

BISC 307 (General Physiology) – Spring 2008

Course Description and Policies

Overview

Physiology is unique among the biomedical sciences in its focus on the functions of intact, living organisms. It is especially concerned with homeostasis, which refers to regulation of the conditions inside the body within the narrow limits that are compatible with life. This course will cover the physiology of animal cells, tissues, organs, and organ systems, with emphasis on mechanisms by which homeostasis is maintained, and on the integration of each system with others in the living animal. Human systems are emphasized.

Instructor

Albert Herrera, HNB 116, 213-740-9177, aherrera@usc.edu

Laboratory Manager

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Office hours during all labs

Teaching Assistants

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Textbooks

- *Human Physiology: An Integrated Approach*, by Dee Unglaub Silverthorn, 4th edition.
- *PhysioEx 7.0 for Human Physiology*, by Timothy Stabler, Lori Smith, Greta Peterson & Andrew Lokuta.
- *Laboratory Manual for General Physiology*, by Albert Herrera, Eric Price & Jyl Boline.

Website

<https://blackboard.usc.edu/>

- All course materials, information, recordings, quizzes, and grades will be posted on Blackboard until Commencement Day. We will also make extensive use of Blackboard discussion forums, as will be explained in lecture. Blackboard is to be used only for appropriate, course-related activities. Use for other purposes will result in disciplinary action.

Lecture

MWF 1:00 - 1:50, SAL 101, class no. 13018R

- Lectures will be recorded and made available as streaming video and downloadable audio podcasts. Links to download sites will be posted in Blackboard.
- We do not recommend using these recordings as a substitute for regular attendance at lecture. They would be best used for reviewing difficult material and for the occasional missed lecture. A particularly effective approach would be to view the recordings in small groups, so that you can pause and discuss the material as you proceed. It would be a serious mistake to use the recordings as an excuse to procrastinate. Keep up with the lecture schedule!

Laboratory

Tue am	8:00-10:50	13280R	Thu am	8:00-10:50	13282R
Tue pm1	11:30-2:20	13284R	Thu pm1	11:30-2:20	13285R
Tue pm2	3:00-5:50	13288R	Thu pm2	3:00-5:50	13289R
Wed am	8:00-10:50	13281R	Fri am	8:00-10:50	13283R
Wed pm1	2:00-4:50	13286R	Fri pm1	2:00-4:50	13287R
Wed pm2	5:30-8:20	13290R	Fri pm2	5:30-8:20	13291R

- The laboratory is an integral and essential component of the course, intended to give you hands-on experience with the processes, tissues, and concepts discussed in the lecture part of the class.
- The purposes, policies, and procedures of the laboratory are fully explained in the lab syllabus and lab manual, and will be reviewed by your Teaching Assistant. A schedule of lab activities will be posted on Blackboard.
- Performance in the laboratory will account for one third of each student's grade. The laboratory grade will be based on a lab practical, a presentation, lab quizzes, lab reports, simulation exercises, and participation. See the Grading Table below for point values of each of these items.

Exams

Exam 1: Monday, Feb 11, 1:00 - 1:55 pm
Exam 2: Monday, Mar 10, 1:00 - 1:55 pm
Exam 3: Friday, Apr 11, 1:00 - 1:55 pm
Exam 4: Wednesday, May 7, 2:00 - 4:00 pm

- Exams consist of a mix of objective questions (e.g., multiple choice, true-false, matching, etc.) and subjective questions (e.g., definitions, fill-in-the-blank, short essays, etc.). These exams will cover lecture subjects only; laboratory subjects will not be covered. The emphasis will be on using the lecture information to solve novel problems (see comments on quizzes below). Lecture exams are not cumulative; each of the four exams will cover approximately one quarter of the course, as specified in the Lecture Schedule.

