CAMOSUN COLLEGE
School of Arts & Science
Biology Department

BIOL 144 X01A: Physiology for Sport Education

WINTER 2015 COURSE OUTLINE

CALENDAR DESCRIPTION

Physiological processes are studied in a laboratory setting at the chemical, cellular and organ system level. Laboratory skills are emphasized with a focus on data collection, data presentation and data analysis in the context of scientific method. Students in this course will apply critical thinking in the context of physiological homeostasis, particularly as it relates to exercise and health. This course is designed for students in the Exercise and Wellness diploma program and the Athletic and Exercise Therapy degree program.

PREREQUISITES

Grade of C+ or better in English 12; Grade 11 level science, Math 11, Biology 143

1. Instructor Information

Instructor: Douglas Panton
Office hrs: TBA
Location: Tech 219
Phone: (250) 370-4406
E-mail: pantond@camosun.bc.ca

2. Required Materials

Sherwood, Kell and Ward, (2013) *Human Physiology,* Nelson Education Ltd.

Lab Manual: *Biology 144: Physiology Labs for Sport Education, (labs manual supplied)*

3. Course Particulars

Class hours: 3 hrs lecture / week and 3 hrs lab / week
Credits : 4 credits

4. Intended Learning Outcomes

- *describe the concept of homeostasis and explain how it operates in the major physiological systems of the human body.*
- *demonstrate an understanding of the functioning of the major physiological systems of the human body at the cellular and systemic levels.*
- *explain the interactions between the major physiological systems of the body particularly as these interactions pertain to exercise and health*
- *correctly apply anatomical vocabulary both written and oral in a physiological context.*
- *learn basic laboratory skills and apply these skills in the collection of physiological data (measuring, pipetting, handling of chemicals, data collection, data presentation, lab safety)*
- *utilize critical thinking to apply physiological concepts to specific problem solving situations in the context of scientific method*

5. Basis of Student Assessment

Midterm 1	15%
Midterm 2	15%
Assignments and quizzes	25%
Final assignment	5%
Lab exam	10%
final exam	30%.....

6. Grading System

The following percentage conversion to letter grade will be used:

A+ = 90 - 100%	B = 73 - 76%	D = 50 - 59%
A = 85 - 89%	B- = 70 - 72%	F = 0 - 49%
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4. *Any evaluation of work for in-class assignments or lab assignments, reports and/or participation will not be given if a student is not present in class or lab.*

5. *Quizzes will be written at the beginning of class; if you are late for class you may not be allowed to write the quiz*

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2. Jan 12 - 16	**Intro to Cellular physiology (cont'd)** • cell membrane structure • transport mechanisms • enzymes	Lab 2: Intro to Chemical Concepts
3. Jan 19 – 23 **Note**: Fee Deadline	**Digestive Physiology** • chemical digestion - enzymes • absorption - chemicals, routes, locations • neural and hormonal controls • gastrointestinal function during exercise	Lab 3: Digestion of Organic Molecules
4. Jan 26 – 30	**Metabolism** • carbohydrate metabolism • lipid and protein metabolism • interconversion of molecules • energy transfer in exercise • absorptive and postabsorptive states, hormonal control	Lab 4: Cellular Respiration and Glucose Monitoring
5. Feb 2 - 6	**MIDTERM 1** **Neural Physiology** • membrane potentials	Lab 5: Reflexes and cranial nerve tests
6. Feb 9 - 13 **Note:** Family Day (Feb. 9) Readding break (Feb. 12-13)	**Neural Physiology (cont'd)** • synapses and neurotransmitters • neural integration • reflex pathways	**(NO LABS)**
7. Feb 16 - 20	**Muscle Physiology** • neuromuscular junction • sliding filament contraction theory	Lab 6: Sensory perception
8. Feb 23 - 27	**Muscle Physiology (cont'd)** • gross muscle physiology **Cardiovascular Physiology** • ECG (action potentials) • cardiac cycle and controls	Lab 7: Muscle Physiology

9. Mar 2 - 6	**Cardiovascular Physiology** (cont'd) • blood flow / blood pressure capillary exchange	Lab 8: Cardiovascular Physiology
10. Mar 9 – 13 **Note: Last day to withdraw.**	**Hematology** • hematopoiesis • hemostasis	Lab 9: Hematology and Immunology
11. Mar 16 - 20	**MIDTERM 2** **Immunology / Defense Systems (if time allows)** • specific vs non-specific defense	Lab 10: Respiratory Physiology
12. Mar 23 - 27	**Respiratory Physiology** • ventilation • lung volume and capacities • gas laws and diffusion blood flow/gradients (O_2/CO_2)	Lab 11: Urinalysis
13. Mar.30- Apr.3 April 3	**Renal Physiology** • renal anatomy review • filtration/reabsorption /secretion • fluid/electrolyte balance • acid/base balance **Good friday**	**NO LAB**
14. Apr 6- 10	**April 6 easter Monday** **Renal Physiology** (cont'd) **Reproductive Physiology** • hormonal regulation of reproduction (if time allows)	**LAB EXAM**
Apr 13 - 21	**FINAL EXAM (scheduled by registrar)**	

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BIOL 144 X01B: Physiology for Sport Education

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CAMOSUN COLLEGE
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BIOL 144 X02A: Physiology for Sport Education

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