TIME & PLACE: Tu-Th 10:50-12:05-206 Johnson Center

INSTRUCTOR: William R. Barfield, Ph.D., FACSM
Professor

OFFICE HOURS: M-W-F 9:00-11:00 AM & Tu-Th-10:00-10:45 AM

OFFICE: #213 Silcox Physical Education & Health Center

PHONE/FAX: (803) 953-6746 / (803) 953-6757

EMAIL: barfieldw@cofc.edu

PREREQUISITE: PEHD 201, BIOL 202, and or permission of instructor
You must have successfully completed these classes prior to enrolling in PEHD 330.


COURSE DESCRIPTION: Kinesiology will explore techniques of human motion analysis. Particular emphasis is placed on the anatomical, mechanical, and physical principles of motion analysis.


STUDENT LEARNING OUTCOMES:

1. Students will understand the skeletal framework, movements, reference planes, definitions, biomechanical nomenclature and kinesiological history.
   a. bone and muscle microstructure
   b. linear, angular, and general plane motion (GPM)
   c. sagittal, transverse, and coronal planes
   d. kinematics and kinetics of motion
2. Students will learn about muscular function, roles and types:
   a. length-tension
   b. force-time relationships
   c. force-velocity relationships
3. Basic anatomy of upper and lower extremities, the spine and how mechanics apply will be discussed and understood.
   a. shoulder girdle and joint
   b. elbow
   c. wrist and hand
   d. hip
   e. knee
   f. foot and ankle
4. Students will work collectively on a group project to assess research in their kinesiological area of interest for oral presentation to the class. Each group will provide the professor one typewritten referenced paper.
5. Students will be able to qualitatively and theoretically quantitatively assess sport and other forms of movement following completion of this course.

**REQUIREMENTS:**

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<tbody>
<tr>
<td>Exams 3 @ 20%</td>
<td>60%</td>
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<tr>
<td>Pop-Tests</td>
<td>20%</td>
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<tr>
<td>Research Project</td>
<td>20%</td>
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**DESCRIPTION OF PROJECTS:**

1. In-class activities will include lecture/discussion, large and small group discussion, and written examinations.
2. Out-of-class assignments will include readings study and project preparation.
3. Research Project Description (20%); Each student will participate in a class project with other classmates. There will be 3-5 people/project group. The objective of the project will be to provide students with an opportunity to present research findings on a movement topic of choice. The groups will describe anatomically and kinesiologically what the movement entails with correct, appropriate terminology, what the challenges are for success, and exercises which may be useful in increasing the success of the movement.
Each team will be responsible for presenting their findings to the class and providing the professor one group copy. Grading will be based on professor and peer review of oral presentation and correctness, neatness and organization of the written portion. Appropriate referencing should be used.

**EXAMS:**

Exam #1 (20%) will cover history of kinesiology, terminology, planes of motion, microstructure and gross structure of bone and muscle, muscle architecture, and joint classification.

Exam #2 (20%) will cover applied anatomy of the upper extremity, and the lower extremity.

Exam #3 (20%) will be the final exam and will cover linear and angular kinematics and linear kinetics. The exam will be comprehensive and will cover all information presented through group projects.

Pop-Tests (20%) will be announced and unannounced. If you miss the quiz your score will be zero. Make-ups are not available.

**EVALUATION SCALE:**

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<thead>
<tr>
<th>Range</th>
<th>Grade</th>
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<tbody>
<tr>
<td>90-100%</td>
<td>A</td>
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<td>88-89%</td>
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<td>85-87%</td>
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<td>80-84%</td>
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<td>78-79%</td>
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<tr>
<td>62-63%</td>
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<td>&lt;62</td>
<td>F</td>
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**RESOURCE LIST:**


ATTENDANCE POLICY:
1. All students will be allowed two (2) unexcused absences, except during major evaluations. Each UNEXCUSED ABSENCE in excess of 2 will result in 2% being deducted from your final average. Students who miss more than 5 classes will be dropped for excessive absences.
2. Class will begin and end in a timely manner. You are expected to be prepared when class begins. Persistent tardiness will not be tolerated and will result in loss of points and/or being dropped from the course. Two tardies will be the equivalent of one unexcused absence. Tardy means you are one minute late for class.
3. You are responsible for any worked missed when you fail to attend class.

