TEXAS A&M UNIVERSITY – CORPUS CHRISTI
Department of Kinesiology
Biomechanics (CRN 50470; 3 Credit Hours; MWF 11:00 am – 11:50 am)
Course Syllabus

Course Number: KINE 4327 (section 001)  Instructor: Toyin Ajisafe, Ph.D.
Class Location: Island Hall 267 (MWF)  Office: Island Hall 356
Semester: Spring 2018  Office hours: MW from 12:00 pm - 3:00 pm
Phone: 361-825-3834  Email: toyin.ajisafe@tamucc.edu

Important Note:
Because this is a blended course, some content, including assessments are delivered via
Blackboard. Students must enter a User Name and Password to access their Blackboard account.
Student User Names will be your user ID (e.g. lsmith12). If a student experiences technical
difficulties, please call the Island Online (IOL) support line at 361-825-2825. Additionally, please
notify the instructor right away via phone or e-mail.

Prerequisites: BIOL 2401 or KH 2325

I. Course Description
This course presents an analysis of the mechanical factors and principles influencing human
motion with emphasis on sport and fitness activities. KINE 4327 must be taken concurrently with
KINE 4127.

II. Rationale
The course provides students with a fundamental knowledge of biomechanics and its practical
application to qualitative and quantitative analyses of human movement.

III. Course Topics
The following major topics will be reviewed:
1. Introduction to the Study of Biomechanics
2. Qualitative Analysis
3. Instrumentation
4. Basic Biomechanical Concepts
5. Linear Kinematics
6. Linear Kinetics
7. Angular Kinematics
8. Angular Kinetics
9. Fluid dynamics of Human Movement
10. Application to Movement Activities

IV. Course Objectives and Student Learning Outcomes
At the conclusion of this course, students will be able to:
1. Distinguish between quantitative and qualitative approaches for analyzing human movement.
2. Identify examples of linear, angular, and general forms of human motion.
3. Identify different types of mechanical loads on the human body.
4. Explain the effects of Newton's laws of motion and gravitation on human motion.
5. Explain the factors that affect friction in human motion.
6. Explain the impulse-momentum relationship.
7. Explain the significance of center of gravity location in the human body.
8. Explain how fluid forces affect the path or trajectory of a body in motion.
9. Explain the planes of motion and types of human levers.
10. Identify the major muscles and muscle groups of the human body, and relate muscle/joint function to physical education and sport activities.
11. Apply basic principles of biomechanics to fundamental sports skills and movement patterns.
12. Analyze selected movement patterns and sport skills.
13. Identify and explain equipment and techniques used in the analysis of human movement.
14. Identify and correct movement deficiencies of a structural, neurological, or mechanical nature.

V. Instructional Methods and Activities
   A. Traditional Experiences (Lecture; discussions; collaboration on case studies; peer review; conceptual application writing assignments; video)
   B. Online Experiences (On-line deliveries; quizzes; exams)

VI. Evaluation and Grade Assignment
Your grade in this class will be determined from your cumulative percent points on all assigned work. The grading scale is as follows:

A. Grading
   1. Exams
      a. Exam #1 21%
      b. Exam #2 21%
      c. Exam #3 21%
      d. Quizzes 11% (1% each)
      e. Collaborative work (CW)/Peer review (PR) 6%
      f. Motion Analysis Project Presentation 20%
      Total: 100%

B. Grading Scale
The percentage score for each letter grade will be as follows:

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<thead>
<tr>
<th>Grade</th>
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</thead>
<tbody>
<tr>
<td>A</td>
<td>90 – 100</td>
<td>B</td>
<td>80 – 89</td>
<td>C</td>
<td>70 – 79</td>
<td>D</td>
<td>60 - 69</td>
</tr>
</tbody>
</table>

VII. Required or Recommended Readings
(List of required text and reading)

**Website:** (required if on-line course)
The Website that accompanies and is coordinated with this course is https://bb9.tamucc.edu

VIII. Recommended or Supplemental Readings
The knowledge bases that support course content and procedures include:


IX. State Adopted Proficiencies for Teachers and/or Administrators/Counselors

1. **LEARNER-CENTERED KNOWLEDGE:** The teacher possesses and draws on a rich knowledge base of content, pedagogy, and technology to provide relevant and meaningful learning experiences for all students.

2. **LEARNER-CENTERED INSTRUCTION:** To create a learner-centered community, the teacher collaboratively identifies needs; and plans, implements, and assesses instruction using technology and other resources.

3. **EQUITY IN EXCELLENCE FOR ALL LEARNERS:** The teacher responds appropriately to diverse groups of learners.

