KINES 370 - BIOMECHANICS

Course Syllabus

Instructor: Dr. Ross Vaughn
Email: rvaughn@boisestate.edu
Office: E705, 426-3399
Hours: M F 9:40-11:30am, Tu Th 10:30-11:30am
Other times by appointment

Semester: fall 2006
Website: http://kinesiology.boisestate.edu/rvhp/
Lecture: Tu Th 9:40-10:30am, K219
Labs: M 10:40 – 12:30am, K217
Tu 11:40 – 1:30pm, K217

Required Text: Hall, Susan J. (2003). Basic Biomechanics, fifth edition. McGraw-Hill.

Course Description: Anatomical and mechanical considerations applied to human motion in sport and exercise. Corequisite: KINES 371

Prerequisite: Admission to upper division standing in Kinesiology, or instructor permission.

Course Goal and Objectives: The goal of this course is to prepare the student to use a scientific approach for analyzing exercise and sports activities. The knowledge base will come from fulfillment of the following objectives:

1. To describe the nature of vector quantities and be able to combine and resolve two-dimensional vectors.
2. To define the basic terms involved in kinematics (e.g. velocity, acceleration, etc.)
3. To explain the kinematic relationships between linear and angular motion
4. To use concepts of kinematics to analyze human motion
5. To define basic terms involved in the kinetics of linear motion (e.g. force, inertia, momentum, etc.)
6. To identify the important characteristics of forces (e.g. magnitude, direction, point of application, components)
7. To state Newton's laws of motion and relate them to sports activities
8. To explain the effects of significant forces encountered in biomechanical analysis
9. To explain the significance of the impulse-momentum, work-energy and conservation of momentum relationships to sports activities

10. To describe the behavior of projectiles

11. To define basic terms involved in the kinetics of angular motion (e.g. angular momentum, moment of inertia, torque)

12. To locate the center of gravity of an individual

13. To explain the kinetic relationship between linear and angular motion

14. To determine the mechanical factors basic to the performance of an observed movement, and to evaluate the performer's technique

Evaluation Procedure: There will be 3 written exams. The final grade for the course will be calculated on a percentage basis. Lecture and Lab grades will be separate. However, students will have the option to combine them into one grade.

Grading Scale: A+ = 97%, A = 93-96%, A- = 90-92%, B+ = 87-89%, B = 83-86%, B- = 80-82%, C+ = 77-79%, C = 73-76%, C- = 70-72%, D+ = 67-69%, D = 63-66%, D- = 60-62%