

Bio3200: Human Physiology

W2017

T-Th 4 - 5:15 PM

General Lectures 100

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Description: This is a 3000 level class covering the Principles of Human Physiology. You have been introduced to many of these topics in previous years (e.g. high school & 1000 level classes), and some of you have had Anatomy and Physiology. This class goes into *much more* detail to help prepare you for future careers in allied health, medicine or biology. Emphasis is on *the structure and function* of molecules, organs and organ systems, as well as regulation over time and space. For those of you who have taken our cell biology and microbiology classes, you should have a strong understanding of how cells work which will provide a critical background to Physiology. For those having taken only A&P, you have a good introduction to the concepts of physiology *but will have to pay greater attention to the details* and consider things at the cellular and molecular levels. Everyone should review the information in the first five chapters of the textbook, as this is considered basic prerequisite knowledge.

Learning Outcomes:

You will be expected to recall numerous specific *and detailed* facts about each tissue and organ system. You will utilize lots of vocabulary - specific molecules, cell types and concepts of homeostasis, and effective use of this new language is critical to your ability to communicate.

You will understand the basic structure/function of body organs and systems and the interaction between systems under normal physiological conditions. You will order affecter and effector events, depict the structure & function of tissues/organ systems/cells/molecules, compare/contrast similar processes between cell types, and identify common exceptions. These concepts are emphasized in the textbook and lectures with flow charts and diagrams. Physiology is primarily about regulation, the cause and effect relationships. That is, the how, when and where of regulation will be constantly noted.

You will integrate basic physical and chemical processes to understand how a cell or organ functions (e.g. membrane potential, ion flow, blood flow, osmosis, transport). Learning to integrate (de-compartmentalize) knowledge is an important part of your future professional activity.

The required textbook provides essential material and the last page(s) of each chapter summarize essential vocabulary and concepts, serving as a good study guide. The instructor amplifies on it in class paying attention to how and why things are as they are. Old exams are posted to help you understand how concepts are assessed in exams while clicker questions and homework, used throughout the semester, help you monitor your progress. Clicker questions stimulate active learning, provide immediate feedback (to both of us) on the concepts covered in lecture, and will hopefully help you develop better study habits (e.g. reading textbook ahead of time). Questions will range from simple recall, to interpretation of figures, questioning preconceived notions and helping integrate information.

To improve learning I suggest the following: 1. Read textbook chapters AHEAD of class to **decrease** boredom. This helps you identify vocabulary and key concepts thus allowing you to use lecture time as study time as prof helps you link things together. 2. Come prepared to take notes and think about concepts. 3. Concentrate on physiology and a grade will follow (not vice versa).

Text: *It is critical that you have and READ/STUDY the textbook.* Unless otherwise stated, students are responsible for ALL material found in assigned chapters even if NOT specifically covered in class. But the textbook does not unilaterally supersede lecture material. The text is: Human Physiology: An

Integrated Approach with Interactive Physiology, by Dee Unglaub Silverthorn. The seventh edition is the current one available from publisher, but either the sixth or fifth editions should be fine; settle for a cheaper version of an older edition, but get a textbook and read it! If there are discrepancies between editions POINT them out to me during the lecture and we will all learn something.

Office hours: I will be available in my office from 2:00 to 3:00 pm on Tuesday and Thursday's, or as announced in class. After 3:00 pm, please wait until I get to class, typically ~15 min early. Once the electronics are set up I am happy to answer questions. You may also e-mail for a mutually convenient appointment. I only answer an odd question or two via e-mail; if complicated I just ask you to find me. I do NOT reply to e-mails that require me to repeat class or BB announcements.

Our class TA will also be available as announced in class or on BB.

Tutoring: The Academic Success Center (ASC) offers several services to help you in your studies. In some cases, tutors may be available. See their web site for details: <https://success.wayne.edu/tutoring/>. Note that the professor is NOT directly involved in this program, and has input. But a good tutor will help you learn basic concepts, and will understand the class if they took it with me (ask them!).

Blackboard: Go to Blackboard [<https://blackboard.wayne.edu/wsuaauth/>] to access the class web site for most class handouts (syllabus, lecture notes etc) as PDF files. Bookmark the Blackboard site directly. CHECK our BB site often, as I will try to upload a PDF file (> 5 MB) of my PowerPoint slides before each class. I also anticipate using the "Elmo" [electronic overhead] so come prepared to take notes.

Attendance: Class attendance is mandatory for an exam day (see dates below): failure to write an exam results in a zero (0). I also **strongly** recommend that you attend all classes to complement your own reading and provide insight into how the prof views certain topics. I will attempt to post all announcements on Blackboard, but you are responsible for all class announcements (usually done at the beginning). Lectures are recorded and available via a link found on BB. If you have problems check the library web site or talk to a librarian.

Grading Policy & Exams:

This class consists of 4 class exams, and a **cumulative** final exam. Each exam is worth 100 points, although you will drop your lowest scoring exam (i.e. the top three exams yield 300 points). Failure to sit for a class exam results in a zero - NO Makeup Exam will be provided regardless of why you miss it (i.e. dropping the lowest serves as the 'make-up'). Take all four exams and drop your lowest; don't just skip one. The final exam is cumulative and is worth 200 points towards your final grade. Clicker questions provide an additional 75 points (but see below).

