

KINES 80 Course Outline as of Fall 2024

CATALOG INFORMATION

Dept and Nbr: KINES 80

Title: INTRO APPL KINES & ANAT

Full Title: Introduction to Applied Kinesiology and Anatomy

Last Reviewed: 2/26/2024

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	3.00	Lecture Scheduled	3.00	17.5	Lecture Scheduled	52.50
Minimum	3.00	Lab Scheduled	0	6	Lab Scheduled	0
		Contact DHR	0		Contact DHR	0
		Contact Total	3.00		Contact Total	52.50
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 105.00

Total Student Learning Hours: 157.50

Title 5 Category: AA Degree Applicable

Grading: Grade Only

Repeatability: 00 - Two Repeats if Grade was D, F, NC, or NP

Also Listed As:

Formerly:

Catalog Description:
Students learn applied Kinesiology and anatomy by examining the anatomical structure and function of the musculoskeletal system as it relates to human movement and exercise. Muscular analysis and practical application, including strengthening and flexibility exercises for each muscle will be emphasized. Students will also study physiological and biomechanical principles. Course content is part of the national American Council on Exercise (ACE) certification program. This course along with Kines 81 and 83 will prepare students to take the ACE Personal Trainer and/or Group Fitness Certification exam.

Prerequisites/Corequisites:

Recommended Preparation:

Limits on Enrollment:

Schedule of Classes Information:
Description: Students learn applied Kinesiology and anatomy by examining the anatomical structure and function of the musculoskeletal system as it relates to human movement and

exercise. Muscular analysis and practical application, including strengthening and flexibility exercises for each muscle will be emphasized. Students will also study physiological and biomechanical principles. Course content is part of the national American Council on Exercise (ACE) certification program. This course along with Kines 81 and 83 will prepare students to take the ACE Personal Trainer and/or Group Fitness Certification exam. (Grade Only)

Prerequisites/Corequisites:

Recommended:

Limits on Enrollment:

Transfer Credit: CSU;

Repeatability: Two Repeats if Grade was D, F, NC, or NP

ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:

AS Degree:	Area	Effective:	Inactive:
CSU GE:	Transfer Area	Effective:	Inactive:
IGETC:	Transfer Area	Effective:	Inactive:
CSU Transfer:	Transferable	Effective: Fall 2010	Inactive:
UC Transfer:		Effective:	Inactive:

CID:

Certificate/Major Applicable:

Both Certificate and Major Applicable

COURSE CONTENT

Student Learning Outcomes:

At the conclusion of this course, the student should be able to:

1. Students will identify and analyze exercises or movements related to muscle groups using anatomical terminology and the principles of biomechanics and neuromuscular properties.
2. Students will identify muscular imbalances and movement patterns through functional movement, muscular endurance, flexibility, balance and passive assessment tests.

Objectives:

At the conclusion of this course, the student should be able to:

1. Demonstrate knowledge of correct anatomical terminology used to describe body part locations, position, and direction.
2. Describe the various types of bones, muscles, and joints in the human body and their location, movements, and characteristics.
3. Explain basic neuromuscular concepts and muscle properties in relation to how muscles function in joint movement and work together in affecting motion.
4. Demonstrate knowledge of the principles of biomechanics.
5. Locate the major muscles of the human body, including origin, insertion, and action and identify their movements associated with all joints in the body.
6. Analyze exercises of the upper extremity, trunk, and lower extremity to determine the joint movements, types of contractions, and specific muscles involved in those movements.
7. Perform movement, flexibility, and functional training assessments and identify common postural deviations.

Topics and Scope:

I. Muscular Foundations

A. Anatomical systems

1. skeletal system
2. articulations - classifications
3. muscular terminology
4. muscle tissue actions
 - a. Roles of muscles
 - b. Types of muscle actions
 - c. Functions
5. kinetic chain movement
6. mobility and stability
7. anatomical position and planes of motion
8. nervous system
 - a. proprioception
 - b. kinesthesia

B. Balance and alignment - center of gravity

C. Human motion terminology

1. Types of muscular contraction
2. Kinetic chain movement
3. Mobility and stability
4. Balance and alignment

II. Functional Training Assessments

A. American Council on Exercise (ACE) Integrated Training Model

B. Static postural assessment

C. Postural deviations of the spine - kyphosis and lordosis

D. Muscle imbalances

E. Common postural deviations

1. subtalar pronation/supination and the effect on tibial and femoral rotation
2. hip adduction
3. shoulder position and the thoracic spine
4. pelvic tilt
5. head position

F. Dynamic balance: Y Balance test

G. Static balance: Unipedal stance test

H. McGill's torso muscular endurance test battery

1. trunk flexor endurance
2. trunk lateral endurance test
3. trunk extensor endurance test

