

Effective Semester: Spring 2024

### COURSE INFORMATION

**Course Title:** Health and Exercise Science

**Course Number:** HSCI 101

**Credits:** 3

**Total Weeks:** 14 (Fall, Spring)  
12 (Summer)

**Total Hours:** 39

**Course Level:**  First Year  Second Year  
 New  Revised Course  
 Replacement Course

**Department:** Science

**Department Head:** S. Girdhar

**Former Course Code(s) and Number(s) (if applicable):**

**Pre-requisites (If there are no prerequisites, type NONE):** None

**Co-requisite Statement (List if applicable or type NONE):** None

**Precluded Courses:** N/A

### COURSE DESCRIPTION

This course is designed to introduce students to the importance of exercise, physical activity, generalized fitness, optimized eating, and the principles of healthy living. Students will study and practice the basics of fitness appraisal, exercise prescription, and behavioural change, while learning how to measure the consequent impacts on personal health, quality of life, and professional success both within and beyond the health care disciplines.

### LEARNING OUTCOMES

Upon successful completion of the course, students will be able to:

- Define the physiological principles that inform conditioning and fitness.
- Apply critical thinking when evaluating exercise and nutritional advice and explain the hazards of too quickly integrating research results into the design of exercise and nutritional programs.
- Describe skeletomuscular anatomy and biomechanical function and explain the movement patterns of the major joints.
- Apply the knowledge of joint and muscle actions to the design of resistance training programs aimed at improving muscular strength, muscle mass and/or endurance.
- Explain the physiology of the major energy systems that relate to human power output.
- Describe the physiology of the cardiovascular and respiratory systems and integrate this knowledge in programs aimed at improving oxygen transport and endurance.
- Describe the impact of exercise and diet upon the neuroendocrine system.
- Devise programs of interval training, plyometrics, periodization and tapering to improve athletic performance in an array of sports.
- Explain the skeletomuscular basis of optimal mobility and devise basic flexibility programs.
- Run practical labs designed to measure and improve the components of fitness discussed in lectures.
- Execute performance tests designed to evaluate aerobic power, muscular endurance, strength, power and flexibility, and analyze these results.
- Define and assess body composition and prescribe nutrition and fitness programs to optimize it.
- Explain the value of effective goal setting and develop personal fitness programs aimed at achieving these goals.
- Understand and implement basic dietary strategies with the aim of enhancing health and athletic performance.
- Identify the dangers of social and environmental stress, and describe strategies to avoid it (e.g., by understanding fluid replacement guidelines, and strategies of acclimatization).
- Summarize how exercise and active living promote higher qualities of life.

**INSTRUCTION AND GRADING**

Instructional (Contact) Hours:

Type	Duration
Lecture	39
Seminars/Tutorials	
Laboratory	
Field Experience	
Other ( <i>specify</i> ):	
Total	39

**Grading System:** Letter Grades  Percentage  Pass/Fail  Satisfactory/Unsatisfactory  Other

**Specify passing grade:** 50 %

**Evaluation Activities and Weighting** (total must equal 100%)

Assignments: 10% <i>Fitness program</i>	Lab attendance: %	Lecture Participation: 10%	Project: 15% <i>Group project</i>
Fitness Test: 10%	Midterm Exam: 25%	Final Exam: 30%	Other: %

**TEXT(S) AND RESOURCE MATERIALS**

Required: Exercise Programming, Science and Practice. Leyland and Bott. 2021. 2<sup>nd</sup> Edition

\*First edition copies and online editions are not acceptable for this course.

Recommended: Medical clearance from a physician

**COURSE TOPICS**

**SECTION I: Foundations of Exercise Training**

**Chapter 1:** Introduction to Fitness

**Chapter 2:** Principles of Physiological Conditioning

**Chapter 3:** Cardiorespiratory Exercise Training

**Chapter 4:** Mobility, Balance and Posture

**Chapter 5:** Resistance Training

**Chapter 6:** Critical Thinking in Exercise Science

**Chapter 7:** Mental Skills for Health and Performance

**Chapter 8:** Fitness Assessment

**SECTION II: Foundations of Exercise Science**

**Chapter 9:** Muscle Anatomy, Physiology and Biomechanics

**Chapter 10:** Fundamental Movement Patterns

**Chapter 11:** Energy Systems, Fatigue, and Recovery

**Chapter 12:** Cardiorespiratory Anatomy and Physiology

### **SECTION III: Nutrition and Metabolic Health**

**Chapter 13:** Basic Nutrition: Fuel for Exercise

**Chapter 14:** Temperature Regulation and Fluid Replacement

**Chapter 15:** Neuroendocrine Response to Exercise and Diet

**Chapter 16:** Improving Body Composition

### **SECTION IV: Introduction to Training for Performance**

**Chapter 17:** Advanced Training Concepts

**Chapter 18:** Aerobic Conditioning and High Intensity Interval Training

**Chapter 19:** Strength and Power Training for Performance

### **SECTION V: Conclusion: Fitness, Health and Performance Review**

#### **NOTES**

1. Students are required to follow all College policies. Policies are available on the website at: [Coquitlam College Policies](#)
2. To find out how this course transfers, visit the BC Transfer Guide at: [bctransferguide.ca](http://bctransferguide.ca)
3. Weekly course topics and textbooks may vary.

**Last Reviewed:** October 2023

**Last Revised:** October 2023