UNIVERSITY OF NORTH ALABAMA
DEPARTMENT OF HEALTH, PHYSICAL EDUCATION AND RECREATION

COURSE NUMBER: HPE 352
COURSE TITLE: Kinesiology
SEMESTER HOURS: 3 semester hours
PREREQUISITES: BI 141 or BI 142
REVISED: January 2011

Kinesiology

CATALOG DESCRIPTION: Emphasis on human movement, muscular growth and development, physiology of muscular contraction, motor learning, and scientific application of kinesiological principles.

TEXT: Floyd, R.T. *Manuel of Structural Kinesiology.* 17th Edition. McGraw – Hill

Sieg, Kay and Adams, Sandra. *Illustrated Essentials of Musculoskeletal Anatomy.* 3rd Edition. Gainesville, Florida: Megabooks, Inc., 1985

Live Text – Student Edition

COURSE OBJECTIVES: Upon successfully completing this course, the student should, as a result of: (1) planned instruction; (2) class activities; (3) laboratory exercises; and (4) related readings, be able to discuss the following topics with respect to these specific concepts.

Muscular system

- Indicate and discuss the properties and characteristics of muscle tissue.
- List, discuss, and give examples of the different types of muscle tissue.
- Explain the structure of skeletal muscle.
- Discuss the structural classifications of skeletal muscle.
- Explain the principle of origins and insertions of skeletal muscles.
- List and discuss the characteristics of the different skeletal muscle fiber types.
- Explain the physiology of muscle contraction.
- Distinguish between the kinds of muscle contraction.
- Explain the differences between isometric, isotonic, and is isokinetic contractions.
- List and explain the factors influencing contractile force.
- Discuss the theories and potential factors involved in skeletal muscle hypertrophy.
- Differentiate and explain the different energy systems involved in muscular contraction.
- Differentiate between aerobic and anaerobic type activities with respect to development of skeletal muscle fiber types.
- Discuss the factors that influence the endurance of a muscle.
- Draw and label a sarcomere both in a relaxed and contracted state.

Skeletal System

- List and label the bones of the human body.
- List and explain the functions of the bones.
- List, differentiate, and give examples of the different types of bones.
- Differentiate between the different bone landmarks.
- List and differentiate between the different planes that divide the body.
- List and explain the different directional terms.
- List and demonstrate the different muscle actions.
- List and give examples of the different joints in the body.
- Indicate the different muscle actions associated with each joint.
- List the ligaments surrounding the major joints and indicate potential injuries associated with these ligaments.
- Differentiate between the function of ligaments, tendons, and cartilage.
- Define range of motion and list the factors that influence it.

Nervous System

- List and discuss the divisions of the nervous system.
- Discuss the structure, functions, and properties of a neuron.
- List and discuss the divisions and functions of the brain and spinal cord.
- Differentiate between sensory and motor neurons.
- Draw and label a cross-sectional view of the spinal cord.
- Draw and label the neuromuscular junction.
- List and explain the different types of sensory receptors.
- Discuss the difference between an innate reflex and a conditioned reflex.
- Trace a nerve impulse (sensory/motor) in an innate reflex as well as a conditioned reflex.
- Explain the function and purpose of an interneuron.
- List and discuss the different innate reflexes.
- Explain the concept of reaction time.

Specific Muscles Uses

- List and explain the different roles of muscles.
- Discuss the coordinated roles of the skeletal, nervous, and muscular systems in the actions of muscles.
- Discuss the mechanics of muscle use.
- Differentiate and explain with examples the two kinds of muscle contraction.
- Differentiate and explain with examples the different maximum force contractions.
- Explain the concept of multijoint muscles.
- List and discuss the postural muscles.
- List and explain the terms which are consistent with agonist and antagonist movements.
- Explain the principles involved working both with gravity and against gravity.
- Indicate which muscles actions are being developed in specific weight training exercises and calisthenics.

Skeletal Muscles

- List and label the major muscles of the upper (scapula, shoulder, elbow, wrist, hand, and trunk) and lower (hip, knee, ankle, foot) extremities.

