



School of Arts & Science  
BIOLOGY DEPARTMENT  
BIOL 144  
Physiology for Sport Education  
Winter 2012

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## CALENDAR DESCRIPTION

*This course provides an overview of functional relationships in the human body. Physiological processes in major organ systems are studied at the chemical, cellular and organ level. Laboratory skills focus on data collection, presentation, and analysis using scientific method. Physiological homeostasis in the context of exercise and health is emphasized.*

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.

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## PREREQUISITE

Biology 143

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### 1. Instructor Information

Instructor: Jennifer Giuliani

Office Hours:

M 10:00-10:20am CBA 101 (open tutorial – after lecture)

W 10:00-10:30am CC118A (in my office – after lecture)

\*\* other times by appointment (Monday, Tuesday, Wednesday)

Office Location: CC118A

Phone: 250-370-4463

E-mail: [giulianij@camosun.bc.ca](mailto:giulianij@camosun.bc.ca)

Web site: D2L (login at <http://online.camosun.ca/> )

### 2. Required Materials

Text: *Visual Anatomy & Physiology, Martini, Ober, and Nath*

(Note – you should already have a copy of this text from Biol 143 last semester!)

Lab Manual: *Biology 144: Human Physiology for Sport Education Lab Manual,*

Lab Coat

### 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 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 (described in class)	20%
Term Assignment	10%
Lab exam	10%
Final exam	30%

Note: Details of assignments will be announced in class.

## 6. Grading System

The following percentage conversion to letter grade will be used:

### Standard Grading System (GPA)

Percentage	Grade	Description	Grade Point Equivalency
90-100	A+		9
85-89	A		8
80-84	A-		7
77-79	B+		6
73-76	B		5
70-72	B-		4
65-69	C+		3
60-64	C		2
50-59	D	Minimum level of achievement for which credit is granted; a course with a "D" grade cannot be used as a prerequisite.	1
0-49	F	Minimum level has not been achieved.	0

## 7. Learning support and services for students

There are a variety of services available for students to assist them throughout their learning. This information is available in the College calendar, at Student Services, or the College web site at [camosun.ca/services/](http://camosun.ca/services/)

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 a Student Conduct Policy which includes plagiarism. It is the student's responsibility to become familiar with the content of this policy. The policy is available in each School Administration Office, at Student Services, and the College web site in the Policy Section.

## 9. 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 2012**

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.

<b>WEEK/DATE</b>	<b>LECTURE TOPIC</b>	<b>TEXT CHAPTER</b>	<b>LAB</b>
1. Jan 9-13	<b>Intro to Cellular physiology</b> <ul style="list-style-type: none"> <li>• homeostasis</li> <li>• organic macromolecules</li> </ul>	Ch 1 Ch 2	Lab 1: Intro to Laboratory Science
2. Jan 16-20	<b>Intro to Cellular physiology (cont'd)</b> <ul style="list-style-type: none"> <li>• cell membrane structure</li> <li>• transport mechanisms</li> <li>• enzymes</li> </ul>	Ch 3 Ch 2 (again)	Lab 2: Intro to Chemical Concepts
3. Jan 23-27	<b>Digestive Physiology</b> <ul style="list-style-type: none"> <li>• chemical digestion - enzymes</li> <li>• absorption - chemicals, routes, locations</li> <li>• neural and hormonal controls</li> <li>• gastrointestinal function during exercise</li> </ul>	Ch 21	Lab 3: Digestion of Organic Molecules
4. Jan 30-Feb 3	<b>Metabolism</b> <ul style="list-style-type: none"> <li>• carbohydrate metabolism</li> <li>• lipid and protein metabolism</li> <li>• interconversion of molecules</li> <li>• energy transfer in exercise</li> <li>• absorptive and postabsorptive states, hormonal control</li> </ul>	Ch 2 & 3 (review) Ch 22	Lab 4: Cellular Respiration and Glucose Monitoring
5. Feb 6-10	<b>MIDTERM 1</b>  <b>Neural Physiology</b> <ul style="list-style-type: none"> <li>• membrane potentials</li> </ul>	Ch 11	Lab 5: Cranial Nerve and Reflex Testing
6. Feb 13-17  Feb 16 & 17	<b>Neural Physiology (cont'd)</b> <ul style="list-style-type: none"> <li>• synapses and neurotransmitters</li> <li>• neural integration</li> <li>• reflex pathways</li> </ul> <b>READING BREAK</b> (Thursday & Friday)	Ch 11 (cont'd) Ch 12 Ch 13	<b>(NO LABS)</b>
7. Feb 20-24	<b>Muscle Physiology</b> <ul style="list-style-type: none"> <li>• neuromuscular junction</li> <li>• sliding filament contraction theory</li> </ul>	Ch 9 Ch 10	Lab 6: Sensory perception (Ch 15 overview)
8. Feb 27-Mar 2	<b>Muscle Physiology (cont'd)</b> <ul style="list-style-type: none"> <li>• gross muscle physiology</li> </ul> <b>Cardiovascular Physiology</b> <ul style="list-style-type: none"> <li>• ECG (action potentials)</li> <li>• cardiac cycle and controls</li> </ul>	Ch 18	Lab 7: Muscle Physiology and Joint ROM

COURSE OUTLINE

9. Mar 5-9	<b>Cardiovascular Physiology</b> (cont'd) <ul style="list-style-type: none"> <li>• blood flow / blood pressure</li> <li>capillary exchange</li> </ul>	Ch 17	Lab 8: Cardiovascular Physiology
10. Mar 12-16	<b>Hematology</b> <ul style="list-style-type: none"> <li>• hematopoiesis</li> <li>• hemostasis</li> </ul>	Ch 17	Lab 9: Hematology and Immunology
11. Mar 19-23	<b>MIDTERM 2</b>  <b>Immunology / Defense Systems</b> <b>(if time allows)</b> <ul style="list-style-type: none"> <li>• specific vs non-specific defense</li> </ul>	Ch 19	Lab 10: Respiratory Physiology
12. Mar 26-30	<b>Respiratory Physiology</b> <ul style="list-style-type: none"> <li>• ventilation</li> <li>• lung volume and capacities</li> <li>• gas laws and diffusion</li> <li>blood flow/gradients (O<sub>2</sub>/CO<sub>2</sub>)</li> </ul>	Ch 20	Lab 11: Urinalysis
13. Apr 2-5  April 6	<b>Renal Physiology</b> <ul style="list-style-type: none"> <li>• renal anatomy review</li> <li>• filtration/reabsorption /secretion</li> <li>• fluid/electrolyte balance</li> <li>• acid/base balance</li> </ul> <b>GOOD FRIDAY (college closed)</b>	Ch 23 Ch 24	<b>LAB EXAM</b>
14. April 9  Apr 10-13	<b>EASTER MONDAY (college closed)</b>  <b>Renal Physiology</b> (cont'd)  <b>Reproductive Physiology</b> <ul style="list-style-type: none"> <li>• hormonal regulation of reproduction (if time allows)</li> </ul>	Ch 25 (Ch 26, if time allows)	<b>NO LABS</b> **instructor will announce lab-time activities for this week
Apr 16-24	<b>FINAL EXAM (scheduled by registrar)</b>		