4. **LEARNER-CENTERED COMMUNICATION:** While acting as an advocate for all students and the school, the teacher demonstrates effective professional and interpersonal communication skills.

5. **LEARNER-CENTERED PROFESSIONAL DEVELOPMENT:** The teacher, as a reflective practitioner dedicated to all students’ success, demonstrates a commitment to learn, to improve the profession, and to maintain ethics and personal integrity.

X. TExES COMPETENCIES & CAATE COMPETENCIES & PROFICIENCIES

a. **TExES COMPETENCIES**

   **Domain II - HEALTH-RELATED PHYSICAL FITNESS**

   Competency 006 - The teacher understands major body systems, principles of physical fitness development and training, and the benefits of a healthy, active lifestyle.

   **Domain III - THE PHYSICAL EDUCATION PROGRAM**

   Competency 011 - The teacher understands factors relevant to learning and performance in physical education and uses this knowledge to create learning environments and opportunities that promote students’ development in various domains (e.g., cognitive, social, emotional).

   Competency 012 - The teacher understands the structure, organization, goals, and purposes of physical education programs.
b. NATIONAL COMPETENCIES & PROFICIENCIES FOR ATHLETIC TRAINING
(CAATE 4th Ed.)
Diagnosis Competencies Taught & Evaluated
DI-C4: Explain directional terms and cardinal planes used to describe the body and the relationship of its parts.

XI. Course Policies and Schedule
The entire course including assignments, quizzes and exams are available on-line and are available according the course schedule. Students are required to complete all work by the respective deadlines. Excused absences are limited to participation in a TAMUCC-sanctioned event or participation in a religious holy day as outlined in the University catalog. Any assignment, quiz, or test missed due to a TAMUCC-sanctioned event must be completed prior to the absence. Coursework, assignments, and quizzes may not be made up due to tardiness. **Consistent attention to assignment instructions and submission deadlines is critical to the successful completion of this course.**

Attendance and Tardiness
Walking late into the classroom can be disruptive. Therefore, students are expected to be seated prior to the start of Face-to-Face class meetings.

Late work and Make-up Exams
The instructor will accommodate requests to complete missed work only if the student previously sought permission from the instructor or provides appropriate documentation in the case of unanticipated emergencies.

Extra Credit
There are no extra credit work associated with this course.

Electronic Device/Cell Phone Usage
Students may not use unauthorized devices in the classroom, unless they serve purposes that are pertinent to the course content as directed by the instructor.

Academic Integrity/Plagiarism
University students are expected to conduct themselves in accordance with the highest standards of academic honesty. Academic misconduct for which a student is subject to penalty includes all forms of cheating, such as plagiarism, cheating on an exam, unauthorized collaboration, illicit possession of examinations or examination materials, or forgery. **Plagiarism** is the presentation of the work of another as one’s own work; **cheating on examinations** involves giving or receiving unauthorized help before, during, or after an examination; **unauthorized collaboration** is the submission for academic credit of an entire work (or part thereof) as one's own effort, when it has been developed in substantial collaboration with another person or source without the professor’s permission.
Disciplinary action for academic misconduct is the responsibility of the faculty member assigned to the course. The faculty member is charged with assessing the gravity of any case of academic dishonesty, and with giving sanction to any student involved. Penalties that may be applied to individual cases of academic dishonesty include one or more of the following:

1. Written reprimand
2. Requirement to re-do work in question  
3. Requirement to submit additional work  
4. Lowering of grade on work in question  
5. Assigning grade of “F” to work in question  
6. Assigning grade of “F” for course  
7. Recommendation for more severe punishment, such as dismissal from the program or university. (See the University Catalog for more information).

Dropping a Class  
I hope that you never find it necessary to drop this or any other class. However, events can sometimes occur that make dropping a course necessary or wise. Please consult with me before you decide to drop to be sure it is the best thing to do. Should dropping the course be the best course of action, you must initiate the process to drop the course by going to the Student Services Center and filling out a course drop form. Just stopping attendance and participation WILL NOT automatically result in your being dropped from the class. **04/06/2018** is the last day to drop a class with an automatic grade of “W” this term.

Preferred methods of scholarly citations  
APA Format

Classroom/professional behavior  
Texas A&M University-Corpus Christi, as an academic community, requires that each individual respect the needs of others to study and learn in a peaceful atmosphere. Under Article III of the Student Code of Conduct, classroom behavior that interferes with either (a) the instructor’s ability to conduct the class or (b) the ability of other students to profit from the instructional program may be considered a breach of the peace and is subject to disciplinary sanction outlined in article VII of the Student Code of Conduct. Students engaging in unacceptable behavior may be instructed to leave the classroom. This prohibition applies to all instructional forums, including classrooms, electronic classrooms, labs, discussion groups, field trips, etc.

