

Biology 251 Syllabus Fall 2009

Instructor: Dr. Patrick A. Carter
Office: Heald 217
Office Hours: Tues & Thur 1:15 to 2:00; Wed 3:10 to 4:00; or by appointment
Textbook: Stanfield & Germann. 2009. *Principles of Human Physiology*, 3rd Custom Edition for WSU. PhysioEx laboratory book and cd, and Interactive Physiology cd, bundled with the textbook. Available at the Bookie or Crimson and Gray.
Laboratory Manual: *Zoo 251 Lab Manual*. Available at the Bookie or Crimson and Gray.
Course Web Page: <http://www.wsu.edu/~biol251/>
Instructor email: pacarter@wsu.edu

Goals of Course: Most students in Biology 251 are pursuing careers in Health or Exercise Sciences. For many of you, Biology 251 will be your primary exposure to human physiology while an undergraduate. You need to learn how the healthy human body functions before you can learn in future classes how exercise, disease and injury alter function. My objective in teaching this course is to ensure that you learn human physiology well enough to be successful in future classes, professional exams, and careers. Your task is to read the assigned pages in the textbook, attend lectures and laboratories and study and **THINK** about the material. By doing this, you will be able to perform well on lecture exams and laboratory quizzes, you will learn the material well enough to be able to use it in your future classes and career, and you will make this course a satisfying intellectual experience.

Class Notes: My lecture notes for each class meeting will be available on the course web page (<http://www.wsu.edu/~biol251/>) by 5 PM the day before the lecture. **Bring these notes to class.**

Exams and Grades: Your final grade will be determined from exam scores and from the laboratory score; you will be assigned a final letter grade based on your total course points. The **total number of points available is 500**: 300 of these come from semester exams, 100 come from the cumulative final, and 100 come from the lab. **No extra credit points are offered.**

All grading scales are “curved”. Traditionally, the mean score plus or minus one standard deviation is given a grade of C, scores between plus 1 and plus 2 standard deviations are given a B, scores greater than plus 2 standard deviations are given an A, scores between minus 1 and minus 2 standard deviations are given a D and scores less than minus 2 standard deviations are given an F.

I use a slight variant of this system that offers a big incentive to students to do well and that is easy to understand. **I only curve “up”, and when I do, I adjust the mean to a 70%** to facilitate translation of the curved scale to the letter scale with which most students are familiar. So, for example, if the mean score is 65%, all students have 5% added to their scores to bring the mean up to a 70%. However, I never curve “down”; if the mean is an 80%, I leave it at 80%; I do NOT take 10% away from each student’s score. This means that all students in the class could earn A’s and B’s. In addition, score standard deviations in the class tend to be large, so the “C range” is larger than in a traditional system.

Once the curve has been adjusted (if needed), letter grades are assigned as follows:

A = 92.50% and up
A⁻ = 90.0% to 92.49%
B⁺ = 87.50% to 89.99%
B = 82.50% to 87.49%
B⁻ = 80.0% to 82.49%
C⁺ = 75.0% to 79.99%
C = 65.0% to 74.99%
C⁻ = 60.0% to 64.99%
D = 50.0% to 59.99%
F = 49.99% or less

You will have **four 75 minute in-class semester multiple-choice exams that will be worth a grand total of 300 points.** Each of these exams will cover between 5 and 7 topics worth of material and will be scored according to the amount of material. Exam 1 will cover 5 topics, will have 33 multiple choice questions and be worth 66 points. Exam 2 will cover 5 topics, will have 33 multiple choice questions and be worth 66 points. Exam 3 will cover 7 topics, will have 45 multiple choice questions and be worth 90 points. Exam 4 will cover 6 topics, will have 39 multiple choice questions and be worth 78 points. Exam questions will be written from material covered in lecture; I will also give several questions on every exam that will require you to integrate or apply knowledge in novel ways.

Exam 1 will be given and graded prior to the last day of the semester to **drop a class without record** (September 22nd). If you do poorly on the first exam (a D or an F) you may wish to consider dropping the class and trying again later in the future.

The **final exam** will be on Monday 14 December from 7:10 to 9 PM, will be in multiple choice format, and will be worth 100 points. You will have 1 hour 50 minutes to complete the final exam.

Review sessions will be held prior to each semester exam and before the final exam. Dates and times will be announced shortly. **Review questions** from previous exams will be provided prior to all semester exams and the final exam.

If you miss an exam, **you will receive a score of 0** for that exam. *If* you have what **I** consider to be a legitimate excuse for missing an exam, and *if* you inform me of this **before** the exam, you will be allowed to take a cumulative make-up exam on Thursday 10 December at 3:00 PM in Heald 201. **NO make-up for the final exam will be given.** Missing more than 1 exam will result in a grade of F or I for the course.

The laboratory is worth 100 points, which is 20% of your total grade. This grade will be determined from quizzes and assignments given during lab and from a formal lab report which is worth 25% of your lab grade. **A passing grade in the laboratory is required to pass the course.**

Cheating on an exam or a laboratory assignment (including plagiarism) will result in a grade of F for the entire course and will result in additional disciplinary action by the University. Cell phones must be stowed in a backpack or pocket during an exam; a visible cell phone during an exam will be

considered hard evidence of cheating and will result in a grade of F for the entire course and will result in additional disciplinary action by the University. The instructors assume you have read and understand the plagiarism policy posted on the course web page.

Miscellaneous: If you require special teaching or testing conditions, **please see me during the first week of class** so that we can make the needed arrangements.

