

BIOLOGY 390: PHYSIOLOGY
Fall 2018 Course Information Sheet
Dr. Ken Prestwich

Class Scheduled meetings [MWF at 10 AM in O'Neil 101](#)
Phys. Lab [Mondays 2 to ~ 5 PM Swords 226](#)
Office O'Neil 108

Office Hours	T	7:15 to 9:45 AM
	W	11:15 AM – 12:45 PM
	F	3 - 4:30 PM
	<i>For students in this class, as much as is possible, I have an open door policy – if you want to talk physiology, come by and ask and I will do my best to talk to you then.</i>	

Review Sessions I will hold review sessions when and if student questions warrant them. I hope that the format of this class will mean that reviewing will be a normal part of the learning process and not something that is mainly done before an exam.

Textbook All materials are on-line note that the central source of materials is a webpage, although links on this page will often take you to Moodle.

The course (lecture and lab) are primarily on the website where you found this sheet! -- <http://college.holycross.edu/faculty/kprestwi/physiology/>
Please note that there will probably be some changes in the lecture schedule – I have been working to modify the course in light of the fact that everyone in it has taken Biology 161 and 162.

INTRODUCTION: This is a course on animal physiology but it is simply called "physiology" on your transcripts – the med schools etc. are rather mechanical recently about how they read transcripts and letters of recommendation. The approaches we will take will be comparative (evolutionary), ecological (adaptational) and medical (physiological function in health and disease). We will look at physiology from a number of different levels of the biological hierarchy from the whole organism down to subcellular. The unique approach to this course (compared to other bio courses at CHC) is that we will frequently take a biophysical approach. Please note that although we will spend a lot of time on human/mammalian physiology, this is a course on animal physiology. The blend of approaches you receive here will be excellent preparation for graduate school in physiology or zoology and for professional schools such as medicine and veterinary medicine.

COURSE GOALS

1. **To learn and critically examine the factual basis to physiological systems.** However, simply learning about isolated systems is not enough. This course will stress:
2. **To learn how to think about physiological interactions**, in short, **to learn how to think integratively**. A primary attribute of good physiological thought is the ability to study systems first in isolation and then equally as important, to integrate your understanding of these systems such that you see how they work together to produce the whole. I am quite aware that most courses you take here do not emphasize integration or pay lip service to it. In many ways, your most difficult task this semester will be to learn to predict the whole from the parts, as much as that can be done. The only reason we are really interested in individual physiological systems is to understand how they interact -- to be able to predict the changes in overall function as a result of perturbations on different systems. See further notes below on how to study for this course because integration is something I can help you learn how to do but most of the burden falls on you.
3. **To improve oral communication skills.** The way this will be achieved is through a rather different type of class format (see below) that will require your active participation and responsibility.
4. **To learn the use of instrumentation and experimental methodology used in some branches of physiology.** Note that one important approach, **experimentation that involves surgery on intact living vertebrates will not be used in this course**. I take this stand simply because at this level I find that the benefits students gain from these exercises are not justified by the pain, discomfort, loss of life, and additional costs. They are fully justified in most areas of research but I have been unable to ethically justify their use in training individuals who with only a few exceptions do not plan careers in physiology.

CLASS FORMAT

You are [expected to attend and participate in class](#). This is an active learning course. You should think of each class period as a combination review and discussion section. The normal format will be that I will go over any portions of the notes (see next section) or readings that are not clear. I may go over the topics in slightly different orders than the one in which they were presented. It should not be necessary to go over all of the notes if you have been doing your part. Next we will deal with questions that are posed on the notes and, more importantly, ones that you raise regarding the ramifications of the material. In addition, we will go over assigned problems and I will ask a series of questions designed to help you learn to see inter-relationships between the materials and to help you learn to ask questions like a physiologist. You should **not** be taking very many notes in class BUT CERTAINLY FEEL FREE TO DO SO IF YOU WISH.

CLASS NOTES: Notes for each lecture will be available on the class website well ahead of the class where they will be discussed. IT IS YOUR OBLIGATION TO HAVE READ AND LEARNED AS MUCH OF THE NOTE MATERIAL AS YOU CAN BEFORE THE CLASS MEETING WHERE IT WILL BE DISCUSSED. Furthermore, you are to have done any other assigned readings before this class. The main stress will be on the notes, however. If you are stressed for time, at minimum read and learn as much of the note material as possible. In addition, take the time to write down questions you have that either deal with understanding the notes or with further ramifications

or inter-relationships in the material. Please see further information regarding grading and class participation at the end of the grading section.

