise demonstrated by the neuromuscular systems
6. Discuss the pathophysiology of various neuromuscular diseases and disorders

COURSE LEARNING OUTCOMES & RELEVANT PROFESSIONAL STANDARDS MET BY COURSE

American College of Sports Medicine Performance Domains & Associated Competencies Covered:
I.E.1.d; II.B.1.e; II.B.1.f; II.D.1.j; II.D.1.k; II.d.1.l; II.D.1.m

National Strength & Conditioning Association Outcomes & Professional Standards Covered:
1b, 1c, 2d, 2i, 5i, 6b, 6c

METHODS OF EVALUATION

1. **Quizzes:** Each quiz will be available on Blackboard at the start of each unit. **Quizzes are due by 11:59pm** on the dates listed on the course schedule.
2. **Written Assignments: Assignments are due on Blackboard by 11:59pm** on the day of the Journal Club.
3. **Exams:** There will be 5 exams – 4 unit exams and a cumulative final. The exam format might consist of multiple choice, true/false, matching, fill in the blank, short answer, and case study. **Exams are due by 11:59pm** on the dates listed on the course schedule.
4. **Hallmark Assessment Task:** Instructions and the rubric for the Hallmark assignment can be found under the Hallmark tab in Blackboard. Students should submit Hallmark projects via Blackboard AND FolioTek. Documents should be saved with your **LAST NAME** in the title. **Each component of the Hallmark assignment is due by 11:59pm** on the dates listed in the course schedule. Submission is required in order to pass the course. **Late submissions will not be accepted.**

ASSIGNMENT	**POINTS**
Quizzes	?
Written Assignments	?
Written Exams	?
Final Cumulative Exam	?
Hallmark Assessment Task	?
TOTAL POINTS	**?**

Final grading will be based on a standard ten-point grading scale where the total points earned by a student is divided by the total points available. This table illustrates the number of points possible for each assignment and the total number of points available for the course.

CRITERIA FOR DETERMINATION OF GRADE

Final grading will be based on a standard ten-point grading scale, as shown below. The instructor will not respond to individual request for calculations of grades. You can find up to date calculations of your grade by visiting the Blackboard gradebook for this course.

F	D-	D	D+	C-	C	C+	B-	B	B+	A-	A	A+
≤59	60-62	63-66	67-69	70-72	73-76	77-79	80-82	83-86	87-89	90-92	93-96	97≤

COURSE POLICIES

LECTURES

Students are expected to attend lectures and participate in class discussions. You are expected to respect the classroom, your instructor, and your peers. This entails maintaining an environment that encourages learning. Side conversations and other distracting behavior will adversely affect your grade. Any questions regarding course material should be sent via email to the instructor in a timely manner.

EXAM POLICY: WRITTEN

Students will take all exams in person. Students will be given 1 hour and 15 minutes to complete the unit exams and 2 hours and 30 minutes to complete the final. Cheating of any kind will result in a zero on the exam (see Academic Dishonesty section below).

HOMEWORK SUBMISSION POLICY

All assignments **must** be submitted through Blackboard as a **Microsoft Word or Excel document**. Assignments submitted via any other means, including emailing the instructor, will not be accepted. If you accidentally submit the wrong document online, it is your responsibility to make sure the correct document gets uploaded. This may require contacting your instructor to remove your initial submission. Accidents happen but uploading a blank or incorrect document will result in a zero.

MAKE-UP WORK POLICY

Students must submit all assignments on time according to the syllabus in order receive credit. No credit will be given to assignments submitted after the due date - this includes Blackboard Quizzes, Labs, Homework Assignments, and the Hallmark.

Exams: Make-up Exams may be arranged *ONLY* under the following conditions with proper documentation:

1. The student missing the exam contacts the professor before the administration of the exam.
2. The student takes the make-up exam within 48 hours of the originally scheduled deadline, if possible.
3. The student has a legitimate and serious medical condition (authenticated by a physician) or an extreme unforeseeable reason for which the exam was missed. This will be evaluated on a case-by-case basis and the instructor has the right to deny make-up requests if reasons are not deemed appropriate or substantial.
4. Make-up written exams may be different than those taken by other students in the class. Exams will be timed.