EXAM DATES:

Tues. Jan. 31, 2017
Thurs. Feb. 23, 2017
Tues. Mar 28, 2017
Thurs. April 20, 2017

Final: TUESDAY
May 2, 2017
2:45 to 4:45 pm..

PHOTO-IDENTIFICATION IS REQUIRED FOR ALL EXAMS and only conventional calculators (not phones) are allowed when so announced.

EXAM dates are in the box above and will NOT change, although content may change to reflect pace of lecture. Scantron/answer sheets are provided and all questions will be answered via this bubble sheet. Questions will be multiple-choice, but can involve problem solving and reasoning skills. A copy of each old exam is available on Blackboard. I reserve the right to alter the type/style of question as long as I warn you beforehand in lecture. The **FINAL Exam** is a CUMULATIVE exam worth 200 points. It is scheduled by WSU for **TUESDAY MAY 2, 2017, starting at 2:45 and ending at 4:45 pm**. It has the same format as class exams, but longer. A make-up exam will be set for any student that misses this final exam if they provide a **documented** reason (e.g. illness, or family emergency) that is signed by a

non-family professional person (e.g. doctor, police officer, funeral director etc.). Without this note you will NOT write the exam and it will be counted as zero. **Travel plans are NOT an acceptable reason for a make up.**

Summary of final grade calculation: A letter grade is calculated after your total score is normalized (averaged) to the score of the second highest student. This number is then converted into a percentage and assigned a letter grade according to the table at right.

Exam I 100 points	} top 3 scores counted	
Exam II 100 points		= 300 points
Exam III 100 points		
Exam IV 100 points		
Final Exam		= 200 points
subtotal		= 500 points
Clickers		= 75 points
Homework		= 25 points
TOTAL		= 600 points

94-100%	A
90-93	A-
86-89	B+
83-85	B
80-82	B-
76-79	C+
73-75	C
70-72	C-
66-69	D+
63-65	D
60-62	D-
59 or less	F

There is NO extra credit available under any circumstances.

Clickers: A classroom response system, iClicker, is used to provide an interactive component via anonymous polling. If you actively work with them, coming to class well prepared and trying hard, you will improve your learning! So come to EACH class ready to engage in the material: it is easy to fall behind, and very difficult to catch up. **Review the previous chapter, read the material for that day, and be prepared to actively listen, think and participate.** Questions will range from review material (with increasing difficulty) to thought provoking questions, including ones aligned to lecture handouts.

For each question that you answer you will earn one-half (0.5) point, but you will earn an ADDITIONAL one-half point (i.e. 1.0 pts total), when you are correct (unless I state otherwise in class). Points will accumulate throughout the semester and will ONLY be applied at the end of the semester. To receive your points you MUST REGISTER your clicker serial number **via our Blackboard site** (under tools = register iClicker) so I can identify the clicker(s) you have been using. I ask numerous questions each class (range ~ 8 to 20), so hundreds of points accumulate over the semester. To calculate a final grade, these points will be converted to a total out of 75 points. As long as you achieve 85% of the total possible points (all the 0.5 and 1.0 points summed) *by the end of the semester*, you will earn all 75 clicker points. If you achieve fewer points by being absent or by getting too many wrong, you will get the appropriate pro-rated points. [Say I ask 200 points worth of questions. If you obtain 170 or more of these points, you get all 75 points for clickers. If you earn fewer points, say 123, you will get $123/170 * 75 = 54$ points]. This 85% threshold is designed to allow you to learn from your mistakes, and miss a class (but not many) without drastically affecting your final grade. But your overall performance will impact your final grade. So again, **you really need to come to class PREPARED and ready to engage.** The 85% threshold also allows me to ONLY accept questions that are answered directly via clickers and received by my base unit. If you forget your clicker or something is the matter with it (check battery!), you will miss out on those points. It is your responsibility to solve the problem in time for the next class. I have used this system successfully several times and do not anticipate problems. But, if persistent electronic problems occur (on either side) and cannot be rectified, clickers will be dropped and partial points will be applied based on performance to that date, or totally dropped if occurs early enough.

Homework: This year I have been assigned an instructional assistant, Mr. Kendall Case. He will help out in class, lead discussion sessions, and importantly, help grade homework assignments. The nature of

homework assignments will be a work in progress, so assignments and due dates will be as announced in class. They are likely to include completion of quizzes on BB, finishing portions of worksheets used during a class exercise and perhaps short answer questions. Each will have its own weight (i.e. pts), and I anticipate allowing you to accumulate many points throughout the semester (hopefully 50 or more). Whatever the final number of points accumulated, they will be normalized to 25 total points at the end of the semester (only) and used to calculate a final grade. As with clickers, if you earn 85% of the total available points you will receive all 25 pts, and be pro-rated as above if you receive fewer pts. So the homework is a great opportunity to help you stay on track, and gauge how well you know something without it drastically affecting your final grade.