Honesty Policy: The College's Academic Integrity policy can be found at <https://catalog.holycross.edu/node/1381#AHP>. I suspect that by this stage in your careers, you are familiar with the policy but if you have a question, ever, please ask.

The first **self-scheduled exam policy (see below)** means that I need to rely on your **integrity**. I will ask everyone to sign a pledge to neither give nor receive aid on exams (except from me) – if you do not feel that you can sign such a pledge, you will need to take your exams under supervision.

The physiology exam pledge: *I promise to receive no aid on this examination from anyone except as might be given to me by Prof. Prestwich in response to my questions or his instructions. This means that I understand that the exams are not open book, that I may not consult on-line or stored sources etc. I also promise to not give aid. I also understand that to avoid any perception of dishonesty, I will not discuss the exam in any way until the last person has turned in her or his exam.*

Graded group assignments in class or lab will generally result in all members of a group getting the same grade. An important skill is learning how to equitably work in a group.

GRADING: Grades will be based mainly on exams (~66%). However, compared to most courses, participation will matter and is graded on a regular basis. "Class" is about 81% of the total grade.

Measure	Points Each	Total, % Grade
Three midterms – one self-scheduled and the other two in lab periods. All are designed to be completed in 1:20 but I will give you 2:15	Three at ~100 each	300 (~44%)
Comprehensive Final Exam	150	150 (~22%)
Class Discussion, and hand-in homework.	100	100 (~15%)
Lab – workups, participation, lab quiz questions (lab quizzes, when given, will all be announced).	130	130 (~19%)
	Total:	680

Please realize that I have nothing against a very high class average grade and most times the composite average in this class has been 3.35-3.45. The class structure is designed to help you succeed in the primary learning goals of the course and also get a good grade.

Exams: The three exams given during the semester will consist of all types of questions from fill-in terms and a limited number of multiple choice to multi-part questions answered as essays or problems or some mix. You will probably do more problems in this course than any other in biology except Biostats! The questions are structured to help you focus on what is important.

- Exam questions will cover class *and* reading material. **No credit is given on problems unless a neat and full explanation of the work is provided.** It is my policy to give the composition of the exam within a few days before it is to be given.
- **The exams are all worth about 130 pts. (It will vary a little) and if you know the material well and work at the rate you should work on an exam, they can be done in 1:20. That said, I will give you a bit over two hours to complete them. All exams are given outside of class – the first is self-scheduled on one of two days and the last two are given during the lab period.**
- **Exams are not open book or other resource** (see pledge, above).
- **There is a time limit on the exams – 1 hour and thirty minutes for the first three and 1 hour 10 mins. for the last (“mini”).** In the past, I did not have a time limit and found that students took more and more time on questions that had been used in classes in previous years and complained that there was not enough time. So, more focus is needed. You will be given guidance about how much to write and if you do the many exercises associated for each class and master the material (as I hope the method we are using will help you achieve), you should do well.
- **I always get asked this so let’s get it out of the way: You are required to remember equations** -- they are succinct statements of relationships important to physiology and for that reason should be known as well as any description or term. I will indicate which ones to learn (there can be quite a number but ideally many fall in patterns or are easily derived, as I will demonstrate over the semester).
- **A key to each exam will be posted on the "Physiology" bulletin board by the doors leading to the staircase near our office.**
- **All exams are comprehensive.** Physiology is integrative, not compartmentalized. This policy is to encourage you to review material throughout the semester, to look for connections, and to avoid cramming for exams. That said, most questions on a given exam will be on new material and comprehensive questions will either deal with areas where most people did poorly on a previous exam or where there is significant overlap with the new material.

No PDAs, tablets, etc. during exams. However, you may use a dedicated calculator and I have some to loan (but not enough for everyone in class if everyone schedules their exam at the same time).