Note: A physician's note does not dictate if and when an exam may be taken after the initial exam administration – it only notifies the instructor of the reason for which the student has missed the exam. It is up to the instructor's discretion as to whether or not the student will be allowed to make-up the exam. Students can refer to the Dean of Students' Absence Policy for further information or clarification: http://louisville.edu/dos/facultystaff/absence-notification

Note: If the exam is scheduled on a religious holiday a student normally enjoys, arrangements must be made at the beginning of the semester, prior to the exam day. In this instance, exams must be completed prior to the scheduled due date. If excusable events/conflicts (i.e. university and/or athletics related) are known in advance, the student must notify the instructor at the beginning of the semester, prior to the exam. In those cases, all exams must be completed prior to the scheduled due date. If scheduling conflicts do not permit the student to take the exam with another class section, practical exams may be administered orally in the instructor's office.

ACADEMIC INTEGRITY AND DISHONESTY

Academic dishonesty is prohibited at the University of Louisville. It is a serious offense because it diminishes the quality of scholarship, makes accurate evaluation of student progress impossible, and defrauds those in society who must ultimately depend upon the knowledge and integrity of the institution and its students and faculty.

All contributions and assessments in this course will demonstrate academic integrity which means that submitted work is of high quality, is original, and represents a single submission, unless otherwise noted through explicit and appropriate citations. See the Student Handbook for more information as these rules will be strictly enforced. In addition, the incident will be reported to the appropriate university officials and will go on file in the student's academic record.

Failure to comply with these rules will result in a failing grade and other disciplinary actions in accordance with the University's Academic Integrity policies. Academic dishonesty includes, but is not limited to, the following:

- Cheating (copying answers, submitting others' assignments, receiving/giving unauthorized exam assistance, using technological assistance during exams, etc.)
- Plagiarism (Note: you can plagiarize yourself! Do not submit previous assignments or sections of previous assignments.)
- Fabrication or Falsification
- Complicity in Academic Dishonesty (UofL Code of Conduct, Section 5)
- Multiple Submissions (the same assignment cannot be submitted for >1 course or in the same course in subsequent semesters)

For more information, visit the Code of Students Rights and Responsibilities (Sections 5 and 6) at http://louisville.edu/dos/students/codeofconduct

PLAGIARISM STATEMENT

Representing the words or ideas of someone else as one's own in any academic exercise. An academic unit that determines that a student is guilty of academic dishonesty may impose any academic punishment on the student that it sees fit, including suspension or expulsion from the academic unit.

TECHNOLOGY EXPECTATIONS

You must be able to use Internet search tools, access Blackboard, use email, have access to Microsoft Excel and Microsoft Word, and know how to download and upload documents. You will also need to be able to record and play videos, have working headphones or speakers, and access to a webcam. If you do not have access at home, you may be able to use a public library or come to campus to use computers in the library or one of the IT student computer labs. Make sure that you will have access several hours per week.

All hallmark assignments will be submitted using the Foliotek electronic assessment system, which replaced LiveText in Spring 2020. This web-based system contains portfolios of courses and assessments based on requirements outlined on programs' curriculum sheets. Students should use the Foliotek Single Sign On (SSO) link, located under the Hallmark tab in Blackboard to log in to Foliotek. Students are associated with portfolios respective to the program(s) they pursue. Foliotek resources are located on the college's website at www.louisville.edu/education/foliotek. These include step-by-step guides and videos. You can also access the "Resources" and "Help" areas in Foliotek to find information on getting support via telephone, live chat, and email.
Several critical aspects of Foliotek that you need to know are listed below.

- You **are not charged** for the use of Foliotek.
- Foliotek SSO links, created by faculty in your BB course, are the portals through which you will access the Foliotek system.
- You should click on the Foliotek SSO link for each course in which you are currently registered at least once during the semester. This first click will integrate Blackboard and Foliotek, associating you with your courses and instructors in Foliotek.
- After you have clicked on each SSO course link once, you can open your Foliotek-hosted courses from any current course listed in Blackboard to access portfolios, courses, and assignments.
- You can submit coursework in numerous formats, including Microsoft Word, Excel, PowerPoint, PDF files, video files, etc.
- If there is an issue with the system, you can click on "Resources" or the "Help" link to find appropriate resources.
- The "Help" menu offers directions for contacting Foliotek via email, live chat, or toll-free phone number. CEHD email and phone number for assistance with assignments are foliotek@louisville.edu or 502-852-1360.

