

## **Introduction to Kinesiology & Health Sciences**

Semester: Fall 2019

Course Designation: KINE 204

Room: ISC 1221

Meeting Times: TR 9:30 – 10:50am

Instructor Dr. Robert Kohl

Office: Adair 10, Extension: 1-1981

Office Hours: W 10:00 – 12:00pm

Email: [rmkohl@wm.edu](mailto:rmkohl@wm.edu)

### **Course Description**

In this class we will examine the basics of human movement and how it is studied, with emphasis upon historical, philosophical, socio-cultural, physiological, biomechanical and psychological aspects. By the end of the semester you will be familiar with key concepts in anatomy, physiology, biomechanics, motor learning and control, and sport psychology and sociology

### **Required Text**

Klavora, Peter. Introduction to Kinesiology: A Biophysical Perspective, 2<sup>nd</sup> Edition. Toronto: Sport, 2016. Print

### **Course Outline**

Introduction - by the end of this section you will be able to:

- explain the meaning, significance, and scope of the focus of kinesiology
- explain the choice of kinesiology as the preferred name of our field.
- describe the spheres of scholarly study that constitutes kinesiology
- experience the meaning of kinesiology in your own life

Anatomy - by the end of this section you will be able to:

- demonstrate an understanding of the basis for anatomical description and analysis
- use correct anatomical terminology when describing the human body and performance
- describe the various parts of the skeletal and muscular systems and the ways in which they relate to human performance
- demonstrate an understanding of the organization and complexity of human anatomy
- identify the factors associated with injury prevention
- describe the common musculoskeletal injuries
- demonstrate an understanding of the implications of various chronic and acute injuries and how to treat them

Physiology - by the end of this section you will be able to:

- describe the macro and micro structures of skeletal muscle
- describe muscle contraction and explain the sliding filament theory

- demonstrate an understanding of nerve-muscle interaction
- differentiate among different types of muscle fibers
- describe group action of muscles
- discuss muscle's adaptation to strength training
- differentiate between the different types of muscle contractions
- describe the factors that influence strength development
- identify the components of strength
- discuss the relationships between the various components of strength
- use and understand the basic terminology of human metabolism related to exercise
- describe the basic chemical processes the body uses to produce energy in the muscles
- demonstrate an understanding of the body's three energy systems and their contribution to muscular contraction and activity
- discuss the effects of training and exercise on the energy systems
- explain the function and control of the cardiovascular and respiratory systems
- describe the relationship between the cardiorespiratory system and energy production
- explain the measures that are used to evaluate and describe the various components of the cardiovascular and respiratory systems
- describe the acute and chronic effects of physical activity on the body
- analyze the effects of different environmental conditions on the body during physical activity

Biomechanics/Motor Control - by the end of this section you will be able to:

- distinguish between different types and causes of human motion
- identify Newton's laws of motion and describe practical illustrations of the laws
- describe the expected path and motion of a projectile
- describe the conservation of momentum within the body, and explain why changes in the configuration of a rotating airborne body produce changes in its angular velocity
- explain the role of friction in the context of fluid dynamics
- evaluate qualitative analyses of human motion
- describe the role of technology in the refinement of sport
- explain how technology has led to changes in sports equipment
- discuss the pros and cons of technological advancements in sport
- recognize that not all technological advancement is for the better
- describe the structure and function of the human nervous system as it relates to information processing
- explain the ways humans perceive and process information
- demonstrate an understanding of the role of feedback in motor control
- explain the advantages and disadvantages of closed- and open-loop control systems in motor control
- explain the concept of movement intelligence in motor skill development
- describe the rationale for and characteristics of motor programs and movement abilities, and give examples of each
- discuss the relationship between motor abilities, motor programs, and skills
- define motor skills and describe their characteristics
- apply knowledge of the characteristics of a skill to analyze movement

- explain classification of skills and demonstrate an ability to design learning progression for an open skill

Physical Fitness - by the end of this section you will be able to:

- identify and discuss the various components of physical fitness
- describe the contribution of physical fitness to overall health
- evaluate the effects of various training methods on performance
- examine your own physical fitness level and develop an awareness of personal fitness requirements
- adapt physical fitness and activity programs to address personal needs
- discuss the usefulness and application of testing, measurement, and evaluation
- outline the criteria for the evaluation and selection of tests
- describe a variety of practical and economical tests that are useful to the average physical education teacher and student in various performance areas
- administer these tests to yourself and others in a reliable and valid manner

Nutrition and Weight Management - by the end of this section you will be able to:

- describe the anatomy and physiology of the digestive system
- identify the nutritional requirements and components of a healthy diet
- outline the official nutritional advice provided for the United States
- explain the unique nutritional needs of various populations
- describe the effects of nutrition on athletic performance
- discuss the differences between overweight and obese and their implications for health
- explain the concept of energy balance in weight management
- describe the role of exercise and lifestyle modification in maintaining a healthy body weight
- discuss the consequences of dieting and eating disorders
- set and evaluate personal goals for maintaining a healthy body weight

### Grading

Exam I	25%
Exam II	25%
Exam III	10%
Exam IV	40%

### Grading Scale

A	90 – 100%
B	80 – 89%
C	70 – 79%
D	60 – 69%
F	< 60%

It is the policy of William & Mary to accommodate students with disabilities and qualifying diagnosed conditions in accordance with federal and state laws. Any student who feels s/he may need an accommodation based on the impact of a learning, psychiatric, physical, or chronic health diagnosis should contact Student Accessibility Services staff at 757-221-2509 or at [sas@wm.edu](mailto:sas@wm.edu) to determine if accommodations are warranted and to obtain an official letter of accommodation. For more information, please visit [www.wm.edu/sas](http://www.wm.edu/sas).