



VERTEBRATE PHYSIOLOGY
Biology 410-01
FALL 2008

INSTRUCTOR: Dr. Lisa Close-Jacob
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Office Hours: TBA

We will be using the portal for communication and posting of information. You should check your portal email regularly for information about the class.

CLASS MEETING TIMES:

Class	8:30 - 9:20 M, W	Albers 103
Quiz Section	8:30 - 9:20 F	Albers 103

TEXTBOOK: Human Physiology, An Integrated Approach, Fourth Edition, Dee Unglaub Silverthorn, Pearson Education-Benjamin Cummings, San Francisco, CA, 2007. (ISBN 0-8053-6849-3)

COURSE GOALS: When you finish this course, you should be able to:

- Understand how physiological systems work individually and in concert to maintain a healthy, living organism in the face of changes in the external or internal environments of the body
- Understand the interdisciplinary nature of biology in general and physiology in particular: physiology is underpinned by the chemical properties of the ions and biomolecules in the body, and must obey the laws you learned in physics
- Be able to interpret and apply scientific information

COURSE TOPICS: This course examines *selected topics* in human physiology that demonstrate how the systems of the body must work in concert to maintain homeostasis. In order to understand how the body maintains a relatively stable internal environment, we will first examine general schemes for control systems, which provide the pattern for many of the regulatory processes we will study. From these general systems we move on to discuss the means of communication within the body: the cell-to-cell, hormonal, and electrical signaling systems that transmit information from one cell type to another. This provides the basis for our study of the nervous system, using movement of skeletal muscle as a model. We will move on to learn more about the properties of skeletal muscle that underlie our ability to move about within our environment. Finally, we will discuss the system that sustains all the other systems in the body, the cardiovascular system.

READING: The reading requirements for the course are listed on the course syllabus on the following page. You will benefit most from reading the material ahead of time, even if you end up reading some material that I don't cover in class. Reading ahead will familiarize you with the terminology and give you some idea of the processes we will be discussing.

EXAMS: There will be four exams including the final exam, which will contain a section of comprehensive questions. Each exam will be worth 100 points. In addition, there will be two quizzes, each worth 25 points. If you know you will be missing an exam/quiz (and have a *very good* excuse), you must let me know in advance (before the start of the exam) so that an alternate time for taking the exam can be arranged (with one qualification-see attendance policy). For students who miss the exam without notifying me in advance, a make-up exam will be given at the end of the semester (also see attendance policy).

QUIZ SECTION: Exams/quizzes will be administered during the Friday quiz section. I have indicated when I *think* the exams will fall-I reserve the right to adjust these dates as necessary. Additionally, I will be offering periodic review sessions (as announced in the syllabus or in class) during these times. Attendance at these sessions is **strictly optional** but recommended.

ATTENDANCE POLICY: Of course you know by now the value of attending class. Those students who demonstrate regular attendance (no more than one unexcused absence) will receive special consideration such as rescheduling an exam in case of a conflict, taking makeup exams or rounding up to the nearest whole point when grades are calculated.

EVALUATION: Your final grade will be based upon the points you earn during the semester in completing the following requirements:

Exams	400 points possible
Quizzes	50 points possible
Assigned problems/work	50 points possible
Total points for the semester	500 points

POLICY ON ACADEMIC HONESTY: This class operates on a strict honor code. Plagiarism and cheating (including the sharing of information on quizzes or tests) are considered to be violations of this code. The University policy on academic honesty can be found on page 54 of the 2006-2008 University Catalog. Disciplinary action may range from earning a zero for that work to expulsion from the University. All infractions will be reported to the Chair of the Biology Department and the Dean of the College of Arts and Sciences.

GRADING: The grading scale for the course is as follows:

A: 460-500 pts	B+: 435-450 pts	C+: 385-399 pts	D+: 335-349 pts	F: 299 or fewer pts
A-: 450-460 pts	B: 415-434 pts	C: 365-384 pts	D: 315-334 pts	
	B-: 400-414 pts	C-: 350-364 pts	D-: 300-314 pts	

FINAL EXAM INFORMATION: Date: Wednesday, December 17, 2008 from 8:30 a.m. until 10:20 a.m. Your final exam will cover both new material and have a comprehensive section covering and integrating material covered on previous exams.

