HPHY 316 Lab Syllabus (Fall 2004)

COURSE PHILOSOPHY

The labs this term will cover topics related to neural, muscular, and motor physiology. Specifically, you will learn about basic mechanisms of muscle contraction, molecular mechanisms of action potentials in nerve and muscle cells; pathways of reflex arcs; and basic sensory characteristics.

The format of this class will alternate between a lab and a discussion section. The purpose of the lab is to give you a "hands-on" approach to learning physiology through direct experimental testing. The discussion section will allow you to integrate what you learned in lab with small group assignments, interactive CD-ROM modules, and case studies.

The Human Physiology lab sequence is not taught in the "traditional" style of laboratory classes. This class is taught from an integrative and critical thinking standpoint. Assignments from this class will require that you be able to critically think and evaluate the information that is presented to you and integrate information across multiple physiological systems. The focus of this class is not so much on getting the "right" answer as it is on being able to discuss and critically evaluate the information that is presented to you. The process of thinking and arriving at a logical answer requires a higher level of learning than simply arriving at the correct answer. Development of this higher level of learning will allow you to examine scientific concepts in a more critical manner and will allow you to integrate concepts across disciplines.

Additionally, you will be required to improve your communication skills, both written and verbal. To be successful in this class, you will need to think critically, both independently and in small groups. Discussion of concepts and ideas in small groups will allow you to exchange ideas with other students and to teach concepts. A good indicator of how well you understand a concept is your ability to discuss the concepts with other students.

COURSE POLICIES

Attendance at all labs/discussions is mandatory. Class meets once each week and alternates between discussion sessions and laboratory sessions. There are no make-up labs, thus if you miss a lab you will not receive credit for the lab report.

All assignments (lab reports, group discussions, and integrative questions) are due at the beginning of the class period two weeks following the class period in which they were assigned, with the exception of the final integrative question which will be an in class assignment during week 10. All lab reports will lose 5 points for every day that they are late up to one week. Late discussion assignments and integrative questions will lose 2 points every day that they are late up to one week. After one week, late assignments will **NOT** be accepted. Please turn in all work either to your instructor directly or to their mailbox. When turning assignments into your instructors mailbox, make sure to have each assignment stamped and initialed by the office manager. This allows us to know when you turned the assignment in. Please do not slide anything under office doors or place on top of a desk, as they can be easily misplaced. Additionally no assignments will be accepted if they are received via email under any circumstance.

It is the responsibility of the student to come prepared to lab/discussion. Please have a copy of the lab or discussion assignment when you come to class. All needed materials will be posted on the blackboard site designated for this class period. If you can not access the blackboard site you will need to call the computing center to set up an account. You will not be allowed to print the lab or discussion assignment in the lab. Quizzes are given at the start of most class periods and late/make up quizzes are not given, thus, please be on time for all class periods.

GRADING

Grades will be based on **470 points**

1. Lab Reports: 2 x 100 points each = 200 points
2. Integrative Questions: 2 x 50 points each = 100 points
3. Discussion Assignments: 3 x 25 points = 75 points
4. Lab Quizzes: 3 x 15 points = 45 points
5. Discussion Quizzes: 3 x 10 points = 30 points
6. Participation: 20 points

Lab Reports: All lab reports must be typed (no exceptions) and follow the "journal style" format (more information will be discussed in class and posted on Blackboard). Make sure you print and carefully read the "lab report information" handout on blackboard. The lab reports require that you find outside resources to fully discuss the topics in question. Your instructor can help you find information related too many of the topics. The following is a list of textbooks and journals most frequently used in physiology:

1. *Physiology* edited by Berne and Levy
2. *Textbook of Medical Physiology* by Guyton and Hall
3. *Neuroscience* edited by Purves et al.
4. *Exercise Physiology: Energy, Nutrition, and Human Performance* by McArdle, Katch, and Katch
5. *Journal of Applied Physiology* (available online and at the Science Library)
6. *American Journal of Physiology* (online and at Science Library)
7. *Journal of Physiology (London)* (online and Science Library)
8. *Medicine and Science in Sports and Exercise (MSSE)* (Science Library)

Integrative Questions: You will be asked to complete two comprehensive integrative questions assignments throughout the term. The goal of the integrative questions is give you the opportunity to put together physiological concepts learned during the term in order to better understand how different physiological systems interact and work together. These assignments will help you stay on top of the material being covered as well as provide you with the opportunity to integrate the individual concepts learned in class and apply them to real life scenarios. The first assignment will be given during week 4. It will be a take home assignment in which you have two weeks to complete. The second comprehensive integrative question will be given to you in class during week 10. It will be a shorter assignment, but will encompass concepts covered throughout the term. You will have 2 hours to complete the assignment within your laboratory section. You will be allowed to use your book, lab reports, quizzes and discussion assignments as references while working on your final question. The first written integrative question assignment should be typed and double spaced. The second written integrative question assignment will be completed in class, and thus can be hand written. We encourage you to work with your group members to discuss the first integrative question, and to prepare for the second integrative question. However, just like your lab reports, all written answers to the integrative questions must be completed using your own words.

Discussion Assignments: You will be given three discussion assignments throughout the term corresponding to discussions 1-3. You will have two weeks to complete all of these assignments. All discussion assignments should be completed within your group. They will consist of a series of short questions that cover the concepts introduced to you in discussion lab sessions. All discussion assignments should be typed and turned in at the beginning of class two weeks after the class period in which they were assigned.

Prelab Assignment: Prior to each lab, you must hand in a short prelab assignment. This assignment involves writing down a hypothesis for each part of the lab. That is, if there are 3 different experiments in a given lab, then you must formulate a hypothesis for each part. The purpose of this assignment is to make sure you have read the lab. But, more importantly, we want you to begin to develop the skills to derive a hypothesis and to think about what you are doing in lab. When you write your lab report, you want to use your initial hypotheses and see whether or not your data supports your hypotheses. You will not be graded on whether or not your hypotheses are correct. These will simply be checked off and will be worth 5 points toward the discussion portion of your lab report or 5 points of your integrative question. Thus, if you do not turn in a prelab assignment, you will loose 5 points from the major assignment (formal lab report or integrative question) which corresponds to the laboratory pre-lab assignment.

Quizzes: All quizzes will be given during the first 10 minutes of class. Quizzes will be short, usually 3-5 questions, and include both multiple choice and short answer questions. Lab quizzes will cover main concepts from the previous discussion assignment and the lab handout. All quizzes before laboratories will be taken individually. Discussion quizzes will essentially be a review of the main concepts from the previous lab. These quizzes will also have at least one question that requires you to integrate concepts. You may not necessarily "know" all the information to arrive at the "correct" answer; however, the goal is to develop your ability to arrive at a logical answer based on what you have learned up to that point. You will take the discussion quizzes with the other members of your lab group.

Participation: At the end of the term your instructor will assess your participation in class throughout the term. Your participation score will be based on your attitude in class, work ethic, participation in group discussions, being on time for class, and cooperation within your group. Your group members will also be given an opportunity to evaluate your participation at the end of the term. Your instructor will use the comments from your group members to determine the number of points you earn for group cooperation/participation.

Academic dishonesty: Academic dishonestly <u>will not</u> be tolerated in this course. This course encourages students to work in groups, but all work must be original and written in your own words. Any incident of academic dishonesty will be reported to Student Judicial Affairs in the Office of Student Life.