- List the origin and insertion of each of the major muscles of the upper and lower extremities.
- List the actions of each of the major muscles of the upper and lower extremities.
- Analyze and list the primary and secondary mover muscles in specific muscle actions of different exercises or movements.
- Analyze weight training exercises or calisthenics and determine which muscles are being developed.
- Understand the concept of neutralization and determine which muscle (s) may act as potential neutralizers in a given muscle movement or exercise.

PROFESSIONAL STANDARDS AND ASSESSMENT: Material presented in this course has been designed to comply with the Alabama Standards/Rule 290-3-3-.33 Physical Education. Specific standards addressed in this course are as follows:

- (2)(a)1.(vii) Physiological principles of physical activity, including biological sciences pertaining to the structure and function of the human body, human movement, and wellness (exercise, nutrition, and health related fitness).
- (2)(a)1.(viii) Biomechanical principles of physical activity for analyzing, motor behavior, and learning.

Content of this course links with UNA College of Education Conceptual Framework References 1, 2.

Standard Code	Standard	Assessment	Instrument
290-3-3-.33(2)(a)1.(vii)	Physiological principles of physical activity, including biological sciences pertaining to the structure and function of the human body, human movement, and wellness (exercise, nutrition, and health related fitness).	Written exam	Grading scale
290-3-3-.33 (2)(a)1.(viii)	Biomechanical principles of physical activity for analyzing, motor behavior, and learning.	Laboratory sessions	Rubric

COURSE CONTENT:

Introduction

- Definition of kinesiology
- Science and kinesiology
- Systems involved in kinesiology

Muscular system

- Properties of muscle tissue
- Types of muscle tissue
- Characteristics of muscle tissue
- Structure of skeletal muscle
- Skeletal muscle fiber types
- Structural Classification of muscles
- Muscle attachments
- Muscle contraction
- Kinds of muscle contraction

- Contractile force
- Muscle hypertrophy
- Muscle endurance
- Aerobic and anaerobic systems
- Energy systems

Skeletal System

- Functions of bones
- Types of bones
- Divisions of the skeletal system
- Structures of the different bones
- Bone landmarks
- Planes of the body
- Directional terms
- Muscle actions (definitions)
- Examples of muscle actions
- Joint structure
- Types of joints
- Ligaments Range of motion

Nervous system

- Nervous system divisions
- Neuron: structure and properties
- Divisions and functions of the brain
- Spinal Cord
- Neuromuscular junction
- Sensory receptors
- Reflexes: innate and conditioned
- Reaction time

Specific Muscle Uses

- Roles of muscles
- Coordinated actions of muscles
- Mechanics of muscle use
- Kinds of muscle contraction
- Multijoint muscles
- Postural muscles

Upper body Muscles

- Origin, insertion, and actions of major muscles in the upper extremity (scapula, shoulder, elbow, wrist, hand, trunk)
- Upper body movements and associated muscles
- Specific exercises and muscular development
- Neutralizers

Lower Body Muscles

- Origin, insertion and actions of major muscles in the lower extremity (hip, knee, ankle, foot)
- Lower body movements and associated muscles

- Specific exercises and muscular development
- Neutralizers

COURSE ACTIVITIES:
Lectures/discussions
Skills practice sessions
Professional readings
Article critiques
Slides and/or video-tape presentations
Skills evaluations
Written exams
Laboratory exercises
Live Text assignments

GRADING PROCEDURE:
The student's final grade for this course will be determined by assessments in the following: 1) written exams; 2) lab test; and 3) a specific LiveText assignment. During this course five (5) written exams will be administered. These exams will be evaluated on a 100 point basis and will constitute one-third of the student's final grade. In addition, a laboratory exam will be administered. This exam will constitute one-third of the student's final grade. Finally, each student will be required to complete a LiveText assignment. This assignment will constitute one-third of the student's final grade.

The three areas of assessment will be combined and final grades assigned according to the following scale:

A = 90 – 100
B = 80 – 89
C = 70 – 79
D = 60 – 69
F = Below 60

ATTENDANCE POLICY:
Regular and punctual attendance at all scheduled classes and activities is expected of all students. When a student accumulates ten (10) cuts for any reason, an automatic "F" will be given. If you come in late, it is your responsibility to see me after class and make sure you have not been counted absent.