Challenge option: Students have **one (1) week** after the return of a class Exam (but not Final exam) to challenge a grade; after this the grade stands “as is.” Winning a challenge is a rare event. A challenge consists of a typed description of why your answer should be considered a BETTER answer than the one indicated, based on published material that you cite properly [NOTE: MCAT study material is NOT considered valid material.]. Semantics (word use) is an inherent part of examinations, especially with a multiple-choice exam: so arguments based solely on semantics (word use) are not viewed favorably. You will submit your typed challenges to me in person (e.g. before or after a lecture) -- NO e-mail.

Timeliness: On exam dates do NOT arrive late!! You may not be allowed to take the exam if you arrive after the first student has finished the exam and left the room (and some students finish in less than 15 min). If you sit for the exam, no additional time will be provided. For other class days, if you are late, try to be as unobtrusive as possible.

Individuals with Disabilities: If you have a documented disability that requires accommodations, you will need to register with Student Disability Services (SDS) for coordination of your academic accommodations. The SDS office is located at 1600 David Adamany Undergraduate Library in the Student Academic Success Services department or call 313-577-1851 or 313-577-3365 (TDD only). Once you have your accommodation in place, I will be glad to meet with you privately to discuss your special needs. A delay in getting a SDS accommodation letter may hinder the availability or facilitation of those accommodations; it is in your best interest to process accommodation letters ASAP.

Religious Conflicts: If you have a conflict with any of the scheduled class or exam times due to religious reasons, you must notify me in writing by class time on Jan. 14, 2016: look over ALL exam dates NOW. Assuming you meet this deadline, every attempt will be made to find a mutually convenient solution, but at times, this may include using your ability to drop one exam. I may require written confirmation by a religious minister.

ADD/DROP POLICY: I follow all university policies on adding or dropping this class. Contact Mrs. Hunter, Biology Advisor for help in this area. Recall, you will receive an “F” if you fail to do the administration work required to drop the class. Last day to drop the class this semester is Sun March 29, just after third exam. If you drop the course, you will be assigned WP, WF or WN as appropriate. Be aware that I do NOT drop the lowest exam grade nor do I account for potential clicker points as these are ONLY applied upon completion of the class. Any "I" given to a student will automatically revert to "F" if the work is not completed within one calendar year. No exceptions [see: <http://sdcl.wayne.edu/RegistrarWeb/Registrar/policies.htm>.]

UNEXPECTED UNIVERSITY CLOSURES: If the University is **officially** closed on an exam day, **the exam will be held on the next regularly scheduled class day.** Closure of the University is announced by the following mechanisms:

1. The University News line (313) 577-5345 *

2. WSU Homepage (www.wayne.edu) *
3. WSU Pipeline (www.pipeline.wayne.edu) *
4. WDET-FM (Public Radio 101.9)
5. WSU emergency broadcast system
6. by other local radio and television stations

In case of closure, monitor our BB site, as I will post, as necessary, specific information related to the class.

Disputes that cannot be resolved following the guidelines present in this syllabus will be resolved by following the guidelines of the University “Student Due Process”.

Tentative LECTURE Schedule

2017

Exam dates will not change, but chapter coverage may change to reflect pace of lecture.

- Jan. 10 class administration **and Chp (5 &) 6**
12 Chp 7: Intro to Endocrine System
- 17 Chp 8: Neurons: Cellular and Network Properties
19 Chp 8: Neurons: Cellular and Network Properties
- 24 Chp 9: CNS Organization
26 Chp 10: Sensory (somatic senses)
- 31 **EXAM 1: Chp (6), 7, 8, 9, 10**
- Feb. 2 Chp 11: Efferent Division: Autonomic and Somatic Motor Control
- 7 Chp 12: Muscles
9 Chp 13: Motor Control
- 14 Chp 14: Cardiovascular PSL [& Chp 16 on your own]
16 Chp 15: Blood Flow & Control
- 21 Chp 14-15 overview and questions
23 **EXAM 2: Chp. 11, 12, 13, 14, 15** (16)
- 28 Chp 17: Mechanics of Breathing
- Mar. 2 Chp 18: Gas Exchange & Transport
- 7 Chp 19: Kidneys
- Mar. 9 Chp 19 & 20: Kidneys
- 14/16 = MARCH BREAK*
- 21 Chp 20: Integrative PSL 2: Fluid & Electrolyte Balance
23 Chp 19 & 20 exercises
- 28 EXAM 3: Chp 17, 18, 19, 20**
30 Chp 21: Digestive System
- April 4 Chp 22: Metabolism & Energy Balance
6 Chp 23: Endocrine Control of Growth and Metabolism
- 11 Endocrine Problems/Discussions
13 Chp 25: Integrative PSL 3: Exercise
- 18 Chp 24: Immune System
20 EXAM 4: Chp. 21, 22, 23, 25 & (24 if covered)

FINAL CUMULATIVE EXAM (set in university exam matrix)
TUESDAY MAY 2, 2017 Start at **2:45 to 4:45 pm.** 3:50 pm