CELL PHONE/PDA/LAPTOP COMPUTER POLICY:
The use of all PDA devices, including cell phones and laptop computers are expressly forbidden in the classroom. Texting, receiving or sending messages, cell phone use, or the use of laptop computers will result in immediate loss of points from your final class average and an absence will be recorded. If there is a 2nd violation of the class policy you will be awarded an F. The first violation will result in a 20 point deduction from your final class average. The 2nd violation is another 20 points, therefore making it impossible to successfully complete the class with a passing grade. Students must keep these devices turned off and out of sight during class. It is a violation of this policy to keep such devices on your lap.

MAKE-UP POLICY:
1. Make-up exams (excluding pop tests) will be given at the discretion of the professor when extenuating circumstances exist. It is the student’s responsibility to
see the instructor within three calendar class days to request a make-up exam time and date.

2. Assignments that are not turned in at the designated time will be accepted at the discretion of the professor. Be aware that unusual circumstances must exist for acceptance of late assignments, and if accepted, points will be deducted based on tardiness of the assignment.

ACADEMIC HONOR CODE:
Students will be expected to abide by the academic honor code found in the most current edition of the Student Handbook.

TENTATIVE COURSE OUTLINE:

January 11
Syllabus and Introduction to Kinesiology

January 13
Reference Planes and Nomenclature & History of Kinesiology

January 18
The Skeletal System
microstructure

January 20
The Skeletal System
bone types

January 25
The Skeletal System
bone shapes
osteoporosis/osteopenia

January 27
The Skeletal System
stress fractures
bone graft substitute types
research studies related to bone

February 1
The Neuromuscular System
microstructure
muscle histology
behavioral characteristics

February 3
Southeast ACSM
N Class
<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
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<tbody>
<tr>
<td>February 8</td>
<td>The Neuromuscular System</td>
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<tr>
<td></td>
<td>muscle architecture</td>
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<td>sliding filament theory and contractile proteins</td>
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<td>types of contractions</td>
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<td>force/velocity, force/time, force/length</td>
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<td>February 10</td>
<td>The Neuromuscular System</td>
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<td>elastic components and properties</td>
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<td>muscle fiber types</td>
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<td>roles muscles assume</td>
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<td>February 15</td>
<td>Skeletal Articulations</td>
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<td>types of articulations and characteristics</td>
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<td>range of motion and influence on movement</td>
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<td>February 17</td>
<td>Review of Skeletal System</td>
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<td>Neuromuscular System and Articulations</td>
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<td>February 22</td>
<td>Review for Exam #1</td>
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<td>February 24</td>
<td>Exam #1</td>
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<td>March 1</td>
<td>Applied Anatomy of Upper Extremity</td>
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<td>shoulder articulations</td>
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<td>shoulder girdle ligaments</td>
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<td>impingement area</td>
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<td>scapular role</td>
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<td>March 3</td>
<td>Applied Anatomy of Upper Extremity</td>
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<td>March 7-13</td>
<td>Spring Break</td>
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<td>March 15</td>
<td>Applied Anatomy of Upper Extremity</td>
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<td>movements at elbow</td>
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<td>March 17</td>
<td>Applied Anatomy of Upper Extremity</td>
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<td>intrinsic muscular movement in wrist and hand</td>
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<td>March 22</td>
<td>Review Day of Upper Extremity</td>
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<td>shoulder applied anatomy</td>
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<td>March 24</td>
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<td>pelvic girdle and skeletal development</td>
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<td>movements and constraints at hip</td>
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<td>anatomically and mechanically</td>
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<td>March 29</td>
<td>Applied Anatomy of Lower Extremity</td>
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<td>angle of inclination and influence on movement</td>
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<td>anteversion/retroversion</td>
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<td>ligamentous and muscular support</td>
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<td>March 31</td>
<td>Applied Anatomy of Lower Extremity</td>
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<td>Estimation of joint reaction force at hip</td>
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<td>Mechanics of the hip</td>
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<td>April 5</td>
<td>Applied Anatomy of Lower Extremity</td>
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<td>knee and ankle anatomy skeletally, muscularly and ligamentously</td>
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<td>April 7</td>
<td>Exam #2</td>
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April 12, 14, 19, 21  Class Projects & Final Exam Review

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<thead>
<tr>
<th>Date</th>
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<tbody>
<tr>
<td>April 30</td>
<td>Final Exam</td>
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