

## CUMBERLAND COUNTY COLLEGE

Course: BI 216 Biomechanics

Credits: 3

Prerequisites: BI 107

Description:

The objective of this course is to introduce students to concepts of mechanics as they apply to human movement, particularly those pertaining to exercise and sport. A qualitative approach will be used to analyze the anatomical and mechanical principles that apply to the body involved in physical activity.

Learning Outcomes:

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

- Define Kinesiology and Biomechanics and compare and contrast between the two areas of study.
- Identify the role of biomechanics in the study of human movement and list the disciplines in which biomechanical knowledge is used.
- Describe the two methods in regards to the study of Biomechanics and distinguish between the two approaches.
- Describe the relationship between Osteology, Arthrology, Neurology and Myology and the study of human movement.
- Define and list the types of forces and describe the relationship between forces and movement and body balance and control.
- Apply the role biomechanics in the analysis of fitness activities such as strength, power, endurance, flexibility and cardiovascular training.
- Apply the principles of Biomechanics by performing a qualitative analysis of a sport performance.

Topical Outline:

- The study and analysis of human movement
- The skeletal system and its articulations
- The body's link system and its movements
- Neuromuscular aspects of movement
- Visualizing forces
- Forces and movement
- Torque and rotation
- Body balance and stability control
- Biomechanics of the Musculoskeletal System
- Application of Biomechanics to Fitness Activities
- Force and motion relationships
- Observing and analyzing performance
- Performance analysis of throw-like movement patterns

- Performance analysis of push-like movement patterns
- Analysis of projectile-related activities

Text:

Kreighbaum, E. & Barthels, K. *Biomechanics: A Qualitative Approach for Studying Human Movement*. Macmillan Publishing Company.

Academic Integrity:

Plagiarism is cheating. Plagiarism is presenting in written work, in public speaking, and in oral reports the ideas or exact words of someone else without proper documentation.

Whether the act of plagiarism is deliberate or accidental [ignorance of the proper rules for handling material is no excuse], plagiarism is, indeed, a “criminal” offense.

As such, a plagiarized paper or report automatically receives a grade of **ZERO** and the student may receive a grade of **F** for the semester at the discretion of the instructor.

Tutoring & Project Assist:

If you are having difficulty with work in this class tutoring is available through the Center for Academic & Student Success. If you think that you might have a learning disability, contact Project Assist at 856.691.8600 x 1282 for information on assistance that can be provided to eligible students.

**Before Withdrawing From This Course:**

If a student experiences adverse circumstances while enrolled in this course and considers withdrawing, s/he should see an advisor (division or advisement center) BEFORE withdrawing from the class. A withdrawal may cause harmful repercussions to completion rate standards and overall GPA, which can limit or eliminate future financial aid in addition to causing academic suspension.