KINE 3362- BIOMECHANICS
SPRING 2012
KINE 3362 is a required course for Bachelor's degree in Kinesiology.
College of Education
Department of Health and Kinesiology

Instructor:

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Office hours: Tues/Thur 12:30-1:50

Text/Readings:

None Required

Reference:

Behnke, Robert (2006). Kinetic Anatomy (2nd ed.). Human Kinetics.
Delavier, Frederic (2006). Strength Training Anatomy (2nd ed.). Human Kinetics
Clemente C.D. (1997). Anatomy: A Regional Atlas of the Human Body (4th ed.). Lippincott. Williams and Wilkins.

Course Description: This course is designed to provide the student with the knowledge of the structure, function and location of fibrous, skeletal, muscular and nervous tissue of the human body and to provide the student with a basic understanding of the mechanics of human motion. Emphasis will be placed on identifying location and the function of various skeletal articulations. A secondary purpose is to provide experiences for application of the knowledge through the analysis of human movement in exercise and sport.

Standards Matrix:

Objectives/Learning Outcomes	Activities (* indicates field-based activity)	Performance Assessment	Standards: • State Standards • *Specialty Organization Standards* • *Conceptual Framework #*
Identify the importance of biomechanics as a part of kinesiology	Lecture, Class Discussion	Written exam, Quizzes	
Demonstrate ability to solve quantitative biomechanical problems	Lecture, Class Discussion	Written exam Quizzes	
Identify the common articulations of the body and their location	Lecture, Class Discussion	Written exam Quizzes	
Identify various muscles of the human body and their location	Lecture, Class Discussion	Written exam Quizzes	
Understand the various soft tissues of the human body and their function	Lecture, Class Discussion	Written exam Quizzes	
Understand the lever system and how it relates in the human body	Lecture, Class Discussion	Written exam Quizzes	
Understand various injuries/pathologies that occur in the human body through motion and activity	Lecture, Class Discussion	Written exam Quizzes	
Understand movement patterns and discuss common flaws in technique and injuries	Lecture, Class Discussion	Written Exam/Quizzes	

Web address for **state standards**: N/A

Web address for ***specialty organization standards***: N/A
Web link for *Conceptual Framework*: N/A

Course Format:

Essential to the class is gaining factual knowledge (terminology, classifications, methods, trends). Important components of the class include developing specific skills, competencies, and points of view needed by professionals in the field most closely related to this course, and acquiring an interest in learning more by asking questions and seeking answers

Course Content:

I) Understanding Biomechanics and problem solving
   a. Introduction
   b. Definitions
   c. Quantitative problem Solving
   d. Application
II) Kinematic Concepts for Analyzing Human Motion
   a. Definitions
   b. Planes of the Body
   c. Axis of the body
   d. Joint movement terminology
   e. Qualitative problem solving
III) Kinetic concepts for analyzing human motion
   a. Basic concepts related to kinetics
   b. Loads on the human body
   c. Vector algebra
IV) Human Bone Growth and Development
   a. Function and composition of bone
   b. Definitions
   c. Types of Bone
   d. Bone growth and development
   e. Bone diseases
   f. Common bone injuries
V) Biomechanics of Human Skeletal Articulations
   a. Joint Architecture
   b. Synovial structures
   c. Joint stability
   d. Joint flexibility
   e. Common joint injuries and pathologies
VI) Biomechanics of the Human Skeletal Muscle
   a. Behavioral properties of the muscle-tendon unit
   b. Structural organization of skeletal muscle
   c. Muscle Fiber typing
   d. Fiber architecture
   e. Definitions
   f. Factors affecting muscular force generation
   g. Muscular strength, power and endurance
   h. Common muscle injuries

VII) Biomechanics of the Human Upper Extremity
- a. Structure and movement of the shoulder
- b. Structure and movement of the elbow
- c. Structure and movement of the wrist
- d. Structure and movement of the hand
- e. Common injuries and pathologies

VIII) Biomechanics of the Human Lower Extremity
- a. Structure and movement of the hip
- b. Structure and movement of the knee
- c. Structure and movement of the ankle
- d. Structure and movement of the foot
- e. Common injuries and pathologies

IX) Biomechanics of the Human Spine
- a. Structure of the spine
- b. Spinal Curves
- c. Movements of the spine
- d. Muscles of the spine
- e. Loads on the spine
- f. Common injuries of the back and neck

X) The lever system of the human body
- a. Components of a lever system
- b. Functions of levers in the human body
- c. Types of levers in the human body

XI) Special Topics

Course Requirements:

1) Calculator
2) NO cell phones
3) Emails kept up to date

Evaluation (* indicates field-based activity):

Exams: 3 exams , (100 points each), combination of objective and subjective questions

Final Exam: Comprehensive (100 points) Objective

Quizzes/Lab Assignments: 12x 10 point unannounced quizzes (100 points).
You may drop your lowest quiz grade to have a total of 10 quiz grades.
Quizzes can not be made up for any reason.

