# Human Physiology (Biol 2320-1&2)
# Spring Semester 2005

## GENERAL INFORMATION

**Instructor:** David H. Temme
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**Office hours:** M 1:30 - 3:30 p.m., or by appointment
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**Teaching assistants:** Mark Dammann, Casey Lounder, Trina Steffensen, Todd Uriona, Jordan Wright

**Text: Human Physiology: An Integrated Approach (3nd edition)** by Dee Silverthorn, Prentice Hall Publishing (Note: 2nd edition should also work)

**Website:** http://courses.biology.utah.edu/temme/2320/

**Lecture outlines:** Can be downloaded from the website. Because the lecture outlines are password protected you need a **username/password** combination. For this class it is:

**2320.student/_____** (The password will be given in class)

***Note**: The University of Utah seeks to provide equal access to its programs, services and activities for people with disabilities. If you will need accommodations in the class, reasonable prior notice needs to be given to the Center for Disability Services, 162 Olpin Union Building, 581-5020 (V/TDD). CDS will work with you and the instructor to make arrangements for accommodations.*
*All written information in this course can be made available in alternative format with prior notification to the Center for Disability Services.*

## TENTATIVE OUTLINE OF LECTURE TOPICS

BACKGROUND

| | Relevant Chapters |
|---|---|
| Building some perspective (fast) | |
| Two views of multicellular physiology (fast) | (1) |
| Some chemistry (medium) | (2) |
| Cells and tissues (read chapter) | (3) |
| Energy metabolism (medium) | (4) |
| Movement across (cell) membranes (fast) | (5) |
| Intercellular communication | (6) |
| An overview of nervous and endocrine systems | (7&8) |

COORDINATING MOTION

| | |
|---|---|
| Action potentials | (8) |
| Nervous pathway basics | (8, 11 pp. 381-383 (337- 340)) |
| Muscle cells: basic features | (12) |
| Overview of spinal cord organization and reflex arcs | (9 pp. 285-294 (252-260)<br>13 pp. 429-438 (383-393)) |
| Overview of brain organization | (9 pp. 294-314 (260-268)<br>13 pp. 438-443 (393-398)) |

| | |
|---|---|
| Sensory physiology: sense to image | (10) |
| Sensory physiology: sensation | (9) |
| Memory: connecting image and sensation | (9) |
| Basic motor pathways | (13 pp. 440-443 (394-398)) |
| Rapid motion and the cerebellum | (13 pp. 438-443 (393-398)) |
| Overview of cerebral cortex organization | (9) |

CIRCULATION

| | |
|---|---|
| Some physics of flow | (14 pp. 449-458 (403-410)) |
| Maintaining blood flow through capillaries | (15 pp. 491-503 (443-456)) |
| The heart as a pump | (14 pp. 458-482 (411-437)) |
| Microcirculation and the lymphatic system | (15 pp. 504-516 (456-468)) |
| Blood cells and blood clotting | (16) |

INPUTS AND OUTPUTS

| | |
|---|---|
| Maintaining oxygen and carbon dioxide balance | (17,18) |
| The kidney's role in maintaining some forms of balance | (19, 20) |
| pH and potassium balance | (20) |
| Designing a digestive tract | (21) |
| Digestion and absorption | (21, 22) |
| Regulating blood levels of glucose and calcium | (22, 23) |
| The input and output of viruses and bacteria | (24) |

REPRODUCTION

| | |
|---|---|
| Regulation of growth and development | (23, 26) |
| Mating, fertilization, implantation, and birth | (26) |

**TESTS**

**Vocabulary quizzes** (1/4 of grade): During the course you will have four ten word vocabulary quizzes. Each quiz will consist of writing definitions for words taken from vocabulary lists handed out in class. Perhaps it is unfortunate, but it is extremely difficult to understand the concepts introduced in this class without understanding and being able to use the associated terminology. The quizzes are thus given to motivate you to expand your biological vocabulary. Vocabulary quizzes will be graded on a standard 90-80-70… percent scale. That is 90% and above is the A range (which includes A and A-), 80 to 89% is the B range (which includes B+, B, and B-) and so on. (**Note**: Your lowest vocabulary quiz score will be dropped in figuring the vocabulary portion of your grade.)

TENTATIVE VOCABULARY TEST DATES: (always at least two class days before exam)
January 27, February 24, March 31, April 27

**Examinations** (3/4 of grade): The purpose of exams will be to test your understanding of concepts presented in class. There will be four exams. Each exam covers approximately one-forth of the class. The final is comprehensive only in the sense that each section builds on earlier material. (Note: I reserve the right to change the final to a comprehensive exam.) In contrast to vocabulary quizzes, with exams I wait to set grading scales until after I see the results. In other words, to at least some degree I adjust the grading scale based on the overall performance of the class. Although over the years, I have found that the average for the four exams tends to be between 65 and 70%. When the average is within that range I

typically use the following grading scale: A range—85% and up, B range—70-84%, C range—50-69%, etc. The grading scale will go up if the cumulative average is higher. On the other hand, I will adjust scores if the cumulative average is lower, because cumulative averages below 65% indicate to me that overall the tests have been too hard.

TENTATIVE EXAM TEST DATES: (given during regular class time except final)
February 1, March 1 (or 2), April 5, Final exam—May 5, 3:30-5:30 pm

**GRADING**

The final class grade will be based on combining scores from the two types of tests in the proportions indicated above, with one important caveat. The score on the last exam may influence a student's final grade beyond its point total (3/16 of grade). Specifically, a considerably higher last exam score (in comparison to scores on the previous three exams) may raise a student's grade beyond what the higher point total would alone. Similarly, a considerably lower last exam score may disproportionately drop a student's grade. Other types of exam scoring trends will also be looked at for those students who fall along borderlines.