Lecture Quizzes

- Fourteen quizzes will be administered via Blackboard. The quizzes will be posted by 5 pm on Friday and must be completed by 10 am on the following Tuesday. Questions will cover the lecture material discussed on the previous Friday, Monday, and Wednesday. Each quiz will consist of 4 questions, worth 0.5 points each. Question types will be multiple choice, true/false, or short answer. To allow students to miss a few quizzes for any reason, and to excuse uncharacteristically low scores, only the highest 12 scores will be counted toward the final grade. Therefore, a maximum of 24 points can be earned from the quizzes, or 4 % of the total course grade. No accommodations will be made for students who take fewer than 12 quizzes. Quiz results and correct answers will be discussed in class after the deadlines.
- Our intention is to make the quiz questions as challenging as those that will appear on the more point-heavy exams. To do well in this course, it will not be sufficient to merely look up and memorize answers. You must also be able to apply your knowledge to solve novel problems. The quizzes are designed to give you practice at this and to gauge your level of preparation for exams. This will only work, however, if you take the quizzes seriously and responsibly. You may consult your textbook and any other printed or electronic material. You may also discuss

the quiz questions with fellow students, if those discussions focus on understanding the underlying principles. You should not simply share or reveal your answers to other students, for several reasons. First, you will not know until after the deadline whether your answer is correct. Second, you will deprive that student of a learning opportunity. Third, you will diminish your own chances for a better grade by broadcasting your hard-won answers. Each quiz is worth only 0.3% of the course grade, but its potential value as a learning tool is much greater. The quizzes will require a disproportionately large amount of effort – on our part to craft challenging questions, and on your part to discern and understand the correct answers. It is likely that students who cheat by merely copying other students' quiz answers will pay a price on exam days. Please don't be one of those students. In the three years since we introduced the quizzes in BISC 307, students have come to see them as one of the most challenging parts of the course, but also one of the most valuable. If you take the quizzes seriously, we think you will come to the same conclusion.

- The following table summarizes important information about the quizzes.

Quiz No.	Posted by 5 pm on Fri	Deadline 10 am on Tues	Lectures Covered
1	Jan 18	Jan 22	1, 2
2	Jan 25	Jan 29	3, 4
3	Feb 1	Feb 5	5, 6, 7
4	Feb 8	Feb 12	8, 9, 10
5	Feb 15	Feb 19	11, 12
6	Feb 22	Feb 26	13, 14
7	Feb 29	Mar 4	15, 16, 17
8	Mar 7	Mar 11	18, 19, 20
9	Mar 14	Mar 25	21, 22
10	Mar 28	Apr 1	23, 24, 25
11	Apr 4	Apr 8	26, 27, 28
12	Apr 11	Apr 15	29, 30, 31
13	Apr 18	Apr 22	32, 33
14	Apr 25	Apr 29	34, 35, 36

Twice Weekly Question & Answer Sessions

- Dr Herrera will hold Q&A sessions at the following times:
Tuesdays, 2:00 - 3:00 pm, HNB 120F
Fridays, 2:00 - 3:00 pm, HNB 120F (no Friday Q&A session on Feb 15, Mar 14, Apr 11)
- Audio recordings will be made of Q&A sessions. Although no special attempt will be made to record or identify students who are present, please be aware that in the small confines of the Q&A room, student voices are sometimes audible and recognizable. Recordings of Q&A sessions will be available for download via Blackboard.

Instructor Office Hours

Please contact Dr. Herrera directly for office hour appointments. Office hours are intended for discussion of individual, confidential matters such as grades. Course subject matter and other

public issues should be discussed in the Q&A sessions, so that all students can benefit from the interchange.

Grading

- Final grades are assigned on a curve, determined entirely by the total number of points earned on exams, quizzes and laboratory work, as shown in the table below. After each exam, a curve will be posted to indicate the approximate letter grades that correspond to current point totals.

Portion	Item	Pts Each	Number	Total	Portion Totals
Lecture	Exams 1 - 4	94	4	376	Lecture = 400 pts
	Online Quizzes	2	14	24*	
Laboratory	Lab Practical	50	1	50	Lab = 200 pts
	Presentation	25	1	25	
	Quizzes	20	2	40	
	Reports	10	4	40	
	Simulation Exercises	5	8	40	
	Lab Participation	5	1	5	
					Course total = 600 pts

*Only the highest 12 quiz scores will count.

