

Course Name: REC235 Science of Sport Conditioning
Credit Value: 5
Prerequisite Course: None

Course Description

This course will provide students with a solid working knowledge of foundational exercise science including anatomy, physiology, bioenergetics, biomechanics, and training adaptations. Course content will prepare the student to take the National Strength and Conditioning Association's - Personal Trainers Certificate test.

PLAR Information

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Course Learning Outcomes

Upon completion of this course, the student will have reliably demonstrated the ability to:

- 1. Describe the structure, role, and function of skeletal muscles.**
 - 1.1 Explain the difference between skeletal muscle and other types of muscle tissue.
 - 1.2 Chart the major skeletal muscles (anterior view).
 - 1.3 Chart the major skeletal muscles (posterior view).
 - 1.4 Describe the gross (upward) organization of muscle fibers.
 - 1.5 Describe the microscopic (inward) construction of muscle fibers.
 - 1.6 Explain how muscle contracts (the sliding filament theory).
 - 1.7 Explain the linkage between the nervous and muscular system.
- 2. Explain the structure and role of bones in the skeletal system.**
 - 2.1 Explain the basic division of the skeletal system.
 - 2.2 Chart the skeletal system.
 - 2.3 Explain the major functions of bone tissue.
 - 2.4 Discuss common bone injuries and diseases.
- 3. Understand the interrelationship of muscle, bones, and connective tissue in force production.**
 - 3.1 Describe the structure of the three types of connective tissue.
 - 3.2 Describe the function of each type of connective tissue.
- 4. Describe the anatomical and physiological characteristics of the cardiovascular system.**
 - 4.1 List the primary roles of the cardiovascular system.
 - 4.2 Describe the main parts of the heart and their specific functions.
 - 4.3 Demonstrate the common methods of determining the heart rate.
 - 4.4 Describe the main parts of the vascular system (vessels).
 - 4.5 Define blood pressure.
 - 4.6 Conduct a blood pressure test.
- 5. Explain the anatomical and physiological characteristics of the respiratory system.**
 - 5.1 Explain the primary function of the respiratory system.
 - 5.2 Chart the gross anatomy of the respiratory system.
- 6. Know the mechanisms that control respiration.**
 - 6.1 Define bioenergetics.
 - 6.2 Explain the role of ATP in muscular activity.
 - 6.3 Describe the three energy systems in the human body.
- 7. Recognize the various types of levers of the musculoskeletal system.**
 - 7.1 Explain the types of levers in the musculoskeletal system.
 - 7.2 Describe the anatomical planes of the human body.
 - 7.3 List the seven principles of biomechanical analysis.

8. Explain the factors contributing to human strength and power.

- 8.1 Explain strength, power, and work as it applies to human movement.
- 8.2 List and describe the biomechanical factors in human strength.
- 8.3 List and explain the sources of resistance to muscular contraction.

9. Analyze movement in sport, work, and daily life.

- 9.1 Explain flexion and extension of a joint.
- 9.2 Explain abduction and adduction.
- 9.3 Explain pronation and supination.
- 9.4 Explain dorsiflexion and plantar flexion.
- 9.5 Explain internal and external rotation.
- 9.6 Analyze a sport skill in terms of movement at the joints.
- 9.7 Analyze a work task in terms of movement at the joints.
- 9.8 Recommend exercises to strengthen specific movement.

Evaluation Strategy**Grading System**

A+ Honours	90-100%						
A+	85-89%	B+	75-79%	C+	65-69%	D+	55-59%
A	80-84%	B	70-74%	C	60-64%	D	50-54%
						R	Repeat
						S	Successful
						U	Unsatisfactory
						I	Incomplete

*For a complete detailed description please refer to the *Academic Calendar*.

Student Success**(Dial 5185 for Campus Life or 5301 for the Aboriginal Learning Unit)**

Canadore is committed to Student Success and offers CONFIDENTIAL services to help you in your studies.

- Counselling helps with academic, career and personal/crisis issues.
- AccessAbility Services will accommodate you if you have physical, mobility, visual, auditory, medical and/or learning disabilities.
- Health Centre provides services to you in case of illness.
- Career Services offers career advice, resume and interviewing workshops.

Waiver of Responsibility

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