Doing some type of outside assignment to improve your grade is **not** an option. You should spend your time trying to master the material presented in class.

For those students who think that they may lack sufficient preparation to pass this course (C- or better), I will let attendance help you. Two absences or less throughout the semester will boost a grade in the D range to a C-. However, attendance will not improve your grade if you fail the class. If you are interested, set it up with a TA to have your daily attendance recorded.

**MAKING UP EXAMS**

Exams: There are **only** two circumstances under which you will be allowed to make up a missed exam:

- You have spoken to me prior to the time that the exam was scheduled and I agreed that your reason for missing is legitimate.
- There is a verifiable reason that accounts both for why you were unable to contact me prior to the exam and for why you were unable to attend the exam at its scheduled time.

IN ALL OTHER CASES YOU WILL RECEIVE A ZERO FOR THE EXAM.

Vocabulary quizzes: Your lowest vocabulary quiz score will be dropped in figuring the vocabulary portion of your grade. Consequently, the first vocabulary quiz you miss cannot be made up. It will be the vocabulary score dropped. If you miss a second vocabulary, the circumstances to be allowed to make it up are the same as making up exams.

**WITHDRAWALS AND INCOMPLETES**

**Wednesday, January 21** and **Friday, March 5** are two days to be aware of. Up to January 21 you can drop this course. After January 21 and up to March 5 you can withdraw from this or any other course you are taking this semester. Withdrawal, in essence, is a means to decide to not complete the course and still avoid receiving a failing grade. Instead a W appears on your transcript. To withdraw just go to the registrar's office and fill out the necessary form. Continuing the course past March 5 is to make the decision to complete the course.

A student may receive an incomplete if (and ONLY if)) that student has taken three out of the four exams and because of extenuating circumstances is unable to complete the course. To finish an incomplete, the student will be expected to make up the missed exam as soon as possible.

**COMMENTS FROM PREVIOUS STUDENTS:**

It is very important to attend lecture all the time or you miss the concepts. The book doesn't present things how they are presented in class—with the WHYs. If you miss a lot of lecture, it makes things really frustrating because you miss important pieces that cannot be gotten just from reading the book.

Physiology Truths… (found on the back of a vocabulary quiz)

Life is loopy (and so is your brain after you study too long).
Diffusion is slow (especially at the start of a big marathon)
Embrace confusion (even when your arms get tired from the "sustained hug")
Keep up (even when you're failing your other classes, getting two hours of sleep, and neglecting your hygiene)
When in doubt, the liver produces it.
Always enter Dave's class ready to laugh because whether Dave shares his jokes with you or not, he's always entertained and makes physiology entertaining.

**Some student answers to the question:** What advice would you give students taking this class from me next spring semester?

Take biology and chemistry before taking this class.
Have a biology background and a basic understanding of anatomy.
Take an introductory biology class if it has been a while since you have taken a biology class.
Drop now if you do not have the background.
Always come to class and look for patterns.
Try not to get behind—it's no fun to try to cram all the info right before a test. And look for connections—this class is so loopy it can make you dizzy.
Come to class everyday, the information covered in class is very different from what is in the book.
Do not procrastinate, study daily.
Main thing: Stay up to date and don't get behind. You cannot successfully "cram" for a Temme test.
Don't miss a day and attend on Fridays (even if there is no class, its a good review session).
STUDY, don't take your normal full-load of credit hours, and don't take for granted that you will "naturally" do well.
The man goes a little fast—you must come to every class, even if you are sick and dying. Study each week's handouts constantly, not just before a test.
Start doing vocabulary early and study early.
Keep up as everything builds on everything else.
Read ahead in the some physiology book about the subject Dave will talk about if you have time.
Read the chapters as often charts and diagrams help that aren't in handouts or presented in class.
Give it your best... then you will never wonder "what if".
Take good notes to correspond with the drawings in the handouts.
Watch how many times Dave swings around the faucet if you start to get drowsy.

Link concepts; try to apply the things you're learning to real life.
It's okay to trace your food, urine, and well other stuff. Great way to learn despite all the weird looks you get from other people.
Don't think in the way that you have been throughout "traditional education"—put yourself outside the box and think more abstractly.
Try to not be stubborn-minded about Dave's style of teaching—it will get you nowhere by just memorizing information.
If you don't get it, go over it until you do. You can apply what this class teaches you to anything.
Go over lecture notes immediately following lectures and ask questions!
Ask questions and be involved in the discussion.
THINK!
Learn how to think, consider, probe, and question every thing you learn or hear from Dave and other professors.
First learn everything, then be sure you can put it all together and make connections.
Use the notes and study questions as a source of learning, but make sure to understand the concepts so that you can apply them.

Don’t just memorize—it won’t help on exams.
Be prepared to think like Dave and figure out everything about each concept to be able to answer any related questions on tests.
Try to think about the big picture.
Always ask: How can I tie this all together and why is this like it is?
Just learn to look for the general patterns and to always ask why things are happening.
Think of why things are happening more than how. The how is easy, it is the why that tends to go unanswered.

Have fun and enjoy this class. Don’t make it harder than it really is.
Have fun, this class rocks.
Get out fast!!!!
Good luck and pray.
“Get out while you still can!!” Just kidding—just keep up with the material and don’t get behind.

When taking a test, relax and apply what you know.
Take the vocabulary quizzes seriously, as they will help in understanding principles.
Use the vocab to see connections—it’s a great study guide.
His tests are like a box of chocolates, you never know what you’re going to get. So eat the whole box before the test. Then go buy three more boxes and eat them before the test.

If you know all the answers to Dave’s questions, then sit in the front row because it is annoying when you mumble every single answer from the back row when Dave can’t even hear you.