"Developing Caring and Reflective Professionals for a Democratic Society."

CALIFORNIA STATE UNIVERSITY, BAKERSFIELD
Department of Physical Education and Kinesiology

PEAK 475
Applied Biomechanics
Fall Quarter, 2005

Time/Location:
Lecture:  MW 12:30 p.m. – 1:55 p.m., EDUC 129
Lab: R 10:30 a.m. – 12:55 a.m., EDUC 128 & Various Locations

Units:
4 (3 units of lecture; 1 unit of lab)

Prerequisite:
PEAK 401: Applied Kinesiology

Instructor:
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Office Hours:
M 9:30-11:00 a.m., 2:00-3:00 p.m.
W 9:30-11:00 a.m.
R 1:00-2:00 p.m. - Other times by special arrangement.

School of Education Philosophy
The philosophy of the School of Education has as its basis confluent education, which perceives learning as the merging of cognitive, affective, social, and psychomotor domains. This belief underscores the premise that education nurtures and promotes intellectual growth and the emotional, social, and physical well being of all students with a special focus on diversity and equity.

School of Education Goals
Based on the confluent education model, the following goals provide a direction for educating the whole person.

1. To formulate a comprehensive view of human growth and development, a global knowledge of self and others, and an empathy and sensitivity to multiple realities of a changing environment.
2. To develop a commitment and responsibility to democratic and social values through professional collaboration, educational leadership, and collegial partnerships.
3. To promote critical inquiry through research and practice in order to improve teaching, learning and communication.
4. To broaden knowledge and skill bases in terms of pedagogical multicultural principles conducive for effective curriculum delivery and instruction in diverse settings;
5. To utilize and integrate various current multimedia resources and technological tools to enhance teaching and learning in the ever-changing society.
6. To apply multiple methods of assessment with a special focus on critical reflection and self-analysis for continual professional development and on-going program evaluation.
Course Description
The study of basic qualitative and quantitative biomechanical principles and concepts and their application in the analysis of various human movements ranging from everyday activities to those that are sport-specific.

Course Objectives
In order to make explicit how this course attempts to address the education of the whole person, the following objectives are coded to which domains they pertain: C = cognitive; A = affective; S = social and P = psychomotor. Some classes may not include all four domains.

Following the completion of this course, students should be able to:
- Identify, define, and apply (to human movement situations) the following kinematic and kinetic variables: displacement, speed, velocity, acceleration, weight, and mass, force, inertia, torque, moment of inertia, momentum, kinetic energy, impulse, work, and power (C, P).
- Define and apply (to human movement situations) the following complex variables: center of mass, buoyancy and center of buoyancy, pressure, friction, fluid drag, centrifugal and centripetal force, and coefficient of restitution (C, P).
- Describe the mechanical properties of typical musculoskeletal lever systems and explain how these properties accommodate the mechanical strengths and weaknesses of muscle (C).
- Qualitatively and quantitatively analyze basic movement performance (C).
- Apply specified biomechanic principles in the instruction of specified motor skills in physical education, coaching, and/or sports medicine settings (C, S, P).

Required Text and Materials

Recommended Resources
- Calculator: Must be able to perform trigonometric functions as well as exponent, and square root. Example: TI 30 or higher.
- Computer Floppy Disk(s): At least one IBM formatted Zip disk dedicated to just this course. (Please format disks prior to bringing to lab.)
- Additional Resources: To be provided throughout the course as needed.

Course Requirements/Student Responsibilities
1. **Absences/Attendance:** Attendance, completion of assignments/exams, and lecture/lab participation are required. Participation includes some physical participation in fitness/motor skill activities (appropriate attire will be required on these days).
   - Each student will be allowed one “free” absence.
   - For each absence thereafter, 2% (8 pts.) will be deducted from the final grade.
   - Lab days are equal to 2 lecture days so a missed lab results in a 4% deduction.
   - After 5 absences, the student will automatically fail the course.
   - NOTE: In specific cases, such as university athletic responsibilities, students will be excused from class without penalty if the following occurs –
     1. Notification must come prior to the scheduled absence.
     2. Assignments must be submitted on or prior to the regularly scheduled due date.
2. **Late Policy:** When attending class, please be on time, remain for the entire class period and focus on the class lecture.
   - If you attend class late (arrive beyond the scheduled start time) the student will be counted absent.
   - If you leave class early (prior to being excused by the instructor) the student will be counted absent.
   - If for whatever reason you were not able to attend class on time, please take a seat quietly and closest to the door.

3. **Late Assignments:** *No* late assignments will be accepted. All assignments must be submitted by the designated due date. Assignments submitted via email are acceptable but must be accompanied by a response or confirmation of receipt. It is the student’s responsibility to make sure the assignment is *submitted and received* by the instructor by the designated date. A hard copy must be turned in by the next class meeting or sooner. Emailing allows a student to meet the deadline; however, it is not the instructor’s responsibility to print out your work for you.

4. **Additional policies:**
   - Please turn off cell phones and pagers. **No text messaging allowed** during class.
   - Food and drink is **not** allowed in the lab.

**Assessment Tools** *
A total of 400 points are available in this course:
- Midterm Exams (2 @ 80 pts.) **160 pts.**
- Final Exam **100 pts.**
- Lab Assignments (9 @ 10 pts.) **90 pts.**
- Motion Analysis Project **50 pts.**
- Extra Credit (possible opportunities) **extra pts.**

* Please inform your instructor if you require any accommodations for taking notes or exams so that we can make those arrangements as soon as possible.

**Grading scale**
- 93-100%= A
- 83-86.9%= B
- 73-76.9%= C***
- 60-64.9%= F
- 90-92.9%= A-
- 80-82.9%= B-
- 70-72.9%= C-
- 87-89.9%= B+
- 77-79.9%= C+
- 65-69.9%= D**

** In order to pass this course, students must achieve 65% minimum average for all exams.
*** Students under the 2001-2003 academic catalog must achieve a C or higher in all major courses. If the student achieves lower then a C they will be required to repeat the course for graduation.
Academic Integrity Statement:
Any ACADEMIC DISHONESTY by a student will result in severe consequences (including receiving a failing grade in the course) as explained in the CSUB Policy on Academic Honesty (page 80 of the 2005-2007, page 57 of the 2003-2005, page 59 of the 2001-2003, or page 53 of the 1999-2001 CSUB Catalog). You are responsible for reading and knowing this policy and the consequences for violating it. I will follow these policies; I suggest that you do as well.

Writing Skills
Writing skills are important in Physical Education and Kinesiology in general and in this class in particular. If you or the instructor believes that you may benefit from writing help, you will be referred to the Academic Advancement Center on campus for writing tutoring services.

Tentative Dates
MIDTERM 1 EXAM Monday, October 10
MIDTERM 2 EXAM Wednesday, October 26
MOTION ANALYSIS PROJECT DUE Thursday, November 17
PROJECT PRESENTATIONS BEGIN Thursday, November 17
FINAL EXAM (Block F Schedule) Wednesday, November 30 11:00 a.m. -1:30 p.m.

** NOTE TO THE STUDENT **
It is possible that the information above may change (i.e., exam schedules, assignments, etc.) as the course progresses. However, you will be informed of such changes in a timely and fair manner, should they occur.