Moravian College

Department of Biological Sciences

Human Physiology - BIO 350

Spring 2016

Instructor:	Dr. Cecilia M. Fox
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Office:	Collier Science - Room 316
Office Hours:	W, Th 12:30-2:30pm, W 12:30am-2:30pm and by appointment
Lecture:	Monday, Wednesday and Friday 10:20-11:10am Room CHoS 200
Lab:	Thursday 8:30am-11:30am Collier Room 300
Prerequisites:	BIO 112, CHEM 113, 114
Textbook:	Human Physiology, 13th Edition by Widmaier, Raff and Strang McGraw Hill Publishing
Lab Manual:	PhysioEx. 9.0– Laboratory Simulations in Physiology By Stabler, Zao and Gibson Benjamin Cummings All BIOPAC Lab Handouts will be distributed in the laboratory

Course Description: Biology 350 examines the functions of the vertebrate organ systems, with special emphasis on the human body. Topics include the nervous, sensory, muscular, endocrine, circulatory, respiratory, digestive, urinary and reproductive systems. Laboratory work emphasizes experimental techniques and computer assisted analysis of human and animal physiology.

Course Objectives: Upon completion of this course, the student will be able to:

a) understand the basic anatomy of the nervous, muscular, endocrine, circulatory, respiratory, digestive, urinary and reproductive systems of the human body
b) comprehend the relationships between structure and function in the various systems
c) recognize the importance of control mechanisms that regulate homeostatic processes in animal and human physiology
d) understand the physiological mechanisms behind the body's response to normal and stressed situations
e) investigate the mechanisms described in the various systems using hands-on experimentation, computer simulations and computer-assisted physiology data acquisition

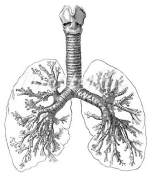
Grading: The grading system is as follows: *(+/- will be administered as the professor deems appropriate)*

A = 90 - 100
B = 80 - 89
C = 70 - 79
D = 60 – 69

Your final grade will be based on the following criteria:

Three lecture exams:	100 points each =	300 points
Three laboratory reports:	100 points each =	300 points
Physiology lab design and presentation:		150 points
Physiology *"In the News"* presentation:		50 points
Cumulative final lecture exam:		200 points
		1000 points

** Both lecture material and textbook readings are fair game for lecture exams.
** Physiology lab design will be discussed as the course progresses.
** Please note: it is within the instructor's purview to apply qualitative judgment in determining grades for an assignment or the entire course



Expectations:

a) Attendance: Regular lecture and lab attendance is expected. **Please be on time. No** make-up exams will be given unless you have an acceptable and documented reason (family emergency, illness, etc). If an emergency should arise, you must notify me prior to the exam and **not** after. If you plan to miss lab please notify me in advance.

b) Cheating: will not be tolerated. Students will be held to the highest standards as specified by the Moravian College Honor Code. Violations of this code will be handled in the most severe manner allowed by college policy.

c) Reading Assignments: should be completed prior to lecture as well as lab.

d) Laboratory Assignments: must be typed and written **independently**. You may record data in the charts provided in the lab exercise handouts, but the final lab report must be typed and submitted no later than **two weeks** after the laboratory exercise has been completed **(lab reports will not be accepted if handed in after this two week time period has lapsed)**. The last lab report that may be submitted for a grade will be of the Urinalysis Laboratory. You are expected to answer all questions and complete all data charts unless instructed otherwise. Please proofread your work prior to submission. If you and your lab partner submit lab reports that are too close to have been accomplished independently, the lab reports will be handed back to you for rewriting. If this occurs a second time (whether with the same report or a subsequent report), you and your lab partner will have earned a 0 for the assignment.

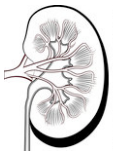
e) Lab Preparation: You are expected to come to lab prepared for that day's exercise. For each lab session be sure to bring your textbook and PhysioEx manual. BIOPAC materials will be distributed in lab.

f) Cell Phones and Pagers: Please turn them off (or at the very least, set on vibrate) before walking into the lecture hall and laboratory. **Please refrain from texting in lecture or lab.**

g) Accommodations: Students who wish to request accommodations in this class for a disability should contact the Academic Support Center, located in the lower level of Monocacy Hall, or by calling 610-861-1401. Accommodations cannot be provided until authorization is received from the Academic Support Center.

h) Extra Help: If difficulties interpreting lecture or lab material arise, please contact me. I will be more than happy to help!!