Exam Policies

- Re-grading:** Lecture exams will be handed back in laboratory and the correct answers will be given at that time. If you feel an error was made in the grading of your exam, you must write on a separate piece of paper which questions you think were incorrectly graded and why. Give this page and your exam to your TA before you leave the lab. Exams taken from the lab will not be re-graded. The entire answer of each indicated question will be re-graded, not just the part you think deserves more credit. Your score may increase or decrease as a result of a re-grade.
- Missed Exams:** No make-up exams will be given. Students who are unable to take an exam at the schedule time must talk with Dr. Herrera as soon as possible, preferably in advance. If the student has a valid, well-documented reason for missing the exam, an adjustment (based on the other three exam scores) will be made to compensate for the missed exam. Such an adjustment can be made for only one exam. Students who are ill and miss a regularly scheduled lecture or laboratory exam must see a doctor to document their illness. Within one week of the missed exam, you must provide, in writing, the following information: 1) your doctor's name and telephone number, and 2) a statement signed by you authorizing us to discuss the situation with your doctor. We will contact your doctor and ask her or him whether you were too ill to take the exam. Note that simply visiting the University Park Health Center or another medical facility will not be considered a valid medical excuse.
- Missing Exam 4:** If you miss Exam 4 and you provide a valid medical excuse within 48 hours of the scheduled exam time, a course grade of Incomplete (IN) will be assigned. It will be your responsibility to contact Dr. Herrera to make arrangements for completing the course and replacing the IN with the grade you earned. You have a year to complete the requirements for removal of an IN. After this, your grade will change to an IX (Lapsed Incomplete) which counts as an F in the GPA. If you miss Exam 4 and do not submit a valid excuse, a course grade will be calculated based on your other scores and a zero for Exam 4.

Academic Integrity

- Our university depends on honesty, integrity, and ethical behavior among its members. These principles are summarized in the Code of Ethics published in the 2007-08 edition of the SCampus Student Guidebook (<http://web-app.usc.edu/scampus/>). See the section on University Governance.
- For students, ethical behavior includes respecting the intellectual property of others, submitting individual work unless otherwise directed by the instructor, protecting one's own academic work from misuse by others, and avoiding the use of another's work as one's own.
- We have reliable, time-tested methods for detecting cheating, plagiarism, and other violations of academic integrity. Consult the section of SCampus entitled "Behavior violating university standards and appropriate sanctions" (<http://web-app.usc.edu/scampus/1100-behavior-violating-university-standards-and-appropriate-sanctions/>) for definitions of academic integrity violations and sanctions that will be applied. Please note that to protect the integrity of grades and the academic process, sanctions for violations are severe.

Students with Disabilities

- Any student requesting academic accommodations based on a disability is required to register with the Office of Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP and should be delivered to Dr. Herrera or Eric Price early in the semester, at least two weeks before Exam 1. If a student's approved accommodation is limited to extra time on examinations, the teaching staff of BISC 307 will provide the accommodation. For any other accommodation, such as a private room, translator, etc., students must make arrangements with the DSP office at least 2 weeks before each exam date. For more information, visit the DSP office in STU 301 (8:30-5:00, M-F), call them at 213-740-0776, or go to their website (http://sait.usc.edu/academicsupport/centerprograms/dsp/home_index.html).