Make-up Policy: The college policy can be found at the following URL:
https://www.holycross.edu/sites/default/files/files/registrar/excused_absence_policy.pdf

Exams may be made up only in the event of substantially disabling illness or due to a *bona fide* family emergency. If you must miss an exam due to participation in a College-sanctioned activity (example: athletics), you must make arrangements with me at least a week prior to the exam; normally such make ups will occur the day before the exam. For all other circumstances -- for example other tests or papers due the same day -- please do not come and ask me to allow you to take an examination at a later date as it will put both of us in an uncomfortable situation. Failure to take a test as scheduled without a legitimate reason (listed above) will result in a test score of **zero**.

Class Participation: Note that about 13% of your final grade comes from class participation (and some additional points from homework). The purpose of each of these components should be evident from what you have read above. This is a course that requires that you must keep up; these are mechanisms to encourage you to do so.

You will be graded on your participation after each class. I will either call on you -- or ask for hands, but expect to be called on. You may request, on a maximum of 2 occasions not to be called on (please, make such requests just before class). Grading will be based on whether or not I believe you are prepared (meaning that not only had you read and tried to learn the material before class but also that you had thought about it, especially in regards to questions in the notes. **If you always attend class but say nothing and do not generally appear to have prepared thoroughly for class you will earn a 0.5**

In regard to general participation, each week you will receive a grade of 0 to 1.0; at the end of the semester these will be averaged and adjustments will be made for excessive absences.). In addition, your work in class groups, when we have them, and any presentations of group results (everyone will have to do this several times) will also be important parts of the participation grade; the latter will be added separately and will amount to about 20% of your overall participation grade.

Quality of class participation – simply answering "soft ball" questions (e.g., things that proved you read the notes or otherwise required no thought) will earn you 82% (B-) participation mark. Higher marks depend on not only those types of answers but occasionally attempting more difficult questions or coming prepared with interested germane questions that stimulate class discussion. Never participating but always coming to class earns a 50%.
When (and if) offered, participation via MOODLE will help your class participation average. This is a good way to help if you are shy but I would encourage everyone, even the shy ones to participate, as it will be important practice for your later training and work.

Your overall participation grade (0 to 1) will be reported to you on your exams. **Participation points are easy points to earn, so take advantage of the opportunity.** Moreover, the ability to participate on a high level usually goes hand in hand with success on exams.

A note about power point. The class notes and readings are the heart of the course. The ppt I use in class is simply a direct but usually very simple derivative of the handout materials (graphs and pictures copied from the notes for the purpose of explanation and discussion.) **It is important to put most of your preparation for class and study for exams on the handout notes, problems and class discussions, not the ppt.**

Homework Problems: There will be regular assignments of problems. These are very important to your success in this class and they should be tried immediately. They are due on the date stated on the webpage. I will not always collect them and the ones that will be collected will not be advertised in advance. Not having the problems when asked for is a zero. **Also, students will be asked to solve various homework problems in class, so please be ready (but expect a supportive environment!).**

CALCULATORS: you will need a calculator that does logs (bases 10 and e), exponentiations, and roots. Please try to bring it to class with you. **No cell phones, iPads, iPod touches, computers or anything that can connect to the Internet is permitted as a calculator in an exam although any of these may be used in class.**

CELL PHONES, PDAs etc.: **I hate them.** Keep them off and hidden, please. Don't poke the bear!

LAB

Lab is worth about 17% of your total grade. **Lab should be fun.** The labs tend to be human oriented and they will give you experience on equipment that you are unlikely to have seen in other courses. Individual labs go well with the course material although not all course material has a counterpart in lab (excretion and kidney function is the glaring omission).

Lab grading: you lab grade is based on three components:

- **Participation (20%)** My subjective impression of your involvement in all aspects of the lab – are you prepared, interested, and **do you readily take your turn at tasks (good) or do you prefer to be the experimental subject week after week (not good)**. Are you careful and willing to redo an observation if it is questionable?
- **Questions on lab exams (35%)** (Given with each exam – short answer questions, should take about 10-15 mins. to complete.)
- **Homework (group reports) (45%)** – we will discuss these as we come to them.

LAB OTHER

- **CELL PHONES:** **Please! -- no cell phones or their ilk in lab -- ever; no web browsing, no email.**
- **FOOD, MUSIC, etc.:** You may bring food to class; lab policy varies from week to week so please ask. Please do not bring music to lab.