Departmental and University Policies: The School of Biological Sciences offers Biology 251 in the Fall and Summer semesters only. Students may only attempt the course twice; using an uncontested withdraw does NOT count as one of these attempts. If a grade of C or better is earned on the first attempt, the course may NOT be taken a second time. A student taking the course for the second time may be excused from the lab portion of the course if and only if the lab grade during the first attempt was an 80% or higher AND the average on all exams except the final was a 50% or higher.

How to Do Well: This course covers a great deal of complex and interrelated material. You must understand topics covered early in the course to be able to comprehend information presented later in the course, and you will have to be able to integrate material that you learn throughout the course. Therefore it is imperative that you do not fall behind. You can take several steps to increase your ability to comprehend and remember material.

- 1) Do the assigned reading for a topic **BEFORE** the lecture *even if* you don't understand all the details at first. Being familiar with topics beforehand will allow you to get the most out of lecture.
- 2) When reading a given chapter, **first skim the section called "Chapter Summary"** at the end of the chapter to get an overview of the important concepts in the chapter, then read the chapter itself.
- 3) Within 24 hours of a lecture, **rewrite your lecture notes, practice drawing crucial figures, REVIEW ANIMATIONS** on the Interactive Physiology cd, and write practice exam questions on that lecture. This will force you to review and integrate the material while it is fresh in your mind, and it will provide you and your friends with practice exams to take before each real exam.
- 4) Topics in this course build on each other. For example, you must understand electrochemical gradients to understand how neurons function, and you need to understand how neurons function to understand muscle function, and you need to understand muscle function to understand cardiac function. **Thus make sure that when you study a topic, you understand it well enough to be able to remember it and use it later in the course.**
- 5) Do NOT fall behind in your reading and studying; you will find it impossible to catch up once you fall behind in a course of this type. ***To learn this material, you WILL have to spend numerous hours outside of class reading and studying.*** Make sure you set aside regular times outside of class to work on the course material; you should plan on at least 6 to 8 hours per week of study time.

**Biology 251 Topics
Fall 2009**

Date	Week	Topic	Subject	Reading	Lab
			CELL PHYSIOLOGY		
25 Aug	1	1	Organization of the Body & Homeostasis	Ch 1	Mandatory Attendance: Check In
27 Aug	1	2	The Cell	32-42; 75-86	
1 Sep	2	3	Cell Membrane	32-36; Chp 4	Diffusion, Osmosis & Membrane Transport
3 Sep	2	4	Neurons: Graded & Action Potentials	Ch 7	
8 Sep	3	5	Neurons: Synapses & Integration	Ch 8	Spike
			CONTROL SYSTEMS		
10 Sep	3	6	Central Nervous System	Ch 9	
15 Sep	4		EXAM 1 Topics 1 to 5 (66 points)		Reflexes
17 Sep	4	7	Peripheral Nervous System: Afferent Division	252-269; 293-299	
22 Sep*	5	8	Peripheral Nervous System: Efferent Division	Ch 11	Sensory Responses
24 Sep	5	9	The Endocrine System	Ch 6	
29 Sep	6	10	Thyroid and Reproductive Hormones	623-625; 639-653;	PhysioEx: The Endocrine System
			MUSCLES AND THE CARDIOVASCULAR SYSTEM		
1 Oct	6	11	Skeletal Muscle: Molecular Basis of Contraction	322-334	
6 Oct	7		EXAM 2 Topics 6 to 10 (66 points)		Skeletal Muscle
8 Oct	7	12	Skeletal Muscle: Mechanics	334-350	
13 Oct	8	13	Smooth & Cardiac Muscle	350-357	Smooth Muscle
15 Oct	8	14	Cardiovascular System: Anatomy & Electrical Activity of Heart	360-378	

* Last day to drop class without record

20 Oct	9	15	Cardiovascular System: Mechanics & Control of the Heart	379-392	Animal Heart Rate
22 Oct	9	16	Cardiovascular System: Blood Vessels	395-422	
27 Oct	10	17	Cardiovascular System: Blood & BP	422-433; Ch 15	HR, BP & ECG: Formal Lab Report on this exercise
			RESPIRATORY AND URINARY SYSTEMS		
29 Oct	10	18	Respiratory System: Mechanics	Ch 16	
3 Nov	11		EXAM 3 Topics 11 to 17 (90 points)		Respiration + Library Session Owen 319D
5 Nov	11	19	Respiratory System: Control; Gas Exchange & Transport	Ch 17	
10 Nov	12	20	Urinary System: Overview & Filtration	510-522	No Labs: Time for Lab Report Writing
12 Nov	12	21	Urinary System: Reabsorption, Secretion, & Excretion	522-533	
17 Nov	13	22	Fluid Balance	536-556	PhysioEx: The Kidney. Lab Reports Due
19 Nov	13	23	Acid Base Balance	556-566	
24 Nov			Thanksgiving Break		No Labs Thanksgiving Break
26 Nov			Thanksgiving Break		
			THANKSGIVING LEFTOVERS		
1 Dec	14		Post-Thanksgiving Review		PhysioEx: Acid Base Balance
3 Dec	14		EXAM 4: Topics 18 - 23 (78 points)		
8 Dec	15	24	Immune System	Ch 23	Mandatory Attendance: Final Grade Check
10 Dec	15	25	Health Challenges of the 21 st Century	No reading	
14 Dec			EXAM 5: Cumulative Final Topics 1 – 25 (100 pts) 7:10 to 9 PM		