SCHEDULE, BISC 307L (General Physiology) - Spring 2008

Date	Day	Topic	Human Physiology (Silverthorn) - 4th Ed.	Quizzes*
Jan 14	M	01 Introduction, Membrane Dynamics	Ch 1, Ch 6 (191-205), Ch 5	
Jan 16	W	02 Cellular Communication	Ch 6	
Jan 18	F	03 Electrical Signals in Neurons	Ch 8 (243-269)	Q1
Jan 21	M	<i>Holiday (MLK Day)</i>	---	
Jan 23	W	04 Action Potentials	Ch 8 (243-269)	
Jan 25	F	05 Synaptic Transmission 1	Ch 8 (270-287)	Q2
Jan 28	M	06 Synaptic Transmission 2	Ch 8 (270-287)	
Jan 30	W	07 Central Nervous System	Ch 9	
Feb 1	F	08 Sensory Systems	Ch 10 (327-342)	Q3
Feb 4	M	09 Autonomic Nervous System	Ch 11 (376-389)	
Feb 6	W	10 Skeletal Muscle 1	Ch 11 (389-394), Ch 12 (396-411)	
Feb 8	F	11 Skeletal Muscle 2	Ch 12 (412-421)	Q4
Feb 11	M	EXAM 1	Jan 14 through Feb 6	
Feb 13	W	12 Smooth Muscle	Ch 12 (421-429)	
Feb 15	F	13 Intro to Endocrine Physiology	Ch 7	Q5
Feb 18	M	<i>Holiday (President's Day)</i>	---	
Feb 20	W	14 Pancreatic Hormones 1	Ch 22 (716-739)	
Feb 22	F	15 Pancreatic Hormones 2	Ch 22 (716-739)	Q6
Feb 25	M	16 Adrenal Glucocorticoids	Ch 23 (750-756)	
Feb 27	W	17 Thyroid, GH, Ca ²⁺ Balance	Ch 23 (756-773)	
Feb 29	F	18 Reproduction 1	Ch 26 (821-836)	Q7
Mar 3	M	19 Reproduction 2	Ch 26 (836-848)	
Mar 5	W	20 Reproduction 3	Ch 26 (848-858)	
Mar 7	F	21 Cardiovascular System	Ch 14 (456-476)	Q8
Mar 10	M	EXAM 2	Feb 8 through Mar 5	
Mar 12	W	22 Heart as a Pump	Ch 14 (477-495)	
Mar 14	F	23 Blood Vessels & Pressure	Ch 15 (500-513)	Q9
Mar 17	M	<i>Spring Break</i>	---	
Mar 19	W	<i>Spring Break</i>	---	
Mar 21	F	<i>Spring Break</i>	---	
Mar 24	M	24 Distribution of Blood	Ch 15 (514-529)	
Mar 26	W	25 Blood	Ch 16	
Mar 28	F	26 Innate Immunity	Ch 24 (776-787)	Q10
Mar 31	M	27 Acquired Immunity Overview	Ch 24 (787-793)	
Apr 2	W	28 Mechanisms of Acquired Immunity 1	Ch 24 (794-803)	
Apr 4	F	29 Mechanisms of Acquired Immunity 2	Ch 24 (794-803)	Q11
Apr 7	M	30 Mechanics of Breathing	Ch 17	
Apr 9	W	31 Gas Exchange & Transport 1	Ch 18	
Apr 11	F	EXAM 3 - Last day to drop with "W"	Mar 7 through Apr 7	Q12
Apr 14	M	32 Gas Exchange & Transport 2	Ch 18	
Apr 16	W	33 Kidney Function & Filtration 1	Ch 19 (613-625)	
Apr 18	F	34 Kidney Function & Filtration 2	Ch 19 (613-625)	Q13
Apr 21	M	35 Tubular Transport & Excretion	Ch 19 (626-636)	
Apr 23	W	36 Water & Salt Balance	Ch 20 (641-658)	
Apr 25	F	37 Volume, Osmolarity, Acid-Base Balance	Ch 20 (659-672)	Q14
Apr 28	M	38 Digestive System Overview	Ch 21 (676-689)	
Apr 30	W	39 GI Function 1	Ch 21 (689-699)	
May 2	F	40 GI Function 2	Ch 21 (699-711)	
May 7	W	EXAM 4, 2:00 - 4:00 pm	Apr 9 through May 2	

*Quizzes distributed via Blackboard by 5 pm on indicated Fridays; due the following Tuesday by 10 am.

