KIN C190: PHYSIOLOGY OF EXERCISE

Item	Value
Top Code	083500 - Physical Education
Units	3 Total Units
Hours	54 Total Hours (Lecture Hours 54)
Total Outside of Class Hours	0
Course Credit Status	Credit: Degree Applicable (D)
Material Fee	No
Basic Skills	Not Basic Skills (N)
Repeatable	No
Grading Policy	Standard Letter (S), • Pass/No Pass (B)
Local General Education (GE)	• CL Option 1 Self-Development (CE1)

Course Description

Formerly: PE C190. This course introduces the basic principles of exercise physiology as it relates to human movement and functions of the cardiovascular-respiratory, metabolic, endocrine and neuromuscular systems in response to exercise conditioning. Additional emphasis will be placed on the performance enhancement techniques and physiological responses to variable environmental conditions. ADVISORY: BIOL C102. Transfer Credit: CSU; UC.

Course Level Student Learning Outcome(s)

1. Apply theories of physical fitness to explain acute responses and chronic adaptations to exercise by various body systems.
2. Demonstrate solid research techniques in describing the principles of exercise training and the body's adaptations to various forms, degrees, and conditions of training.
3. Demonstrate critical thinking skills by identifying and applying considerations of special populations in sport and exercise.

Course Objectives

- 1. List the main body systems, including emphasis on neurological, cardiovascular, respiratory, muscular, and metabolic systems and describe the functions of each.
- 2. Identify physiological responses of the main body systems to exercise.
- 3. Explain the need for physical training to improve health and wellness.
- 4. Describe the possible effects of environmental factors on the body.
- 5. List the theories of training to improving athletic performance and personal health.
- 6. Explain the relation of nutrients and nutritional ergogenics.
- 7. Assess a persons general fitness performance through interview, observation, and history.
- 8. Design an individual exercise program taking into account desired outcomes and individual limitations.
- 9. Compare and contrast such factors as age, sex, obesity, drugs, disease, and others on physical performance.
- 10. Distinguish between safe and unsafe practices in the field of athletics and training and exercise.
- 11. Use online resources to locate and research relevant topics in exercise physiology.

Lecture Content

Introduction to exercise and sport physiology Focus of exercise Historical events Acute physiological responses Chronic physiological responses Exercising muscle Structure and function of exercising muscle Fuel: metabolism and hormonal control Neural control Energy expenditure and fatigue Cardiovascular and respiratory function Cardiovascular system and its control Respiratory system and its regulation Cardio-respiratory responses to acute exercise Exercise training General principles Adaptations to resistance Adaptations to aerobic and anaerobic training Environmental influences on performance Exercise in hot and cold environments: Thermoregulation Exercise in altitude Optimizing performance in sport Training for sport Body composition in nutrition for sport Ergogenic aids and sport Age and sex considerations in sport and exercise Children and adolescents in sport and exercise Aging in sport and exercise Sex differences in sport and exercise Physical activity for health and fitness Prescription of exercise for health and fitness Cardiovascular disease and physical activity Obesity, diabetes, and physical activity

Method(s) of Instruction

- Lecture (02)
- DE Online Lecture (02X)

Instructional Techniques

This course will utilize lectures, supplemental materials (research articles, web resources), discussion, readings, research reviews, problem solving and demonstrations, case studies, quizzes, midterm and final exams, and video assessments.

Reading Assignments

Read textbooks and do library research assignments, practice tests on lesson content and key terms, do group and individual projects, and/or prepare for discussions.

Writing Assignments

Reaction papers on given topics, article review(s), video critique, an interview with a fitness professional, and/or analysis of various websites

Out-of-class Assignments

Students will be required to participate in group discussions, create video for demonstration purposes, write an article review, interview a fitness trainer, complete assigned readings, critique a fitness video, and/or review various related websites.

Demonstration of Critical Thinking

Application of research and analysis of case studies; reports back to the group on data and/or research involving the topic discussed; research reports requiring evaluation and synthesis of course concepts to reach solid conclusions.

Required Writing, Problem Solving, Skills Demonstration

Students will analyze the performance of a particular exercise and discuss or identify possible errors in technique and the possible solutions they would suggest to the performer.

Eligible Disciplines

Kinesiology: Masters degree in kinesiology, physical education, exercise science, education with an emphasis in physical education, kinesiology, physiology of exercise, or adaptive physical education OR Bachelors degree in any of the above AND Masters degree in any life science, dance physiology, health education, recreation administration or physical therapy OR the equivalent. Physical education: Masters degree in physical education, exercise science, education with an emphasis in physical education, kinesiology, physiology of exercise, or adaptive physical education, OR bachelors degree in any of the above AND masters degree in any life science, dance, physiology, health education, recreation administration, or physical therapy OR the equivalent. Masters degree required.

Textbooks Resources

1. Required Wilmore, Jack; Costill, David; Kenney, W Larry. Physiology of Sport and Exercise, 7th ed. Human Kinetics, 2019 Rationale: -

Other Resources

1. Physiology of Sport and Exercise Study Guide (optional) 2. Coastline Library 3. Current articles in journals, periodicals, and newspapers, and online resources