Statement of Civility (can be in place of classroom/professional behavior)  
Texas A&M University-Corpus Christi has a diverse student population that represents the population of the state. Our goal is to provide you with a high quality educational experience that is free from repression. You are responsible for following the rules of the University, city, state and federal government. We expect that you will behave in a manner that is dignified, respectful and courteous to all people, regardless of sex, ethnic/racial origin, religious background, sexual orientation or disability. Behaviors that infringe on the rights of another individual will not be tolerated.

Grade Appeals  
As stated in University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures, a student who believes that he or she has not been held to appropriate academic standards as outlined in the class syllabus, equitable evaluation procedures, or appropriate grading, may appeal the final grade given in the course. The burden of proof is upon the student to demonstrate the appropriateness of the appeal. A student with a complaint about a grade is encouraged to first discuss the matter with the instructor. For complete details, including the responsibilities of the parties involved in the process and the number of days allowed for completing the steps in the process, see University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures. These documents are accessible through the University Rules Web site at [http://www.tamucc.edu/provost/university_rules/index.html](http://www.tamucc.edu/provost/university_rules/index.html). For assistance and/or guidance in the grade appeal process, students may contact the Dean’s office in the college in which the course is
Disabilities Accommodations
The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please call or visit Disability Services at (361) 825-5816 in Corpus Christi Hall 116.
If you are a returning veteran and are experiencing cognitive and/or physical access issues in the classroom or on campus, please contact the Disability Services office for assistance at (361) 825-5816.

Statement of Academic Continuity
In the event of an unforeseen adverse event, such as a major hurricane and classes could not be held on the campus of Texas A&M University–Corpus Christi; this course would continue through the use of Blackboard and/or email. In addition, the syllabus and class activities may be modified to allow continuation of the course. Ideally, University facilities (i.e., emails, web sites, and Blackboard) will be operational within two days of the closing of the physical campus. However, students need to make certain that the course instructor has a primary and a secondary means of contacting each student.