Summative Evaluation

450-500 Points	A
400-449 Points	B
350-399 Points	C
300-349 Points	D
Less than 300 Points	F

Please note: There is no provision for extra credit in this class besides what is listed below.

Expectations:

Cell Phone Policy

Essential to comprehension of the material presented in class is the ability to maintain concentration during the class. For this reason cell phone (both speaking and texting) use is prohibited in class. Should a cell phone ring or make any noise deemed a distraction by the instructor, or should a student be observed texting or otherwise communicating with someone not physically present in the classroom, the student will be asked to leave the class. Repeated offenses will result in the student being asked to permanently leave the class. Computers may be used for note taking only.

Attendance Policy

Essential to your understanding of the material is your presence and participation. Attendance will be taken at each class meeting. You are responsible to sign the roll sheet each day that attendance is not called in class. You are responsible to follow the directions on blackboard regarding attendance on any on-line day.

0 absences:	Addition of 5 points to final total
1-4 absences:	No additional points awarded
5 or more absences:	Reduction of 1 letter grades from final grade

Please pay particular attention to the attendance policy. **Notice there is not a distinction between excused and unexcused absences**. Even though you may have enough points for a passing grade, multiple absences **will** result in a reduction of your grade. In extremely extenuating circumstances I may make an exception, however please be aware that under most situations this policy will be enforced. If you feel you will be unable to attend class, please schedule a meeting with me to discuss this problem.

STUDENT ABSENCES ON RELIGIOUS HOLY DAYS POLICY

Section 51.911(b) of the Texas Education Code requires that an institution of higher education excuse a student from attending classes or other required activities, including examinations, for the observance of a religious holy day, including travel for that purpose. A student whose absence is excused under this subsection may not be penalized for that absence and shall be allowed to take an examination or complete an assignment from which the student is excused within a reasonable time after the absence.

University policy 861001 provides the procedures to be followed by the student and instructor. A student desiring to absent himself/herself from a scheduled class in order to observe (a) religious holy day(s) shall present to each instructor involved a written statement concerning the religious holy day(s). This request must be made in the first fifteen days of the semester or the first seven days of a summer session in which the absence(s) will occur. The instructor will complete a form notifying the student of a reasonable timeframe in which the missed assignments and/or examinations are to be completed.

STUDENTS WITH DISABILITIES POLICY

It is the policy of Sam Houston State University that no otherwise qualified individual with disabilities shall, solely by reason of his/her handicap, be excluded from the participation in, be denied the benefits of, or be subjected to discrimination under any academic or Student Life program or activity. Students with disabilities may request help with academically related problems stemming from individual disabilities from their instructors, school/department chair, or by contacting the Chair of the Committee for Continuing Assistance for Disabled Students and Director of the Counseling Center, Lee Drain Annex, or by calling (936) 294-1720.

AMERICANS WITH DISABILITIES ACT

SHSU adheres to all applicable federal, state, and local laws, regulations, and guidelines with respect to providing reasonable accommodations for students with disabilities. Students with disabilities that may affect adversely their work in this class should register with the SHSU Counseling Center and talk with their University supervisor and classroom mentor teachers about how they can help. All disclosures of disabilities will be kept strictly confidential. NOTE: no accommodation can be made until registration with the Counseling Center is complete.

PROCEDURES IN CASES OF ALLEGED ACADEMIC DISHONESTY

2.01 Procedures for discipline due to academic dishonesty shall be the same as in disciplinary actions specified in The Texas State University System *Rules and Regulations* and Sam Houston State University *Student Guidelines* except that all academic dishonesty actions shall be first considered and reviewed by the faculty member teaching the class. The faculty member may impose failure or reduction of a grade in a test or the course, and/or performing additional academic work not required of other students in the course. If the faculty member believes that additional disciplinary action is necessary, as in the case of flagrant or repeated violations, the case may be referred to the Dean of Student Life or a designated appointee for further action. If the student involved does not accept the decision of the faculty member, the student may appeal to the chair of the appropriate academic department/school, seeking reversal of the faculty member's decision.