

Moravian College
Biology Department
Vertebrate Physiology - BIO 350
Spring 2005

Instructor: Dr. Cecilia M. Fox
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Office: Collier Science - Room 304
Office Hours: Tuesdays 10-11am, Wednesdays 1-3pm, Thursdays 10am-1pm and by appointment
Lecture: Monday, Wednesday and Friday 10:20-11:10am
Room PPHAC 235
Lab: Tuesday 12:45-3:45pm
Collier Room 301
Prerequisites: BIO 113, CHEM 113, 114
Textbook: Human Physiology, 9th Edition
by Widmaier, Raff and Strang
McGraw Hill Publishing
Lab Manual: PhysioEx 5.0 – Laboratory Simulations in Physiology
By Stabler, Zao and Gibson
Benjamin Cummings

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
Five laboratory reports:	30 points each =	150 points
Two case studies:	50 points each =	100 points
Physiology lab design:		100 points
Final lecture exam:		<u>100 points</u>
		750 points

** Both lecture material and textbook readings are fair game for lecture exams.

** Case study assignments and physiology lab design will be discussed as the course progresses.

** The “class participation / preparation grade” is based on your participation in lecture as well as your preparation for lab.

** **Please note:** it is within the instructor’s purview to apply qualitative judgment in determining grades for an assignment or the entire course

Expectations:

- 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.
- 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.
- Reading Assignments:** should be completed prior to lecture as well as lab.
- 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.
- 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 5.0 manual. BIOPAC materials will be distributed in lab.
- Cell Phones and Pagers:** Please turn them off before walking into the lecture hall and laboratory.
- Extra Help:** If difficulties interpreting lecture or lab material arise, please contact me for extra tutoring sessions. 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

<u>Week of:</u>	<u>Topic</u>	<u>Reading Assignment</u>
January 10	Homeostasis – A Framework for Human Physiology	Chapter 1
January 17 <i>(Class resumes Jan.19)</i>	No class (Martin Luther King, Jr. Holiday)	
January 17	Neuronal Signaling and Structure of The Nervous System	Chapter 6
January 24	Sensory Physiology	Chapter 7
January 31	Consciousness, The Brain And Behavior	Chapter 8
February 7	Muscle Physiology	Chapter 9
February 9	Exam 1	
February 14	Muscle Physiology (con't) Control of Body Movement	Chapter 10
February 21	Endocrine System: Hormonal Control	Chapter 11
February 28, March 14	Cardiovascular Physiology	Chapter 12
March 7-11	Spring Break	
March 18	Exam 2	
March 21	Respiratory Physiology	Chapter 13
March 25-28	Easter Holiday	
March 28, April 4	Gastrointestinal Physiology	Chapter 15
April 1	No Class (NEAAHP Conference)	
April 4	Regulation of Metabolism and Energy Balance	Chapter 16
April 8	Exam 3	
April 11, 18	Renal Physiology	Chapter 14

April 18	Male Reproductive Physiology	Chapter 17
April 25	Female Reproductive Physiology	Chapter 17
May 2-7	Final Exam	

Laboratory Schedule

<u>Date:</u>	<u>Topic</u>	<u>Laboratory Exercise</u>
January 11*	Homeostasis Cell Transport Mechanism and Permeability	Exercise provided in lab PhysioEx 5.0 – Exercise 1
January 18*	Histology of Nervous Tissue Neurophysiology of Nerve Impulses	Exercise provided in lab PhysioEx 5.0 – Exercise 3
January 25	Reflexes and Senses	Exercises provided in lab
February 1	Neuroanatomy and EEG (cow brain dissection)	Dissection materials provided in lab BIOPAC – EEG 1
February 8	Histology of Muscle Types Muscle Physiology	Exercise provided in lab BIOPAC – EMG 1
February 15	Muscle Physiology (con't)	PhysioEx 5.0 – Exercise 2 BIOPAC – EMG 2
February 22*	Histology of Endocrine Tissue Hormonal Control Clinical Diagnosis of Diabetes	Exercise provided in lab PhysioEx 5.0 – Exercise 4 Exercise provided in lab
March 1	Cardiovascular Physiology (sheep heart dissection) Frog Cardiovascular Physiology	Dissection materials provided in lab PhysioEx 5.0- Exercise 6
March 8	Spring Break	
March 15	Cardiovascular Physiology Blood Typing and Comparison	BIOPAC – Blood Pressure BIOPAC – ECG and Pulse Exercise provided in lab
March 22	Respiratory Physiology Respiratory System Mechanics	BIOPAC - Respiratory Cycle BIOPAC - Pulmonary Fn. 1 PhysioEx 5.0 – Exercise 7

March 29	Investigating Digestive Processes Chemical and Physical Processes Of Digestion	Exercise provided in lab PhysioEx. 5.0 – Exercise 8
April 5	Urinalysis Renal Physiology – Function of the Nephron	Exercise provided in lab PhysioEx 5.0 – Exercise 9
April 12*	Presentations of Physiology Lab Design	
April 19*	Male and Female Reproductive Physiology Immunity and Reproduction	Exercises provided in lab
April 26*	Review for final exam	

*** Not appropriate for lab report assignment.**

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