NOTE: Printing online tests and/or quizzes is strictly prohibited.
<table>
<thead>
<tr>
<th>DATE</th>
<th>Topic for Lab</th>
<th>Book chapter</th>
<th>Assignment Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wed, Jan. 17</td>
<td>Day 1: Review of Syllabus; The Neurological Basis of Human Motion</td>
<td>Chapter 4</td>
<td>Pretest</td>
</tr>
<tr>
<td>Fri, Jan. 19</td>
<td>Day 2: Online</td>
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<td>Quiz 1</td>
</tr>
<tr>
<td>Mon, Jan. 22</td>
<td>Day 3: The Neurological Basis of Human Motion</td>
<td>Chapter 4</td>
<td></td>
</tr>
<tr>
<td>Wed, Jan. 24</td>
<td>Day 4: Terminology/Measurement in Biomechanics</td>
<td>Chapter 10</td>
<td></td>
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<tr>
<td>Fri, Jan. 26</td>
<td>Day 5: Online</td>
<td></td>
<td>Quiz 2</td>
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<tr>
<td>Mon, Jan 29</td>
<td>Day 6: The Description of Human Motion</td>
<td>Chapter 11A</td>
<td></td>
</tr>
<tr>
<td>Wed, Jan 31</td>
<td>Day 7: The Description of Human Motion</td>
<td>Chapter 11A</td>
<td></td>
</tr>
<tr>
<td>Fri, Feb. 2</td>
<td>Day 8: Online</td>
<td></td>
<td>Quiz 3</td>
</tr>
<tr>
<td>Mon, Feb. 5</td>
<td>Day 9: The Description of Human Motion</td>
<td>Chapter 11B</td>
<td></td>
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<tr>
<td>Wed, Feb. 7</td>
<td>Day 10: The Description of Human Motion</td>
<td>Chapter 11B</td>
<td></td>
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<tr>
<td>Fri, Feb. 9</td>
<td>Day 11: <strong>Exam #1 (chapters 4, 10, 11)</strong> (online)</td>
<td></td>
<td>Quiz 5</td>
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<tr>
<td>Mon, Feb. 12</td>
<td>Day 12: The Conditions of Linear Motion</td>
<td>Chapter 12A</td>
<td></td>
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<tr>
<td>Wed, Feb. 14</td>
<td>Day 13: The Conditions of Linear Motion</td>
<td>Chapter 12A</td>
<td></td>
</tr>
<tr>
<td>Fri, Feb. 16</td>
<td>Day 14: Online</td>
<td></td>
<td>Quiz 6</td>
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<tr>
<td>Mon, Feb. 19</td>
<td>Day 15: The Conditions of Linear Motion</td>
<td>Chapter 12B</td>
<td></td>
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<tr>
<td>Wed, Feb. 21</td>
<td>Day 16: The Conditions of Linear Motion</td>
<td>Chapter 12B</td>
<td></td>
</tr>
<tr>
<td>Fri, Feb. 23</td>
<td>Day 17: online</td>
<td></td>
<td>Quiz 7</td>
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<tr>
<td>Mon, Feb. 26</td>
<td>Day 18: The Conditions of Rotary Motion</td>
<td>Chapter 13</td>
<td></td>
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<tr>
<td>Wed, Feb. 28</td>
<td>Day 19: The Conditions of Rotary Motion</td>
<td>Chapter 13</td>
<td></td>
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<tr>
<td>Fri, March 2</td>
<td>Day 20: The Conditions of Rotary Motion</td>
<td>Chapter 13</td>
<td></td>
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<tr>
<td>Mon, March 5</td>
<td>Day 21: The Center of Gravity and Stability</td>
<td>Chapter 14</td>
<td></td>
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<tr>
<td>Wed, March 7</td>
<td>Day 22: The Center of Gravity and Stability</td>
<td>Chapter 14</td>
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<tr>
<td>Date</td>
<td>Day</td>
<td>Subject</td>
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<tr>
<td>Fri, March 9</td>
<td>Day 23:</td>
<td>Exam #2 (chapters 12, 13, 14)</td>
<td>Quiz 8</td>
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<tr>
<td>Mon, March 12</td>
<td>Day 24:</td>
<td>SPRING BREAK (NO CLASS)</td>
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<tr>
<td>Wed, March 14</td>
<td>Day 25:</td>
<td>SPRING BREAK (NO CLASS)</td>
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<tr>
<td>Fri, March 16</td>
<td>Day 26:</td>
<td>SPRING BREAK (NO CLASS)</td>
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<tr>
<td>Mon, March 19</td>
<td>Day 27:</td>
<td>Locomotion: Solid Surface</td>
<td>Chapter 18A</td>
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<tr>
<td>Wed, March 21</td>
<td>Day 28:</td>
<td>Locomotion: Solid Surface</td>
<td>Chapter 18A</td>
</tr>
<tr>
<td>Fri, March 23</td>
<td>Day 29:</td>
<td>Online</td>
<td>Quiz 9</td>
</tr>
<tr>
<td>Mon, March 26</td>
<td>Day 30:</td>
<td>Locomotion: Solid Surface</td>
<td>Chapter 18B</td>
</tr>
<tr>
<td>Wed, March 28</td>
<td>Day 31:</td>
<td>Locomotion: Solid Surface</td>
<td>Chapter 18B</td>
</tr>
<tr>
<td>Fri, March 30</td>
<td>Day 32:</td>
<td>Online</td>
<td>Quiz 10</td>
</tr>
<tr>
<td>Mon, April 2</td>
<td>Day 33:</td>
<td>Locomotion: Suspended and Free of Support</td>
<td>Chapter 20</td>
</tr>
<tr>
<td>Wed, April 4</td>
<td>Day 31:</td>
<td>Impact</td>
<td>Chapter 21</td>
</tr>
<tr>
<td>Fri, April 6</td>
<td>Day 35:</td>
<td>Online</td>
<td>Quiz 11</td>
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<tr>
<td>Mon, April 9</td>
<td>Day 33:</td>
<td>Instrumentation for Motion Analysis</td>
<td>Chapter 22</td>
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<tr>
<td>Wed, April 11</td>
<td>Day 37:</td>
<td>Motion Analysis Presentations</td>
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<tr>
<td>Fri, April 13</td>
<td>Day 38:</td>
<td>Motion Analysis Presentations</td>
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<tr>
<td>Mon, April 16</td>
<td>Day 39:</td>
<td>Motion Analysis Presentations</td>
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<tr>
<td>Wed, April 18</td>
<td>Day 40:</td>
<td>Motion Analysis Presentations</td>
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<tr>
<td>Fri, April 20</td>
<td>Day 41:</td>
<td>Motion Analysis Presentations</td>
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<tr>
<td>Mon, April 23</td>
<td>Day 42:</td>
<td>Motion Analysis Presentations</td>
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<tr>
<td>Wed, April 25</td>
<td>Day 43:</td>
<td>Motion Analysis Presentations</td>
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<tr>
<td>Fri, April 27</td>
<td>Day 44:</td>
<td>Exam #3 (chapters 18, 20, 21, 22)</td>
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*The course syllabus provides a general plan for the course; deviations may be necessary.*