UNIVERSITY EMAIL

Continued and regular use of your university email is expected, and students are encouraged to communicate with the instructor via email. You can work with the HelpDesk to have your University email forwarded to an account you already check daily.

INTERNET OUTAGE OR INACCESSIBILITY

A student will occasionally lose his or her Internet access due to an outage where both the cause and solution are outside of his or her control. Examples include an extended power or cable outage causing a loss in Internet access. It is the student's responsibility to find a solution to this problem. It is important to remember that late work will not be accepted for any reason, including internet outages. Being proactive about submitting homework is the only surefire way to avoid this potential issue.

TECHNICAL SUPPORT

If you need technical support with your university account, unlocking your password, accessing Internet, Blackboard or other technical issues, contact the HelpDesk at (502) 852-7997.

NOTIFICATION OF COURSE MODIFICATION

The instructor reserve the right to modify the course requirements, course schedule, and other related policies based on circumstances beyond the control of the instructor and in circumstances in which the instructor become ill or otherwise unable to complete the course as originally designed and presented in the course syllabus. While we do not expect to invoke this clause, in the event there is an unanticipated emergency, or the university or the community at large experiences an emergency, such emergency may

require changing the class schedule or requirements. If we do need to invoke this clause, you will be notified as soon as possible and any changes in course schedules or requirements will be clearly explained and posted on Blackboard.

COURSE ACADEMIC CALENDAR

Readings	Topics	Assignments
Unit 1: Muscle Structure & Function		
	Muscle Fiber Microstructure	
	Sliding Filament Theory	
	Motor Unit Recruitment	
	Muscle Metabolism	
	Activity or Lab	
		Exam 1
Unit 2: Neural Control of Exercise & Fatigue		
	Resting Membrane Potential	
	Neuromuscular Junction	
	Central Control	
	Peripheral Fatigue	
	Central Fatigue	
	Activity or Lab	
		Exam 2
Unit 3: Acute Responses to Training		
	Aerobic Training: Muscular Response	
	Aerobic Training: Neural Response	
	Strength Training: Muscular Response	
	Strength Training: Neural Response	
	Activity or Lab	
		Exam 3
Unit 4: Adaptations to Training		
	Hypertrophy	
	Mitochondrial Biogenesis	
	Reflex Adaptations	
	Central & Peripheral Plasticity	
	Activity or Lab	
		Exam 4
Unit 5: Pathophysiology		
	NMJ Disorders	
	SCI	
	Motor Neuron Diseases	
	Other Neuromuscular Diseases & Disorders	
		Exam 5

IMPORTANT DATES:

Last day to drop/add:
Last day to withdraw:
Last day of classes:
Reading Day:

CEHD POLICIES

CEHD DIVERSITY STATEMENT

The College of Education and Human Development is committed to the promotion of antiracism. Diversity, equity and inclusion is a shared vision for our efforts in preparing teachers, administrators, school counselors and other professionals. The CEHD has zero tolerance for discrimination of any kind (racism, sexism, classism, homophobia, ageism, ableism, xenophobia, etc.). Students will be encouraged to investigate and gain a current perspective of diversity issues (race, ethnicity, language, religion, culture, SES, gender, sexual identity, disability, ability, age, national origin, geographic location, military status, etc.) related to their chosen fields. Students will examine critically how issues of equity, inclusion, and belonging apply to and affect theory, sociological issues, and current events (discrepant outcomes in education, hiring practices, and daily operations) in a variety of areas. Students will be encouraged to identify and challenge their belief systems that are often rooted in larger systems that perpetuate injustices and be encouraged to reexamine and develop more critical perspectives and practices regarding equity and inclusion. By grounding their practices in these critical perspectives, students will learn to be empowered and informed leaders in their fields whose actions reflect this commitment to equity and inclusion. Students experiencing harassment and discrimination in the college should report this behavior through the Climate Accountability Reporting System via the CEHD website or to the CEHD Assistant Dean of Diversity, Equity, & Inclusion.

CEHD CONCEPTUAL FRAMEWORK

Our College Conceptual Framework, *Ideas to Actions*, focuses on three guiding constructs – inquiry, action, and advocacy. These ideas shape our courses and programs to ensure that you are well prepared for your professional pursuits.