** As the professor of this course, I reserve the right to alter this syllabus at any time during the semester**



Lecture Schedule

Week of:	Topic	Reading Assignment
January 18	Homeostasis – A Framework for Human Physiology	Chapter 1
January 25	Neuronal Signaling and Structure of The Nervous System	Chapter 6
February 1	Sensory Physiology Consciousness, The Brain And Behavior	Chapter 7 Chapter 8
February 8	Muscle Physiology	Chapter 9
February 15	Muscle Physiology (con't) Control of Body Movement	Chapter 10
February 17	**Exam 1** **(Homestasis-Neuro)**	
February 22	Endocrine System: Hormonal Control	Chapter 11
February 26	**Midterm of the Semester**	
February 29	Cardiovascular Physiology	Chapter 12
March 5-13	**Spring Break**	
March 14	Cardiovascular Physiology (con't)	Chapter 12
March 21	**Exam 2** **(Muscle-Cardiovascular)**	

March 21,28	Respiratory Physiology	Chapter 13
March 24-27	**Easter Recess**	
April 1	**Last Day for Withdrawal with "W"**	
April 4, 11	Renal Physiology	Chapter 14
April 18	**Exam 3** **(Respiratory-Renal)**	
April 18	Male Reproductive Physiology	Chapter 17
April 25	Female Reproductive Physiology	Chapter 17
May 4 **(11:30am)**	**Final Exam**	

Laboratory Schedule

Please dress comfortably for lab. There are times when you will be exercising and doing other forms of movement for physiological readings.

Date:	**Topic**	**Laboratory Exercise**
January 21*****	Homeostasis	Exercises provided in lab
January 28	Neurophysiology of Nerve Impulses Reflexes and Senses	PhysioEx 9.0 Exercises provided in lab
February 4	Neuroanatomy and EEG (brain dissection)	Dissection materials provided in lab BIOPAC – EEG 1
February 11	Histology of Muscle Types Muscle Physiology	Exercise provided in lab BIOPAC – EMG 1
February 18	Muscle Physiology (con't)	PhysioEx 9.0 BIOPAC – EMG 2
February 25*****	Histology of Endocrine Tissue Hormonal Control Rat Endocrine Exercise	Exercise provided in lab PhysioEx 9.0 Exercise provided in lab
March 3	Cardiovascular Physiology (sheep heart dissection)	Dissection materials provided in lab

	Cardiovascular Physiology	BIOPAC – Blood Pressure BIOPAC – ECG and Pulse
	Blood Pressure and Heart Rate Exercise	
March 10	**No Lab - Spring Break**	
March 17	**No Lab - Conference**	
March 24	Blood Typing and Comparison Blood Clotting Introduction to Respiratory Volumes and Capacities	Exercises provided in lab
March 31	Respiratory Physiology Respiratory System Mechanics	BIOPAC - Respiratory Cycle BIOPAC - Pulmonary Fn. 1 PhysioEx 9.0
April 7	Urinalysis Renal Physiology – Function of the Nephron	Exercise provided in lab PhysioEx 9.0
April 14*****	Presentations of Physiology Lab Design	
April 21*****	Presentations of Physiology Lab Design	
April 28*****	Investigating Digestive Processes Chemical and Physical Processes of Digestion Immunity Exercise	Exercise provided in lab PhysioEx. 9.0 Exercise provided in lab

*** Not eligible for lab report assignment.**

** The lecture and laboratory schedules may be subject to change as the course progresses**

Technology and the Downside of Multitasking

Recently, the abundance of cell phones, iPads, laptops and other devices has produced something known as the "problem of divided attention". Articles in the New York Times, Harvard Mental Health Letter and Scientific American Mind all summarize several studies of productivity in business and medical settings. Researchers found that after responding to email or text messages, it took people more than 15 minutes to re- focus on the "serious mental tasks" they had been performing before the interruption and in some cases, this initial mental task was completely forgotten. Other research has shown that when people attempt to perform two tasks at once (e.g., following what's happening in class while checking text messages), the brain simply cannot perform these tasks equally. The brain must abandon one of the tasks to effectively accomplish the other. So, multi-tasking is not an efficient or productive way to learn or retain information.

Overall, the human brain works best when focusing on a single thread of related thoughts. By being fully engaged with the pursuit, you may experience a number of positive effects, such as more pleasure, faster learning or greater productivity. Perhaps even all three!

For this reason alone you should avoid the problem of divided attention when you are in this class. However, there is another, equally important reason to only use technology in an appropriate manner during our academic time together. As technology-users, we often lose our senses when it comes to customs of polite behavior, and the result is that perfectly charming people may become incredibly rude. So, for both these reasons, please turn off your cellphones or set them on silent/vibrate mode when you come to class. It is disrespectful for our activities to be interrupted by a ringing cellphone. Similarly, text messaging will not be tolerated in class. Any student found to be sending or checking text messages during class will be invited to make a choice either to cease the texting or leave the classroom.

Of course, you are welcome to bring your laptop and iPad to class and use them to take notes, access readings and slideshows, etc. You are not welcome to do social networking, check email, or otherwise perform non-class-related activities during our academic time together.

So, this is my best advice: If you are not using it to perform a task specifically related to what we are doing in class at that very moment, please put it away.

Thanks to Dr. C.A Finnegan, University of Illinois at Urbana-Champaign and Dr. M.C. Miller, Harvard Medical School