LABORATORY SCHEDULE, BISC 307L (General Physiology) - Spring 2008

Date(s)	Day	Laboratory Exercise(s)	Quizzes, Reports, Simulations, and Comments
Jan 15-18 "	T-F "	I. Introduction to the Laboratory II. Measurements and Calculations	
Jan 21	M	-	<i>Martin Luther King Day - University Holiday</i>
Jan 22-25	T-F	III. Introduction to Hardware and Software	PhysioEx 7.0 Simulation Exercise #1 Due
Jan 29-Feb1	T-F	IV. Action Potentials	
Feb 1 "	F "	- -	<i>Last day to drop w/o "W"</i> <i>Last day to change to Pass/No Pass or Audit</i>
Feb 5-8 "	T-F "	V. Nervous System: Structure and Comm. VI. Sensation	Report 1 due (IV)
Feb 11	M	-	Lecture Exam 1
Feb 12-15	T-F	VII. Neuromuscular Physiology	PhysioEx 7.0 Simulation Exercise #2 Due
Feb 18	M	-	<i>President's Day - University Holiday</i>
Feb 19-22	T-F	Student Presentations	Report 2 due (VII)
Feb 26-29	T-F	Student Presentations	Quiz 1 (IV, V, VI, VII)
Mar 4-7	T-F	Student Presentations and BMR*	PhysioEx 7.0 Simulation Exercise #4 Due
Mar 10	M	-	Lecture Exam 2
Mar 11-14 "	T-F "	VIII. Cardiovascular Physiology I IX. Cardiovascular Physiology II	
Mar 17-21	M-F	-	<i>Spring Recess</i>
Mar 25-28 "	T-F "	X. Blood Pressure and Peripheral Circulation	Report 3 due (VIII & IX) PhysioEx 7.0 Simulation Exercise #5 Due
Apr 1-4	T-F	PhysioEx 7.0 Simulation Exercise #11	
Apr 8-11	T-F	TBA*	
Apr 11 "	F "	- -	Lecture Exam 3 <i>Last day to drop with mark of "W"</i>
Apr 15-18	T-F	XI. External Respiration	
Apr 22-25 "	T-F "	PhysioEx 7.0 Simulation Exercise #9 PhysioEx 7.0 Simulation Exercise #10	PhysioEx 7.0 Simulation Exercise #7 Due Quiz 2 (VIII, IX, X, XI)
Apr 29-May 2 "	T-F "	Lab Practical	Report 4 due (XI) <i>Course Evaluations</i>
May 2 May 7	F W	- -	<i>Last day of classes</i> Final Lecture Exam (EXAM 4) (2:00-4:00 PM)

*Materials will be available on Blackboard only.

LABORATORY POINTS

Number	Points	Event	Total
1	50	Lab Practical	50
1	25	Presentation	25
2	20	Quizzes	40
4	10	Reports	40
8	5	Simulation Exercise Completions	40
1	5	Lab Participation	5
			200

LABORATORY SCHEDULE, BISC 307L (General Physiology) - Spring 2008

LABORATORY GOALS

The goal of the physiology laboratory is to enhance the learning experience of students in the course through hands-on and interactive learning opportunities. Topics covered in laboratory will closely follow those covered in lecture, but bear in mind that changes may occur in the lab schedule dependent or independent of changes in the lecture. Any modified lab schedules will be posted upon announcement on Blackboard.

The Lab Manual: The General Physiology lab manual is available for purchase in the University Bookstore. Original and updated labs will be posted on Blackboard as well.

SHORT DISCUSSIONS OF SELECTED LABORATORY POLICIES

Brief discussions of laboratory policies are given below. Please see Scampus (<http://www.usc.edu/dept/publications/SCAMPUS/>) for additional policies that are not covered here including academic integrity, proper student conduct, etc.

Late Work: Each day an assignment is late, the maximum possible points you can earn is reduced by 20%. Thus, if you are 1 day late, your maximum possible score will be 80% of the points possible. If you are 5 days late, your maximum possible score will be zero.

Laboratory Regrades: Lab assignments, reports, and quizzes will be handed back to you and briefly reviewed in the laboratory. Should you become convinced that your assignment, report, or quiz has been graded in error, you must hand it back to your TA by THE END OF THE GIVEN LAB SESSION with a written explanation of why you deserve more points. Be advised that the entire question or report section will be regraded, and this may result in an increase or a decrease in your total score.

Posted Grades: You will be able to monitor your scores on Blackboard (<https://blackboard.usc.edu/>) throughout the semester. It is your responsibility to make sure your scores are correct and to inform us if they are not.

Posted Materials: Supplemental materials will be posted on Blackboard. Check Blackboard frequently for announcements of such posts. Lab-related materials will be posted in the Course Documents folder under Laboratory.

Laboratory Presentation: You will be giving a 15 minute presentation in your laboratory. The grades will be based on a combination of scores given by your TA and the other students in your lab. Nonattendance will be penalized. Insincere grading (e.g. giving all presenters 100%) or incomplete grading will also be penalized.

Contact information for Eric: eap@usc.edu, 213-740-6084, ZHS 371B