Moravian College – Health Sciences
Kinesiology – Applied Anatomy

Instructor: John M. Hauth, EdD, LAT,ATC

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Office Hours: By Arrangement
Office Hours Available by Appointment – Call or Email

Class Meets: 7:30-8:45 am Tuesdays & Thursdays PPHAC
Integrated Laboratory

Required Texts:

Floyd, R. T. (2012). Manual of structural kinesiology. 18th Edition Lab Worksheets – Provided
Manual of Structural Kinesiology Website

Course Description:

Upon completion of this course, a student should be able to identify the structural characteristics, movements, and muscles acting as the major joints of the body. The student will be able to select movements or exercises which utilize specific muscle groups and analyze the joint actions, muscle actions, and mechanical principles which apply to the performance of a specific movement.

Course Objectives:

The student will acquire the ability to:

- Describe human movement using technical terminology of kinesiology.
- Describe the structure, movements, and limitations of the major joints of the upper and lower extremities and trunk, and to describe the structures, locations, and actions of the major muscles which act upon these joints.
- Differentiate between the types of contraction a muscle can make and identify the movements in which these different types of contractions occur.
- Describe and understand selected mechanical principles which underlie specific movements and/or exercises.
- Recognize the structural characteristics of the human body and their relationship to performance in various sport activities.
- Apply knowledge of kinesiology and the musculoskeletal system to the analysis of simple and complex skills using an evidence based approach.
- Become familiar with methods used to record and analyze (e.g., cinema/video, EMG, computers software, etc.) biomechanical/kinesiological phenomena during human performance using an evidence based approach.

Grading:	Exams (4) and Quizzes	**50%**
	Lab grade	**50%**
	Lab Write-up	
	Quizzes	
	Total	**100%**

Modules and all activities associated with the module must be completed and submitted at the as indicated by the professor. An open laboratory sessions and classes will assist students in completing all activities.

Grading	100-93	A
Scale	92-90	A-
	89-88	B+
	87-80	B
	79-78	C+
	77-70	C

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69-60	D
59- 0	E

Class Participation: All students are expected to attend and participate in class activities, discussions and practice sessions. Any student that does not attend or participate in class activities will lose points toward their final grade. Students are also expected to practice the skills taught in this class **on their own time** to make the best use of in class experiences.

Attendance: Attendance in class will be taken, and is expected. Students are also expected to complete assigned readings **prior to** class to be ready for in class discussions. If you will be missing a class for any reason, please let me know **in advance** so that I can help you get any materials or information that you will be missing. The student is responsible for the material which was covered. If you have an extended absence, you must have it on file with the Vice President for Student Development. Resolutions for these problems will be made on an individual basis**.** The maximum allowable hours of **lecture** missed for any reason, excused or unexcused, is **three (3)**. When that number is exceeded, then the final grade shall be lowered with each additional absence. If the number of absences exceeds six, the student will have only the option to drop or fail.

Attendance in lab: Only an absence approved by the lab instructor will result in the student being allowed to make up the weekly quiz. Please refer to your Student Handbook Attendance Policy for additional information. **If students miss more than one (1) lab for any reason, they will either be dropped from the class or receive a failing grade.**

Attendance at Exams: Attendance at all exams and quizzes is mandatory. If for some reason you cannot make an exam you must notify the instructor **prior** to the exam or quiz period. If this is not done a **ZERO** will be given for that exam. ***Note: Make-up exams or re-tests will not be given without a written excuse or other arrangement made with the professor.**

Cheating: Academic dishonesty will not be tolerated!! Anyone cheating in any way will be excused from the course and receive an "E" for their final grade.

Students who wish to request accommodations in this class for a disability should contact the Academic Support Center, located on the first floor of Monocacy Hall (extension 1401). Accommodations cannot be provided until authorization is received from the Academic Support Center.

Course Content (Tentative Schedule)

Week 1

I. Introduction: (**Floyd**: Ch 1)
- A. Overview of biomechanics / kinesiology as a field of study.
- B. Introduction - The study of kinesiology.

