**College of Charleston**  
**PEHD 330 Kinesiology**  
**Spring 2010  3 Semester Credit Hours**

**TIME & PLACE:**  
Tu-Th 10:50 AM-12:05 PM  
Johnson Physical Education & Health Center-Rm 206

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

**OFFICE HOURS:**  
M-W-F 10:00-11:00 AM, T-Th 9:00-10:00 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.

**GRADING:**  

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

**COURSE TEXT:**  


**COURSE OBJECTIVES:**

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 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. Linear and angular kinematic and kinetic variables will be discussed and understood from a qualitative point of view and how these affect joint movements

6. 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.

7. Students will be able to qualitatively and theoretically quantitatively assess sport and other forms of movement following completion of this course.

REQUIREMENTS:

Exams 3 @ 20% 60%
Pop-Tests 20%
Research Project 20%

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 2-3 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 biomechanically 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. Referencing style will be provided by Dr. Barfield.

Groups will be expected to work collaboratively on the project.

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 be comprehensive including group projects.

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

EVALUATION SCALE:

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Grade</th>
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<tbody>
<tr>
<td>90-100%</td>
<td>A</td>
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<tr>
<td>88-89%</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.
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 possible dismissal from the course at the instructor’s discretion.
3. You are responsible for any work missed when you fail to attend class.
4. Students who miss more than 4 classes will be dropped from the roll.

**MAKE-UP POLICY:**

1. Make-up exams 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.

**CELL PHONE/PDA POLICY:**

1. Students will be turn off all cell phones/PDAs, Blackberrys and other electronic devices during class. Failure to abide with this policy will result in permanent dismissal from class.
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 12  Syllabus and Introduction to Kinesiology
January 14  Reference Planes and Nomenclature & History of Kinesiology
January 19  The Skeletal System
            microstructure
January 21  The Skeletal System
            bone types
January 26  The Skeletal System
            bone shapes
            osteoporosis/osteopenia
January 28  The Skeletal System
            stress fractures
            bone graft substitute types
            research studies related to bone
February 2  The Neuromuscular System
            microstructure
            muscle histology
            behavioral characteristics
February 4  The Neuromuscular System
            muscle architecture
            sliding filament theory and contractile proteins
            types of contractions
            force/velocity, force/time, force/length
February 9  The Neuromuscular System
            elastic components and properties
            muscle fiber types
            roles muscles assume
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<td>February 11</td>
<td>Southeast ACSM</td>
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<td>February 16</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 18</td>
<td>Review of Skeletal System</td>
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<td>Neuromuscular System and Articulations</td>
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<td>February 23</td>
<td>Review for Exam #1</td>
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<td>February 25</td>
<td>Exam #1</td>
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<td>March 2</td>
<td>Applied Anatomy of Upper Extremity</td>
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<td>muscular support</td>
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<td>impingement area</td>
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<td>scapular role</td>
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<td>March 4</td>
<td>Applied Anatomy of Upper Extremity</td>
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<td>elbow stability and muscular support</td>
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<td>March 8-12</td>
<td>Spring Break</td>
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<td>March 16</td>
<td>Applied Anatomy of Upper Extremity</td>
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<td>movements at elbow</td>
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<td>extrinsic muscular movement in wrist and hand</td>
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<td>March 18</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>wrist, hand, and finger skeletal and muscular support</td>
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| March 23   | Review Day of Upper Extremity  
  shoulder applied anatomy  
  elbow applied anatomy  
  wrist and hand applied anatomy |
| March 25   | Applied Anatomy of Lower Extremity  
  pelvic girdle and skeletal development  
  pelvic muscular support  
  movements and constraints at hip  
  anatomically and mechanically |
| March 30   | Applied Anatomy of Lower Extremity  
  angle of inclination and influence on  
  movement  
  anteverision/retroversion  
  ligamentous and muscular support |
| April 1    | Applied Anatomy of Lower Extremity  
  Calculation of joint reaction force at hip  
  Mechanics of the hip |
| April 6    | Applied Anatomy of Lower Extremity  
  knee and ankle anatomy skeletally,  
  musicularly and ligamentously |
| April 8    | Exam #2 |
| April 13, 15, 20, 22 | Class Projects & Final Exam Review |
| May 1      | Final Exam  
  8:00-11:00 am |