

CAMOSUN COLLEGE
School of Arts & Science
Department of Biology

BIOL 151: Human Physiology
Winter 2005

COURSE OUTLINE

CALENDAR DESCRIPTION

This course is the companion to Biology 150. Biology 151 provides an overview of functional relationships within the human body. Physiological processes are studied at both the cellular and organ system level, with an emphasis on the maintenance of homeostasis. Laboratory exercises illustrate basic physiological principles. Prerequisites: Biology 150, Chemistry 11

PREREQUISITES

Biology 150, Chemistry 11 (or equivalent), English 12 or assessment.

1. Instructor Information

Instructor: William C. Hulbert, Ph.D.
Office hours: to be announced
Location: Y200
Phone: 370-3327
E-mail: hulbertw@camosun.bc.ca

2. Intended Learning Outcomes

- 1. Describe the concept of homeostasis and explain how it operates in the major physiological systems of the human body.*
- 2. Demonstrate an understanding of the functioning of the major physiological systems of the human body at the cellular and systemic levels.*
- 3. Explain how the major physiological systems of the body interact to bring about biological behaviours.*
- 4. Understand how physiological processes are altered in injury or disease.*
- 5. Correctly apply anatomical vocabulary in a physiological context.*
- 6. Perform laboratory procedures relevant to physiology (observe physiological phenomena, measure physiological data, organize / record / analyze results of physiological experiments).*
- 7. Utilize critical thinking to apply physiological concepts to specific problem solving situations.*

3. Required Materials

Texts: Hole's Human Anatomy and Physiology (10th edition), Shier, D., Butler, J. and Lewis, R. McGraw Hill (2004).

Other: Biology 151 Lab Manual (Winter 2005)
Camosun College

4. Basis of Student Assessment (weighting)

Quizzes and/or Assignments.....	15%
Midterm I	15%
Midterm II	15%
Lab exam I	8%
Lab exam II	17%
Final Comprehensive	30%

5. Grading System

The following percentage conversion to letter grade will be used:

A+ = 95 - 100%	B = 75 - 79%	D = 50 - 59%
A = 90 - 94%	B- = 70 - 74%	F = 0.0 - 49%
A- = 85 - 89%	C+ = 65 - 69%	
B+ = 80 - 84%	C = 60 - 64%	

ADDITIONAL INFORMATION

*Be sure that you are familiar with the **General Department Policies**, which are stated in the lab manual. These policies cover absenteeism, late assignments (see below), attendance, exam scheduling, plagiarism as well as other topics and will be discussed during the first lab meeting.*

*Each student is required to sign a **Laboratory Safety Contract** and give it to the instructor prior to commencing laboratory work in the course.*

No programmable devices are allowed in exams.

ATTENDANCE

*You are expected to attend all classes. 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 15% penalty/day. Also, if you miss a class or are late, you are very likely to miss a handout, assignment or other essential information. Classes begin on time, so don't be late! It is your responsibility to obtain this material from either the instructor or other students.*

COURSE SCHEDULE - WINTER 2005

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	LABORATORY ACTIVITIES
Jan 10–14	Cellular physiology <ul style="list-style-type: none"> • homeostasis (p. 9-12) • enzymes (p. 104-107, 115) • cell membranes (p. 64-70, 80-89) transport 	LAB 1. Introduction to chemical concepts
Jan 17–21	Cellular physiology (cont'd) <ul style="list-style-type: none"> • cellular metabolism (p. 104-115) cellular respiration Metabolism (p. 694-725) <ul style="list-style-type: none"> • carbohydrate metabolism • lipid and protein metabolism • interconversion of molecules • absorptive and postabsorptive states, hormonal control 	LAB 1. Introduction to chemical concepts LAB 2. Cellular respiration
Jan 24–28	Digestive Physiology (p. 644-687) <ul style="list-style-type: none"> • chemical digestion - enzymes • absorption - chemicals, routes, locations • neural and hormonal controls 	LAB 10. Digestion of organic macromolecules
Jan 31–Feb 4	Neural Physiology and Integration (p. 348-362, 373-377) <ul style="list-style-type: none"> • reflex pathways • membrane potentials • synapse and neurotransmitters neural integration 	LAB EXAM 1
Feb 7–9 Feb 10–11	MIDTERM 1 READING BREAK	LECTURE CATCH-UP / REVIEW
Feb 14–18	Sensory Reception (p. 421-462) <ul style="list-style-type: none"> • general senses • theories of smell, taste, vision and hearing 	LAB 3. Electroencephalograms and reflexes
Feb 21–25	Muscle Physiology (p. 282-295) <ul style="list-style-type: none"> • neuromuscular junction • sliding filament contraction theory • gross muscle physiology • comparison of smooth, skeletal and cardiac physiology Endocrine Physiology (p. 469-478)	LAB 4. Sensory reception
Feb 28–Mar 4	Cardiovascular Physiology (p. 551-579) <ul style="list-style-type: none"> • ECG (action potentials) • cardiac cycle and controls • blood flow / blood pressure capillary exchange 	LAB 5. Muscle physiology
Mar 7–11	Hematology (p. 510-517) <ul style="list-style-type: none"> • erythrocyte cycle (hemoglobin degradation and regulation) • hemostasis (p. 526-537) 	LAB 6. Cardiovascular physiology
Mar 14–18	MIDTERM II Immunology (p. 616-635)	LAB 7. Hematology

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	<ul style="list-style-type: none"> • non-specific <ul style="list-style-type: none"> -mechanical, chemical, cells, complement -inflammatory response 	
Mar 21–24 Mar 25	Immunology (cont'd) (p. 616-635) <ul style="list-style-type: none"> • specific <ul style="list-style-type: none"> - lymphocyte activation and inhibition - antibody mediated immunity - cell mediated immunity - acquired immunity Easter Holiday	LAB 9. Respiratory Physiology
Mar 28 Mar 29–Apr 1	Easter Holiday Respiratory Physiology (p. 745-764) <ul style="list-style-type: none"> • ventilation • lung volume and capacities • gas laws and diffusion • blood flow / gradients (O₂ / CO₂) 	LAB 9. Respiratory Physiology
Apr 4–8	Renal Physiology (p. 782-795) <ul style="list-style-type: none"> • filtration / reabsorption /secretion • fluid/ electrolyte balance • acid / base balance (p. 808-824) 	LAB 11. Glucose monitoring and urinalysis
Apr 11–15	Reproductive Physiology (p. 833-837, 845-852, 857-860, 876-905) <ul style="list-style-type: none"> • spermatogenesis and oogenesis • regulation of reproduction • regulation of pregnancy/parturition and lactation 	LAB EXAM 2
Apr 18–26	FINAL EXAM	

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, Registrar’s Office or the College web site at <http://www.camosun.bc.ca>

ACADEMIC CONDUCT POLICY

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.
www.camosun.bc.ca/divisions/pres/policy/2-education/2-5.html