III. Flexibility Assessments

A. Lower extremity

1. hip joint
2. ankle joint
3. knee joint

B. Upper extremity

1. shoulder joint
2. elbow joint
3. wrist joint

C. Spinal movements

1. extension

- 2. flexion
- 3. lateral flexion
- 4. rotation
- D. Thomas test for hip flexor length
- E. Passive straight-leg-raise
- F. Correctible factors
 - 1. Repetitive movements
 - 2. Awkward positions
 - 3. Lack of joint stability
 - 4. Imbalanced strength-training programs
- G. Non-correctible factors
 - 1. congenital conditions
 - 2. some pathologies
 - 3. structural deviations
 - 4. certain types of trauma
- IV. Movement Assessments
 - A. Bend-and-lift assessment: squat pattern
 - B. Single leg assessment: step up
 - C. Push assessment: shoulder push stabilization
 - D. Pull assessment: standing row
 - E. Rotation assessment: thoracic spine mobility
- V. Muscular Endurance Assessments
 - A. Push up
 - B. Body weight squat
- VI. Biomechanics
 - A. Levers, pulleys, wheels, and axles
 - B. Laws of motion and physical activities
 - C. Friction
 - D. Balance, equilibrium, and stability
 - E. Force and mechanical loading
 - F. Active and passive insufficiency
- VII. The Shoulder Girdle and Shoulder Joint
 - A. Bones, nerves, joints and movement of the shoulder girdle and shoulder joint
 - B. Muscles of the shoulder girdle and shoulder joint
 - 1. location and action
 - 2. origin and Insertion
 - 3. primary function
 - 4. selected exercise and flexibility
- VIII. The Elbow and Radioulnar Joints
 - A. Bones, nerves, joints and movement of the elbow and radioulnar joints
 - B. Muscles of the elbow and radioulnar joints
 - 1. location and action
 - 2. origin and insertion
 - 3. primary function
 - 4. selected exercise and flexibility
- VI. The Wrist and Hand Joints
 - A. Bones, nerves, joints and movement of the wrist and hand joints
 - B. Muscles of the wrist and hand joints
 - 1. location and action
 - 2. origin and insertion
 - 3. primary function
 - 4. selected exercises and flexibility

VII. Muscular Analysis of Upper Extremity Exercises

- A. Upper extremity activities
- B. Analysis of movement
- C. Open and closed kinetic chain
- D. Analysis of upper body exercises

VIII. The Hip Joint and Pelvic Girdle

- A. Bones, nerves, joints and movement of the hip joint and pelvic girdle
- B. Muscles of the hip joint and pelvic girdle
 - 1. location and action
 - 2. origin and insertion
 - 3. primary function
 - 4. selected exercises and flexibility

IX. The Knee Joint

- A. Bones, nerves, joints, and movement of the knee joint
- B. Muscles of the knee joint
 - 1. location and action
 - 2. origin and insertion
 - 3. primary function
 - 4. selected exercises and flexibility

X. The Ankle and Foot Joints

- A. Bones, nerves, joints and movement of the ankle and foot joints
- B. Muscles of the ankle and foot joint
 - 1. location and action
 - 2. origin and insertion
 - 3. primary function
 - 4. selected exercises and flexibility

XI. The Trunk and Spinal Column

- A. Bones, nerves, joints and movement of the trunk and spinal column
- B. Muscles of the trunk and spinal column
 - 1. location and action
 - 2. origin and insertion
 - 3. primary function
 - 4. selected exercises and flexibility

XII. Muscular Analysis of Trunk and Lower Extremity Exercises

- A. Lower extremity activities
- B. Analysis of movement
- C. Analysis of lower body exercises
- D. Open and closed kinetic chain

Assignment:

- 1. Weekly reading in textbook (1-2 chapters)
- 2. Assignments based on textbook readings and in-class discussion
- 3. Written and/or oral muscle and exercise analysis reports and case studies
- 4. Quizzes and exams

Methods of Evaluation/Basis of Grade:

Writing: Assessment tools that demonstrate writing skills and/or require students to select, organize and explain ideas in writing.

Assignments based on textbook readings and in-class discussion

Writing
20 - 40%

Problem Solving: Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

Written and/or oral exercise analysis reports and case studies

Problem solving
0 - 20%

Skill Demonstrations: All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

None

Skill Demonstrations
0 - 0%

Exams: All forms of formal testing, other than skill performance exams.

Quizzes and exams

Exams
20 - 40%

Other: Includes any assessment tools that do not logically fit into the above categories.

Participation and attendance

Other Category
20 - 30%

Representative Textbooks and Materials:

Kinetic Anatomy. 4th ed. Behnke, Robert and Plant, Jennifer. 2021

The Exercise Professional's Guide to Personal Training. American Council on Exercise. 2020

Instructor prepared materials