

KINS 8B: THEORY & CONCEPTS OF EXERCISE PHYSIOLOGY II

Foothill College Course Outline of Record

Heading	Value
Units:	5
Hours:	5 lecture per week (60 total per quarter)
Advisory:	Maximum UC credit awarded for any or all of the following courses combined is 12 units: KINS 2, 3, 8A, 8B.
Degree & Credit Status:	Degree-Applicable Credit Course
Foothill GE:	Non-GE
Transferable:	CSU/UC
Grade Type:	Letter Grade Only
Repeatability:	Not Repeatable

Student Learning Outcomes

- A successful student will be able to identify the physiological responses to exercise in the heat, cold, and at altitude.
- A successful student will be able to explain the impact of physical activity on cardiovascular disease, obesity, and diabetes.

Description

Applied concepts and principles of exercise physiology and how the human body responds to the demands of physical activity. Emphasis on the impact of environmental influences, including physiological responses to exercise in the heat, cold, and at altitude; optimizing performance in sport, overtraining and detraining; body composition and nutrition; use of ergogenic aids; age and sex considerations in sport and exercise; and the implications of physical activity for health and fitness.

Course Objectives

The student will be able to:

- Identify the physiological responses to exercise in the heat and cold.
- Understand body temperature regulation.
- Explain environmental conditions, sport performance and risks with chronic exposure to altitude.
- Understand the effects of overtraining, tapering for peak performance, and detraining.
- Assess body composition and nutrition for exercise and sport.
- Explain the effects of ergogenic aids in sport performance.
- Recognize physiological responses across different age and gender populations.
- Apply prescription of exercise for health and fitness.
- Understand the impact, benefits and risks of physical activity on cardiovascular disease.
- Describe the role of physical activity in the management of obesity and diabetes.

Course Content

- Exercise in Hot and Cold Environments

- Body temperature regulation
- Physiological responses to exercise in the heat
- Health risks during exercise in the heat
- Acclimation to exercise in the heat
- Exercise in the cold
- Physiological responses to exercise in the cold
- Health risks during exercise in the cold
- Exercise at Altitude
 - Environmental conditions at altitude
 - Physiological responses to acute altitude exposure
 - Exercise and sport performance at altitude
 - Acclimation: chronic exposure to altitude
 - Optimizing training and performance
 - Health risks of acute exposure to altitude
- Training for Sport
 - Optimizing training
 - Periodization of training
 - Overtraining
 - Tapering for peak performance
 - Detraining
- Body Composition and Nutrition for Sport
 - Assessing body composition
 - Body composition, weight, and sport performance
 - Classification of nutrients
 - Water and electrolyte balance
 - The athletes diet
- Ergogenic Aids and Sport
 - Researching ergogenic aids
 - Nutritional ergogenic aids
 - Anti-doping codes and drug testing
 - Prohibited substances and techniques
- Children and Adolescents in Sport and Exercise
 - Growth, development, and maturation
 - Physiological responses to acute exercise
 - Physiological adaptations to exercise training
 - Physical activity patterns among youth
 - Sport performance and specialization
 - Special issues
- Aging in Sport and Exercise
 - Height, weight, and body composition
 - Physiological responses to acute exercise
 - Physiological adaptations to exercise training
 - Sport performance
 - Special issues
- Sex Differences in Sport and Exercise
 - Body size and composition
 - Physiological responses to acute exercise
 - Physiological adaptations to exercise training
 - Sport performance
 - Special issues
- Prescription of Exercise for Health and Fitness
 - Health benefits of exercise
 - Exercise is medicine
 - Medical clearance
 - Exercise prescription
 - Monitoring exercise intensity
 - Exercise program
 - Exercise and rehabilitation of people with diseases
- Cardiovascular Disease and Physical Activity
 - Prevalence of cardiovascular disease
 - Forms of cardiovascular disease
 - Understanding the disease process

4. Determining individual risk
 5. Reducing risk through physical activity
 6. Risk of heart attack and death during exercise
 7. Exercise training and rehabilitation of patients with heart disease
- K. Obesity, Diabetes, and Physical Activity
1. Understanding obesity
 2. Weight loss
 3. Role of physical activity in weight management and risk reduction
 4. Understanding diabetes
 5. Treatment of diabetes
 6. Role of physical activity in diabetes

- E. Weekly discussion posts on topics relevant to course material

Discipline(s)

Kinesiology

Lab Content

Not applicable.

Special Facilities and/or Equipment

When taught as an online distance learning or hybrid section, students and faculty need ongoing and continuous internet and email access.

Method(s) of Evaluation

Methods of evaluation may include:

- A. Exams and quizzes: multiple choice, matching and essay questions to assess student learning outcomes
- B. Analysis of selected case studies using various training scenarios
- C. Research paper on current applied exercise physiology topic from a scientific, peer reviewed journal
- D. Weekly homework assignments to emphasize course topics
- E. Participation in classroom discussions

Method(s) of Instruction

Methods of instruction may include:

- A. Lecture presentations and classroom discussion using the language of applied exercise physiology
- B. Reading of textbook, use of multi-media, and related material to promote discussion and synthesis of objectives
- C. Presentations of projects followed by in-class discussion and evaluation
- D. Problem solving exercises and discussion emphasizing objective analysis and critical thinking

Representative Text(s) and Other Materials

Wilmore, Jack H., and David I. Costill. Physiology of Sport and Exercise. 6th ed. Champaign, IL: Human Kinetics, 2015.

Types and/or Examples of Required Reading, Writing, and Outside of Class Assignments

- A. Reading Assignments: Weekly reading assignments from text, online curriculum, and outside sources
- B. Homework assignments, including terminology and responses to discussion questions
- C. Responses to essay questions on mid-term and final exam
- D. Research paper on topic from scientific peer reviewed journal