Animal Physiology I

Calendar Description: Fundamental concepts in sensory, neural and behavioural physiology. The biochemical mechanisms whereby nerve cells detect and transmit information and the processes whereby information is integrated in the nervous system and gives rise to the outputs of behavior. Three lecture hours, three laboratory hours. One term. Four credits

Prerequisites: SC/BIOL 2030 4.0; SC/BIOL 2020 4.0; SC/BIOL 2021 4.0
(N.B. students lacking the prerequisites may be de-enrolled)

Course director:

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Lectures:

Day:	Time:	Room:
Monday	1:30-2:30 PM	SLH-F
Wednesday	1:30-2:30 PM	SLH-F
Friday	1:30-2:30 PM	SLH-F

Office hours: Monday's (after lecture) 2:30-3:30 PM or by appointment only!

Laboratories: 3 hrs/week in one of the two rooms in Farquharson Building (FRQ) on one of the following days:

Section#:	Day:	Time:	Room:
1	Tuesday	2:30-5:30 PM	FRQ-206
2	Wednesday	2:30-5:30 PM	FRQ-206
3	Thursday	2:30-5:30 PM	FRQ-206
4	Monday	2:30-5:30 PM	FRQ-206
5	Tuesday	2:30-5:30 PM	FRQ-208
6	Wednesday	2:30-5:30 PM	FRQ-208
7	Thursday	2:30-5:30 PM	FRQ-208
8	Monday	2:30-5:30 PM	FRQ-208

Required Texts: 'Eckert Animal Physiology', 5th Edition (2002) by David Randall, Warren Burggren and Kathleen French.
W. H. Freeman and Company; ISBN-13: 978-0-7167-3863-3

N.B.: The above and other animal physiology texts will be placed on reserve in Steacie Library (if possible) and any other recommended readings will be specified in lecture.

Grading:

Midterm Test (Oct. 17th, 2014)	= 20%
Laboratory work:	
Laboratory reports	= 20%
Laboratory exam (Nov. 24-28th, 2014)	= 15%
Final examination (during fall exam period)	= 45%
Total	**= 100%**

Other information:

The following topics will be discussed: cell permeability and exchange; nerve cells, impulses and neural transmission; coding of environmental stimuli by sense organs and physiology of the senses; integration in the nervous system; mechanisms and nervous pathways by which a particular stimulus leads to a particular behavioural response; plasticity in the nervous system, including learning; muscles and movement; hormones and other chemical messengers. Examples will be drawn from both vertebrate and invertebrate nervous systems.

BIOL3060 TENTATIVE LECTURE SCHEDULE (Fall, 2014)

Week Number:	Dates:	Topic and/or other details:	Relevant textbook readings:
1	Sept. 8/10/12	Course outline and intro to animal physiology	1 & 2
2	Sept. 15/17/19	Membranes, channels and transport	4
3	Sept. 22/24/26	Physical basis for neuronal function	5
4	Sept. 29, Oct 1/3	Communication along and between neurons	6
5	Oct. 6/8/10	Muscles and animal locomotion	10
6	Oct. 15/17	Review on Oct. 15 and **Midterm test on Oct. 17** (in class)	-
7	Oct. 20/22/24	Sensing the environment	7
8	Oct. 27	Sensing the environment (continued)	7
9	Nov. 3/5/7	Structure and functional organization of the nervous system	8
10	Nov. 10/12/14	Animal behavior: initiation, patterns and control	11
12	Nov. 17/19/21	Glands, hormones and other chemical messengers	9
13	Nov. 24/26/28	Glands, hormones and other chemical messengers (continued)	9
14	Dec. 1/3/ 5	Back-up lecture dates and additional office hours	-

Final Examination: To be held during the fall examination period (December 9-22, 2014)

BIOL3060 LABORATORY SCHEDULE (Fall, 2014)

Lab #:	Dates:	Title:	Written report?
1	Sept. 15th-19th	Properties of Membranes	Required
2	Sept. 22nd-26th	Introduction to Powerlab and Labchart	No
3	Sept. 29th – Oct. 3rd	Compound Action Potentials	Yes
4	Oct. 6th-10th	Sensory Nerve Action Potentials	Yes
5	Oct. 14th-17th	Skeletal Muscle (T,W,R labs only; Monday students to complete lab#5 on Oct. 27th)	Yes
6	Oct. 20th-24th	Physiology of Frog Heart (Cardiac muscle)	Yes
(4)	Oct. 27th	Monday students do lab#5 (no labs for T, W, R students)	Yes
7	Nov. 3rd-7th	Vascular Smooth Muscle	Yes
8	Nov. 10th-14th	Sensory Physiology	Yes
-	Nov. 17th-21st	Returned marked lab reports and lab exam review in lab period	-
-	Nov. 24th-28th	Laboratory exam, 15% of final grade. Each section will write on its customary day of the week. Marks will be posted during the week of Dec. 8th	-

NOTE:
Reports are required for **FOUR** laboratories. You are required to write a report on Lab#1 (Properties of membranes), which will be worth 2% of your final grade. This exercise will introduce you to detailed laboratory writing and you will be given extensive feedback you're your TA that should help you with the other laboratory reports. The **THREE** remaining reports are worth **6%** each and you have the choice to write up any three of the remaining lab#3 to lab#8 (i.e. any three of the six labs marked "YES" above). TAs will set due dates and late penalties for report submissions. Reports submitted after the last day of classes (i.e. Dec. 5th) will NOT be accepted and hence will not receive a grade.

Academic honesty:
You are reminded that Senate Policy on Academic Dishonesty applies to all written work handed in. Copying or close paraphrasing from a lab partner, computer software, the internet, research articles or books are all considered plagiarism and suspected cases will be reported. All lab reports must be submitted to turnitin.com through the Moodle course webpage. Each lab will have a designated folder for report submission and review through turnitin.com. Once your report is submitted to turnitin.com, you must print off and attach the turnitin.com originality report together with your lab report. Papers that do not include the turnitin.com originality report will **not** receive a grade, but may be investigated for academic dishonesty.

YOU ARE EXPECTED TO TAKE GOOD CARE OF THE EQUIPMENT YOU USE.