Week 2

NO CLASS 9/7 – Labor Day

II. Bone Structure and Function (**Floyd**: Ch 1) (And Online Resources)

- A. Overview of the Cell.
- B. Function of Bone
- C. Classification and Types of Bone
- D. Constituents of Bone
- E. Growth and Development of Bone
- F. Anatomical Landmarks of Bone
- G. Anatomical and Directional Terminology

Week 3 and Week 4

III. The Muscular System (**Floyd**: Ch 2) and Online Resources

- A. Structural Properties of Skeletal Muscle
- B. Muscle Function
  1. Types of Contraction
  2. Roles of Muscle
- C. The Motor Unit and Recruitment
- D. Methods of Studying Muscle Actions
- E. Mechanics of Muscular Contraction
  1. Joint Torque
  2. Lever Classifications & Mechanical Advantage

LECTURE EXAM 1 (Sections I-III)

Week 5 and Week 6

IV. General Arthrology and Motion Description (**Floyd**: Ch 3) (Online Resources)

- A. Classification of Joints
- B. Types of Diarthrodial Joints, Joint Structures & Movements
- C. Planes and Axes of Motion
- D. Factors about Joint Stability and Range of Motion

Week 7 and Week 8

V. Shoulder Girdle and Shoulder Joint (**Floyd**: Ch 4 & 5)

A. Skeletal Components
B. Arthrology
C. Types of Movement
D. Musculature
E. Analysis of Movement
F. Special Topics

Week 8 and Week 9

VI. Elbow, Forearm, Wrist, & Hand (**Floyd**: Ch 6, 7 & 8)

A. Skeletal Components
B. Arthrology
C. Types of Movement
D. Musculature
E. Analysis of Movement
F. Special Topics
G. Review Upper Extremity

LECTURE EXAM 2 (Sections III and V)

Week 10 and Week 11

Pelvic Girdle and Hip Joint (Floyd**: Ch 9)**

H. Skeletal Components
I. Arthrology
J. Types of Movement
K. Musculature
L. Analysis of Movement
M. Special Topics

Week 11 and Week 12
NO CLASS 11/26– 11/28 Thanksgiving

VII. Knee Joint (**Floyd**: Ch 10)

A. Skeletal Components
B. Arthrology
C. Types of Movement
D. Musculature
E. Analysis of Movement
F. Special Topics

LECTURE EXAM 3 (Sections V - VII)
Week 12 and Week 13

VIII. Ankle and Foot (**Floyd**: Ch 11)

A. Skeletal Components
B. Arthrology
C. Types of Movement
D. Musculature
E. Analysis of Movement
F. Special Topics

Week 14 Trunk (Thorax/Abdomen) (Floyd**: Ch 12 & 13)**

G. Skeletal Components
H. Arthrology
I. Types of Movement
J. Musculature
K. Kinesiology of Respiration
L. Analysis of Movement

IX. Kinesiology of Posture*
Fitness and Training Principles* (**Floyd**: Ch 8 & 13)
*Time Permitting. These concepts will be incorporated in Units V - X.

Final Exam CHECK 15th WEEK SCHEDULE: LECTURE EXAM 4 (Sections IX - XII)

Laboratories

Week 1	Lab 1. Skeleton - Anatomical Landmarks - Directional Terminology
Week 2	Lab 1. Skeleton - Anatomical Landmarks - Directional Terminology
	9/7 NO CLASS; LABOR DAY
Week 3	Lab 2. Joint Structure & Motion; Planes, Axes, Motion Description
Week 4	Lab 2. Joint Structure & Motion; Planes, Axes, Motion Description
Week 5	Lab 3. Functional Anatomy of Muscles
Week 6	Lab 4. Joint Torques and Lever Systems
Week 7	Lab 4. Joint Torques and Lever Systems
Week 8	Lab 5. Shoulder Girdle and Shoulder Joint
Week 9	Lab 6. Elbow, Forearm, Wrist, and Hand
Week 10	Lab 7. Movement Analysis of Upper Extremity
Week 11	Lab 8. The Pelvic Girdle and Hip
Week 12	Lab 9. The Knee Joint
Week 13	Lab l0. The Ankle and Foot
Week 14	Lab 11. The Trunk and Spine (Thorax and Abdomen)
	Lab 12. Assessment of Posture - Combined with Lab 11
Finals Week	Exam