CAMOSUN COLLEGE
School of Arts & Science
Biology Department

BIOL 144: Physiology for Sport Education
Winter 2010

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: Peggy Hunter
Office hrs: TBA
Location: CC118A
Phone: 370-3427
E-mail: hunterp@camosun.bc.ca
Web site: http://hunterp.disted.camosun.bc.ca

2. Required Materials

Text: *Vander's Human Physiology (11th edition),* Widmaier, Raff and Strang. (2008)

Lab Manual: *Biology 144: Physiology Labs for Sport Education,*
(labs are printed from the course website)

Course Notes: *these are also printed from the web site and are filled in during lecture*

3. Course Particulars

Class hours: 3 hrs lecture / week
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 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	20%
Journal articles	10%
Lab exam	10%
final exam	30%
	100%

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%
A- = 80 - 84%	C+ = 65 - 69%	
B+ = 77 - 79%	C = 60 - 64%	

7. Learning support and services for students

Learning Skills offers assistance to learners in a variety of ways.

http://www.camosun.bc.ca/learning-skills/

8. Student Responsibilities

1. *Students are expected to hand in any required assignments on time. Assignments are due at the **beginning** of the class period on the due date. Assignments not handed in at the beginning of class will be considered late, for which there is a 10% penalty/day.*

2. *Attendance correlates highly with academic success. If unable to attend a lecture or lab session, the student is responsible for arranging with a classmate to obtain information such as notes, handouts and announcements.*

3. *Examinations must be written as scheduled except in the case of illness or emergency. The student must notify the instructor **in advance** of the examination. Documentation acceptable to your instructor is required to schedule a make-up exam. **Vacation, work or travel plans do not constitute an emergency and exams will not be rescheduled***

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*

6. *Students are expected to work independently on assignments unless the evaluation is based on group effort. Please see ACADEMIC MISCONDUCT.*

There is an **Academic Conduct Policy.** It is the student's responsibility to become familiar with the content of this policy. The policy is available in each School Administration Office, Registration, and on the College web site in the Policy Section, and in the **Camosun calendar**

7. Concerning spelling

Mastering the usage of anatomical and physiological terminology will be important to you for several reasons. Correct usage (pronunciation and spelling) will

- foster self confidence
- help to earn the respect of your professional colleagues
- reduce the chances of practical mistakes which may cause harm or embarrassment. (consider the difference between the terms **peroneal** and **perineal** or **ileum** and **ilium**)

You will be expected to use acceptable pronunciation and correct spelling for presentations, assignments and exams. **Penalties for spelling errors will be applied**. If writing is illegible, no marks will be given.

COURSE SCHEDULE - WINTER 2010

The following schedule is a tentative outline of lectures and laboratories. It is subject to change as the need arises. Changes will be announced in class.

WEEK/DATE	LECTURE TOPIC	TEXT CHAPTER	LAB
1. Jan 6-8	**Intro to Cellular physiology** • homeostasis • organic macromolecules	Ch 1 Ch 2	**NO LAB**
2. Jan 11-15	**Intro to Cellular physiology (cont'd)** • cell membrane structure • transport mechanisms • enzymes	Ch 3 Ch 4	Lab 1: Intro to Laboratory Science
3. Jan 18-22	**Digestive Physiology** • chemical digestion - enzymes • absorption - chemicals, routes, locations • neural and hormonal controls • gastrointestinal function during exercise	Ch 15	Lab 2: Intro to Chemical Concepts
4. Jan 25-29	**Metabolism** • carbohydrate metabolism • lipid and protein metabolism • interconversion of molecules • energy transfer in exercise • absorptive and postabsorptive states, hormonal control	Ch 3 Ch 15 Ch 16	Lab 3: Digestion of Organic Molecules
5. Feb1-5	**MIDTERM 1** **Neural Physiology** • membrane potentials	(Ch 5 overview of cell signaling) Ch 6	Lab 4: Cellular Respiration and Glucose Monitoring
6. Feb 8-12	**Neural Physiology (cont'd)** • synapses and neurotransmitters • neural integration • reflex pathways	Ch 6	Lab 5: Reflexes and cranial nerve tests
7. Feb 15-17 Feb 18-19	**Muscle Physiology** • neuromuscular junction • sliding filament contraction theory **READING BREAK**	Ch 9 Ch 10	**(NO LABS)**
8. Feb 22–25	**Muscle Physiology (cont'd)** • gross muscle physiology **Cardiovascular Physiology** • ECG (action potentials) • cardiac cycle and controls	Ch 12	Lab 6: Sensory perception (Ch 7 overview)

9. Mar 1-5	**Cardiovascular Physiology** (cont'd) • blood flow / blood pressure capillary exchange	Ch 12	Lab 7: Muscle Physiology
10. Mar 8-12	**Hematology** • hematopoiesis • hemostasis	Ch 12	Lab 8: Cardiovascular Physiology
11. Mar 15-19	**MIDTERM 2** **Immunology / Defense Systems (if time allows)** • specific vs non-specific defense	Ch 18	Lab 9: Hematology and Immunology
12. Mar 22– 26	**Respiratory Physiology** • ventilation • lung volume and capacities • gas laws and diffusion blood flow/gradients (O_2/CO_2)	Ch 13	Lab 10: Respiratory Physiology
13. Mar 29 -Apr 1 April 2	**Renal Physiology** • renal anatomy review • filtration/reabsorption /secretion • fluid/electrolyte balance • acid/base balance **GOOD FRIDAY**	Ch 14	Lab 11: Urinalysis
14. April 5 Apr 6-9	**EASTER MONDAY** **Renal Physiology** (cont'd) **Reproductive Physiology** • hormonal regulation of reproduction (if time allows)	**Ch 17**	**LAB EXAM (Note: Monday lab students will need to write this exam in one of the other lab sections)**
Apr 12–20	**FINAL EXAM (scheduled by registrar)**		