PERSONAL TECHNOLOGY POLICY:
Use of cell phones or other electronic devices will not be allowed in class without prior instructor approval. Phones should be off or in silent mode. There is no reason for a student to have to send or address calls or messages during class. If the student has extenuating circumstances and needs to be available for an emergency, permission should be secured from the course instructor before class begins. The first time a cell phone rings in class may be attributed to poor judgment. If this occurs a second time the person who brought the phone to class will be dismissed from class for the day and counted absent and receive a grade of zero (0) for the day's class work. This cell phone

policy applies to all classes including exams and presentations.

UNIVERSITY OF NORTH ALABAMA ACCOMMODATION STATEMENT:
In accordance with the Americans with Disabilities Act (ADA) and Section 504 of the Rehabilitation Act of 1973, the University offers reasonable accommodations to students with eligible documented learning, physical and/or psychological disabilities. Under Title II of the Americans with Disabilities Act (ADA) of 1990, Section 504 of the Rehabilitation Act of 1973, and the Americans with Disabilities Amendment Act of 2008, a disability is defined as a physical or mental impairment that substantially limits one or more major life activities as compared to an average person in the population. It is the responsibility of the student to contact Disability Support Services to initiate the process to develop an accommodation plan. This accommodation plan will not be applied retroactively. Appropriate, reasonable accommodations will be made to allow each student to meet course requirements, but no fundamental or substantial alteration of academic standards will be made. Students needing assistance should contact Disability Support Services (256-765-4214).

ACADEMIC HONESTY:
Students of the university academic community are expected to adhere to commonly accepted standards of academic honesty. Allegations of academic dishonesty can reflect poorly on the scholarly reputation of the University including students, faculty and graduates. Individuals who elect to commit acts of academic dishonesty such as cheating, plagiarism, or misrepresentation will be subject to appropriate disciplinary action in accordance with university policy.
Incidents of possible student academic dishonesty will be addressed in accordance with the following guidelines:

1. The instructor is responsible for investigating and documenting any incident of alleged academic dishonesty that occurs under the instructor's purview.
2. If the instructor finds the allegation of academic dishonesty to have merit, then the instructor, after a documented conference with the student, will develop a plan for disciplinary action. If the student agrees to this plan, then both instructor and student will sign the agreement. The faculty member will forward a copy of the signed agreement to the Office of Student Conduct for record-keeping purposes.
3. If the student disagrees with the instructor's proposed plan for disciplinary action and wishes to take further action, he/she is responsible for scheduling a meeting with the chair of the department where the course is housed to appeal the proposed disciplinary plan. The department chair shall mediate the matter and seek a satisfactory judgment acceptable to the faculty member based on meetings with all parties. If a resolution is reached, the disposition of the case will be forwarded to the Office of Student Conduct. If a resolution at the departmental level is not reached and the student wishes to take further action, he/she is responsible for scheduling a meeting with the dean of the college where the course is housed to appeal the proposed disciplinary plan. The college dean shall mediate the matter and seek a satisfactory judgment acceptable to the faculty member based on meetings with all parties. If a resolution is reached, the

disposition of the case will be forwarded to the Office of Student Conduct. If a resolution at the college level is not reached and the student wishes to take further action, he/she is responsible for scheduling a meeting with the Vice President for Academic Affairs and Provost (VPAA/P) to appeal the proposed disciplinary plan. The VPAA/P shall mediate the matter and seek a satisfactory judgment acceptable to the faculty member based on meetings with all parties. After reviewing all documentation, the VPAA/P may, at his/her discretion, choose either to affirm the proposed action, to refer the case to the Office of Student Conduct for further review, or to dismiss the matter depending on the merits of the case. The final disposition of the case will be disseminated to appropriate parties, including the Office of Student Conduct.

4. If a student is allowed academic progression but demonstrates a repeated pattern of academic dishonesty, the VPAA/P may, after consultation with the Office of Student Conduct, assign additional penalties to the student, including removal from the University.