UNIVERSITY POLICIES

POLICY ON INSTRUCTIONAL MODIFICATIONS

The University of Louisville is committed to providing access to programs and services for qualified students with disabilities. If you are a student with a disability and require accommodation to participate and complete requirements for this class, notify me immediately and contact the Disability Resource Center (Stevenson Hall, 502-852-6938) for verification of eligibility and determination of specific accommodations.

For more information, please visit http://louisville.edu/student/dev/drc/index.html

Students with disabilities, who need reasonable modifications to complete assignments successfully and otherwise satisfy course criteria, are encouraged to meet with the instructor as early in the course as possible to identify and plan specific accommodations. Students will be asked to supply a letter from the Disability Resource Center to assist in planning modifications.

TITLE IX/CLERY ACT NOTIFICATION

Sexual misconduct (sexual harassment, sexual assault, and any other nonconsensual behavior of a sexual nature) and sex discrimination violate University policies. Students experiencing such behavior may obtain confidential support from the PEACC Program (852-2663), Counseling Center (852-6585) and Campus Health Services (852-6479). To report sexual misconduct or sex discrimination, contact the Dean of Students (852-5787) or University of Louisville Police (852-6111). Disclosure to University faculty or instructors of sexual misconduct, domestic violence, dating violence, or sexdiscrimination occurring on campus, in a University-sponsored program, or involving a campus visitor or University student or

employee (whether current or former) is not confidential under Title IX. Faculty and instructors must forward such reports, including names and circumstances, to the University's Title IX officer.For more information, see the Sexual Misconduct Resource Guide: (http://louisville.edu/hr/employeerelations/sexual-misconduct-brochure).

SEXUAL HARASSMENT

The University of Louisville strives to maintain the campus free of all forms of illegal discrimination as a place of work and study for faculty, staff, and students. Sexual harassment is unacceptable and unlawful conduct and will not be tolerated in the workplace and the educational environment. Unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature constitute sexual harassment, even when carried out through computers or other electronic communications systems.

Students and instructors are protected from Sexual Harassment according to the Affirmative Action policy, the Student Code of Conduct, and the UofL Computer Account Usage Agreement.

Anyone experiencing Sexual Harassment should refer to the resources above and/or contact the PEACC Program at 852-2663 and an advocate will explain your choices. This is a free and confidential service.

RELIGIOUS HOLY DAYS AND OBSERVANCES

Federal law and university policy prohibit discrimination on the basis of religious belief. It is the policy of the University of Louisville to accommodate students, faculty, and staff who observe religious work-restricted holy days. Students who observe work-restricted religious holy days must be allowed to do so without jeopardizing their academic standing in any course. Faculty are obliged to accommodate students' request(s) for adjustments in course work on the grounds of religious observance, provided that the ***student(s) make such request(s) in writing during the first two (2) weeks of term.***

STATEMENT ON DIVERSITY

The University of Louisville strives to foster and sustain an environment of inclusiveness that empowers us allto achieve our highest potential without fear of prejudice or bias.

We commit ourselves to building an exemplary educational community that offers a nurturing and challengingintellectual climate, a respect for the spectrum of human diversity, and a genuine understanding of the many differences-including race, ethnicity, gender, gender identity/expression, sexual orientation, age, socioeconomic status, disability, religion, national origin or military status-that enrich a vibrant metropolitan research university.

We expect every member of our academic family to embrace the underlying values of this vision and to demonstrate a strong commitment to attracting, retaining and supporting students, faculty and staff who reflectthe diversity of our larger society.

UNIVERSITY CLOSURE

If the University of Louisville is closed due to a holiday, weather-related conditions or other unusual circumstances, planned real-time activities in online classes will not be held and no form of coursework will bedue. Real-time activities include scheduled class chats, virtual classroom meetings, or any other activity that requires students to access the course management system (i.e., Blackboard) at a scheduled time.

UNIVERSITY DELAY
If the University of Louisville is on a delayed schedule, on-campus classes are canceled up until a certain time,and classes that begin at or after the delayed time meet at their regular time and include the full instruction period. However, a delayed schedule will not affect online classes in any way. Coursework is due as planned and any scheduled real-time activities will be held.

