TEXAS A&M UNIVERSITY-CORPUS CHRISTI
Biomechanics Lab

Course Number and Section: KINE 4127.002  
Name of Instructor: Poonam Mankar

Class time and location: Tuesday 12:30 to 1:20 p; IH 142  
Office: IH 364

Semester: Summer II 2018  
Office Hours: MTWTH 10a to 3p

Office Telephone: N/A  
E-Mail: pmankar@islander.tamucc.edu

I. Course Description
This is a required laboratory course that is to be taken concurrently with KINE 4327. The course serves as demonstration and application mechanical factors and principles affecting human motion. This includes qualitative and quantitative analysis of human motion with emphasis on sport and fitness activities. Lab fee is required.

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

III. 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, shows a commitment to learning, to improve the profession, and to maintain ethics and personal integrity.

IV. TEExES Competencies
a. TEExES 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.

V. Course Objectives/Learning Outcomes
This course is designed to enable students 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 sports activities.
11. Apply basic principles of biomechanics to fundamental sports skills and movement patterns.
12. Analyze selected movement patterns and sports 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.

VI. Course Topics
The major topics to be considered are:
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

VII. Instructional Methods and Activities
Traditional Experiences (Lecture; discussions; collaboration on case studies; peer review; conceptual application writing assignments; video)

VIII. Evaluation and Grade Assignment
Course evaluation is based upon the assessment of each student’s mastery of the course content (knowledge). Knowledge is evaluated by written examinations, course assignments, and participation experiences. Grades are awarded according to the EARNED percentage of the FINAL MAXIMUM POINT TOTAL.

A. Grading
1. Attendance (8 mandatory + 2 presentation days) 10
2. Lab Work (5 labs: @6 pts, 3 assignments @20pts) 90
3. Final Presentation 100

B. Grading Scale
1. 90 – 100% = A (180-200 points)
2. 80 – 89% = B (160-179 points)
3. 70 – 79% = C (140-159 points)
4. 60 – 69% = D (120-139 points)
5. 59 and Below = F (119 points and below)

IX. Course Schedule and Policies
A. Course Schedule
   The course schedule will be provided on the first day of the class.

*BThis course syllabus gives a general arrangement of the course; deviations may be essential.

B. Class Policies
1. Attendance/Tardiness
   Attendance is required at all lab sections, except the presentation weeks. Those become optional, but can be very helpful and valuable for working on your end of semester projects. However, of the optional weeks, students need to be present for at least two full presentation days to fill in a critique of the students presenting that day. The only exceptions are TAMUCC sanctioned events or extenuating circumstances. However, in both cases documented proof is absolutely necessary. Tardiness will not be tolerated, and students will miss credit for the day and any assignments that occurred that day. Please, do not show up to a different section of the lab in the week in an attempt to make up a missed day. There are a limited number of computers in the lab with the necessary software to complete the lab and classes are very full; I will turn you away. Again, the only exceptions are TAMUCC sanctioned events or extenuating circumstances, both of which need documented proof.

2. Late work and Make-up Exams
   Late work will only be accepted for TAMUCC sanctioned events or extenuating circumstances; again, these instances will only be accepted with documented proof. If there is a situation in which a student knows ahead of time that they will miss a class, they need to make arrangements to get the assignments done before the due date. If there is make-up work allowed, it needs to be made up during the presentation weeks.

3. Extra Credit
   The only extra credit offered are the syllabus review with signature and USB flash
drive due the first day of class. No exceptions!!

4. Cell Phone/Electronic Device Usage

There is absolutely no reason for any student to have a phone out while the lab is going on, and especially not while the instructor is teaching a concept or new tool. I will dismiss you from the lab if I see your phone out. In addition, if you use the computers in the lab for anything outside of the assigned labs or your end of semester project you will be dismissed from the lab and will receive a zero for the day’s lab.

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. _____ is the last day to drop a class with an automatic grade of “W” this term.

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**

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 gender, ethnic/racial origin, religious background, age, sexual orientation or disability. Behaviors that infringe on the rights of another individual will not be tolerated.

http://falcon.tamucc.edu/~students/JAffairs/ja_hndbk_academic_info.htm

**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 RulesWeb site at 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 taught or the Office of the Provost.

**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 CCH 117. 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&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.

X. Textbook(s)
   No required text for the lab component of biomechanics
   Bring book and notes to lab classes
   USB Flashdrive is REQUIRED!!!!

XI. Bibliography
   The knowledge bases that support course content and procedures include:
      Champaign, IL: Human Kinetics.
      Human Kinetics.
## KINE 4127: Summer II 2018 Course Calendar

<table>
<thead>
<tr>
<th>DATE</th>
<th>Topic</th>
<th>Required Materials</th>
<th>Assignment Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tue, July 3</td>
<td>Day 1: Review of Syllabus; Dartfish Tools</td>
<td>USB</td>
<td>Lab at end of class</td>
</tr>
<tr>
<td>Tue, July 10</td>
<td>Day 2: Dartfish Tools</td>
<td>USB</td>
<td>Lab at end of class</td>
</tr>
<tr>
<td>Tue, July 17</td>
<td>Day 3: Dartfish Tools</td>
<td>USB</td>
<td>Lab at end of class</td>
</tr>
<tr>
<td>Tue, July 24</td>
<td>Day 4: Motion Analysis Presentations</td>
<td>USB</td>
<td>Lab at end of class</td>
</tr>
</tbody>
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*The course syllabus provides a general plan for the course; deviations may be necessary.*