

Introduction to Kinesiology & Health Sciences

Semester: Fall 2018

Course Designation: KINE 204

Room: ISC 1221

Meeting Times: TR 9:30 – 10:50am

Instructor Dr. Robert Kohl

Office: Adair 10

Office Hours: W 10 - 12pm

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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 (Klavora, 2012).

Required Text

Klavora, Peter. *Introduction to Kinesiology: A Biophysical Perspective*. Toronto: Sport, 2012. 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

Four exams weighted equally (25% each) will be used to determine the grade. Three exams are mid-terms (given during the term) and one cumulative final (date is posted).

Attendance Policy.

Show up or I will find you.

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 to determine if accommodations are warranted and to obtain an official letter of accommodation. For more information, please visit www.wm.edu/sas.