Please keep in mind, you might need to find alternate internet sources if the computer at your home/work hasan outage. University of Louisville and many public libraries offer access. The IT Help Desk is available 365days a year, 6 AM through 2 AM. Contact the IT Help Desk at **502-852-7997** or online at helpdesk@louisville.edu. If you need help quickly, utilize **Live Online Support** http://louisville.edu/it/support/helpdesk and receive help in just minutes.

Prepared ? by Name

Hallmark Assessment- HSS 5XX Neuromuscular Aspects of Human Performance

PURPOSE:

The purpose of this assignment is for the student to demonstrate knowledge in analyzing information compiled from a fictional client/athlete/participant/patient. The student will accurately assess the client/athlete/participant/patient's symptoms and describe the physiological mechanisms underlying these symptoms.

PROCESS:

The instructor will assign each student to one of four case studies. Each case study can be found on Blackboard. Please ensure you utilize the case study assigned to you when completing this assignment. Following the case study analysis, the student will be prompted to answer a series of relevant questions related to human performance.

PRODUCT:

Section 1 (50 pts):

1. Analysis of Case Study
    a. After thoroughly reading and reviewing your assigned case study, hypothesize about what disease, disorder, or illness could be affecting your subject.
    b. Describe the symptoms that led you to your hypothesis. Be sure to include any relevant diagnostic criteria.
2. Supporting Argument
    a. Discuss why and how you think the symptoms are related to your hypothesized diagnosis.
    b. Include any supporting peer-reviewed literature that is relevant.

Section 2 (50 pts):

1. Physiological Mechanisms
    a. Thoroughly describe the physiological mechanisms of your subject's diagnosis. Be sure to include how your diagnosis produces the symptoms your subject is experiencing.
2. Conclusions
    a. What is your recommendation for this subject? What types of exercise interventions or contraindications can you recommend or not recommend? Be sure to discuss how or why you are making these recommendations based on the physiological mechanisms you've described.

Consult course calendar for Hallmark Due Date. You must submit on both Blackboard and Foliotek. There are no exceptions to this deadline; you will receive a zero for the assignment if it is not turned in on time.

Component	Insufficient	Developing	Target	Exemplary
Analysis	The analysis examines, summarizes, and integrates issues to reveal insight throughout the little to none of section. Evidence is not well organized with no transitions.	The analysis examines, summarizes, and integrates issues to reveal insight throughout the some of the section. Evidence is not very well organized with little to no transitions.	The analysis examines, summarizes, and integrates issues to reveal insight throughout the most of the section. Evidence is mostly well organized with smooth transitions.	The analysis examines, summarizes, and integrates issues to reveal insight throughout the whole section. Evidence is well organized with smooth transitions.
Supporting Argument	Claims are not persuasive and not supported with details. No additional resources are incorporated when necessary.	Claims are somewhat persuasive and sometimes supported with details throughout the some of the section. Additional resources are usually not incorporated when necessary.	Claims are mostly persuasive and supported with details throughout the most of the section. Additional resources are incorporated when necessary.	Claims are persuasive and supported with details throughout the whole section. Additional resources are incorporated when necessary.
Physiological Mechanisms	Physiological mechanisms are not described accurately and no details are provided.	Physiological mechanisms are described mostly accurately, and key details are missing.	Physiological mechanisms are described accurately, but key details are missing.	Physiological mechanisms are described accurately and thoroughly.
Conclusions	The student logically interprets and extrapolates findings throughout the whole section.	The student logically interprets and extrapolates findings throughout some of the section.	The student logically interprets and extrapolates findings throughout the most of the section.	The student logically interprets and extrapolates findings throughout the whole section.
Grammar	Response lacks organization and concise thought. 10 or more grammatical errors. Parts 1 and 2 in incorrect format.	Loses focus throughout. Some concise responses, but overall lacking. Below average organization. 6-9 grammatical errors. Parts 1 AND 2 in incorrect format.	Stays mostly focused. Mostly concise with minimal extra information. Average organization. 3- 5 grammatical errors. Part 1 OR 2 in incorrect format.	Stays focused throughout. Concise responses to questions. No more than 1-2 grammatical errors. Uses correct format in Parts 1 and 2.