ADDITIONAL PIECES OF INFORMATION TO HELP YOU WITH LEARNING

Human-based:

- Study Group at the LAC: We usually have one for Vertebrate Physiology; I will provide details of when and where when they become available.
- Tutors at the LAC are available.
- Pre-Exam review sessions will be held, usually Wednesday evenings before an exam.

Technology-based:

- Interactive Physiology CD-ROM: free with your textbook-tutorial program
- Web Sites: I have listed web sites that may be useful/of interest to you over the course of the semester. If you find others, please let me know and I'll add them to the list.

http://www.physiologyplace.com	web site offering some different ways to learn: case studies, quizzes, glossary terms, and more
http://www.nlm.nih.gov	web site of the National Library of Medicine; from this site you may access other interesting sites and/or useful sites such as: - MEDLINE : the major database used for tracking medical research. You can search it from the web using either of two systems: Internet Grateful Med or PubMed or access full capability from our library site - The Visible Human project : human serial dissection
http://www.scholar.google.com	search engine that is useful for finding scientific research articles; check www.google.com for useful images
Almost any medical school site will have useful information	

TENTATIVE SCHEDULE: This schedule is a *proposed* schedule, so topics and timing may vary with extenuating circumstances.

<u>Day</u>	<u>Date</u>	<u>Topic</u>	<u>Chapter</u>	<u>Pages</u>
W	8/27	Introduction to class; homeostasis and control pathways	1	1-9
			6	191-205
F	8/29	Homeostasis and control pathways (continued)	6	191-205
M	9/1	Labor Day Holiday		
W	9/3	Membrane potentials	5	160-167
F	9/5	Fluid and electrolyte balance	3	51-52,
			20	642-648, 652-658, 659-663
M	9/8	General cell to cell communication and signal transduction	6	175-191
W	9/10	Nervous system cells and signals (graded and action potentials)	8	246-270
F	9/12	Quiz 1		
M	9/15	Nervous system cells and signals (graded and action potentials)	8	246-270
W	9/17	Neuronal cell to cell communication: Synaptic transmission	8	270-283
M	9/22	Nervous system: Information processing-afferent and central activity	8	245-246
			9	292-312
			10	328-330, 337-338
W	9/24	Nervous system: Information processing-afferent and central activity	8	245-246
			9	292-312
			10	328-330, 337-338
M	9/29	Nervous system: Information processing-central and somatic activity	11	389-391
			13	445-452
W	10/1	Nervous system: Autonomic function	11	377-389
F	10/3	Exam I		
M	10/6	Skeletal muscle cells: Structure and the molecular basis of contraction	12	397-409
W	10/8	NO CLASS		
M	10/13	Skeletal muscle cells: Structure and the molecular basis of contraction	12	397-409
W	10/15	Skeletal muscle mechanics	12	410-417
M	10/20	NO CLASS		
W	10/22	Smooth and cardiac muscle	12	421-430
			14	470-476
F	10/24	Exam II		
M	10/27	Electrical activity of the heart	14	477-4794
W	10/29	Cardiovascular physics	14	457-464
M	11/3	The heart as a pump: Cardiac cycle	14	457-460
				482-489
W	11/5	The heart as a pump: Cardiac cycle	14	457-460
				482-489
F	11/7	Quiz II		
M	11/10	Cardiac output and its regulation	14	489-494
W	11/12	Cardiac output and its regulation	14	489-494
M	11/17	Blood vessels/Distribution of blood flow	15	501-504
				509-513
W	11/19	Blood vessels/Distribution of blood flow	15	501-504
				509-513
F	11/21	Exam III		
M	11/24	Blood pressure regulation	15	504-509
				521-525
W	11/26	Thanksgiving Holiday begins		
M	12/1	Capillary function: fluid distribution	15	514-519
W	12/3	TBA		
M	12/8	TBA		
W	12/10	TBA		
W	12/17	FINAL EXAM 8:30 10:20 am		