

# California State University | Stanislaus

## ZOOL 4280, PHYSIOLOGY OF HUMAN SYSTEMS SPRING 2020

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Instructor:	Mark A. Grobner	Lecture Meeting Times:	MWF 9:00-9:50
Office:	N268	Lecture location:	N104
Office Hours:	MW 10-11, T 2-3 or by appointment	Corequisite:	ZOOL 4280 Sec. 2 or 3
Phone:	(209) 667-3268	Laboratory Meeting Times:	M or W 2:00-4:50
E-Mail:	<a href="mailto:mgrobner@csustan.edu">mgrobner@csustan.edu</a>	Laboratory Location:	N229
Website:	<a href="http://www.csustan.edu/grobner">Http://www.csustan.edu/grobner</a>	Laboratory instructor Email:	Dr. Nora Hallquist-Hulse <a href="mailto:nhallquisthulse@csustan.edu">nhallquisthulse@csustan.edu</a>

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### COURSE INFORMATION

#### University Course Catalog Description

Human Physiology presented at cellular and organ system levels: membrane transport, nerve excitation, muscle contraction, cardiovascular physiology, kidney function, hormone function, reproduction, and digestion.

#### Course Prerequisites/Requirements

Students must have completed BIOL 3310 and CHEM 3010/3012 or equivalent with grades of C- or higher. Students must also be enrolled in ZOOL 4280 lab.

#### Required Texts and Materials

*Anatomy and Physiology* is an open source book available to view online or download as a PDF here:

<https://openstax.org/details/books/anatomy-and-physiology>

You may also pick up a copy in the bookstore or order a hard copy online.

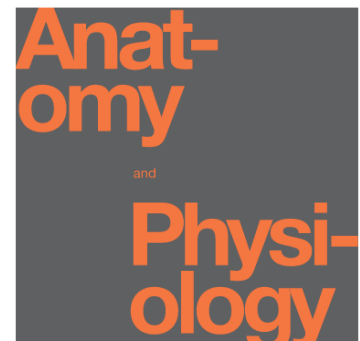
Publisher: OpenStax College; 1st edition (January 1, 2013)

ISBN-10: 1938168135

ISBN-13: 978-1938168130

*iClicker* class response system

ISBN: 9781464120152



*Biopac Student Laboratory Guide*, Biopac Systems Inc. Manual (available in lab)

#### Supplementary Texts and Materials

<https://openstax.org/details/books/anatomy-and-physiology#student-resources-section>

*Pocket Companion to Guyton and Hall Textbook of Medical Physiology*, 13e (Guyton Physiology) 13th Edition

Publisher: Saunders; 13 edition (June 4, 2015)

ISBN-10: 145577006X

ISBN-13: 978-1455770069

## Course Learning Outcomes -

1. Describe how the body works, from the molecular level to organ systems and to the whole body
2. Explain the importance of physiology in modern medicine.
3. Examine the role of the scientific method in the study of physiology as it relates to evaluating evidences and drawing logical conclusions.
4. Examine the tissue level of organization and interpret the role of tissues in human systems. Compare and contrast the location, organization and function of the four basic classifications of human tissues.
5. Define homeostasis and explain how this concept is used in physiology and medicine.
6. Describe the nature of negative and positive feedback loops and explain how these mechanisms act to maintain homeostasis.
7. Distinguish between intrinsic and extrinsic regulation and the roles of nervous and endocrine systems.
8. Examine and describe the major features and functions of the cardiovascular, respiratory, muscular, digestive, immune, reproductive, and renal systems and their contributions to homeostasis.
9. Describe the relationship between homeostatic imbalance and diseases in each of the organ systems.

## COURSE ASSIGNMENTS AND GRADING

This lecture portion of the course will consist of three exams (100 points each), and 50 points for iClicker responses, for a lecture total of 350 points. The laboratory is worth 200 total points distributed in 12 pre-lab quizzes worth 60 points total, 12 laboratory exercise write-ups worth 60 points total, 2 lab practicums worth 60 points total, and finally 1 homeostatic Imbalance presentation worth 20 points.

### Exams

There will be three exams during the term each worth 100 points. The first 25 points of each exam will consist of an online multiple choice exam that will be available for the 72 hours before the in-class written test will be taken. The written portion will consist of matching and short answer questions. Questions for either part of the tests may come from laboratory materials as well as lecture. There will also be available a comprehensive final (in class portion only), the grade of this test can be used to replace the lowest written lecture exam grade. This comprehensive final will be available on the day you will take the third written exam, the day the university has scheduled for the class final.

**There will be no make-up exams.** Failure to appear at exam time will result in zero points for that exam. To avoid this, you must notify the instructor 24 hours prior to the exam with an appropriate excuse, or an appropriately documented emergency.

### iClicker questions

Each lecture, you will be asked to respond to a number of questions using the iClicker student response system. The questions will come from lecture material that was covered previously, so it is in your best interest to keep up with the material. You will receive one point for answering **all** the questions asked each day (participation points) and an additional point for each correct answer. Your final iClicker grade will be based on the **percentage of points you have earned out of the total possible**, you will receive the equivalent percentage of the 50 available points based on your accumulated points. Any student found in possession of more than one iClicker during lecture will be given an automatic F in the course. Similarly, students not present, but responses being registered, will also receive an F in the course. You can earn up to 50 points for your responses.

**Please note:** failure to bring your iClicker to class or having dead batteries will result in your being recorded absent for the day and you will not be able to earn any points. There is no make-up for iClicker questions and quizzes.

### **Case Studies**

During the term you will be given 6 case studies corresponding to areas of physiology requiring a written response. For each case study, there is scenario followed by a series of questions to answer. Due dates will be given for each and they will be submitted via Blackboard, no late submissions will be accepted. All submissions will be checked for plagiarism through Turnitin.com. **Any evidence of plagiarism will result in a grade of zero for the assignment.** Each case study is worth 15 points.

### **Laboratory Work**

In lab, students work in groups of three, and submit most assignments as a group (individual submissions will be identified in BlackBoard). Each lab is three hours in length. You are expected to stay until the laboratory exercise has been completed by your group and all materials are put away and your lab bench area cleaned. This semester's lab sessions will start with an introduction to the scientific method and homeostasis. The subsequent labs will consist of investigative experiments utilizing various techniques such as glucose determination, urinalysis, and collecting physiological data such as ECG, EMG, and pulmonary functions, using BioPac (a computer based physiological data collection system). Each student in a group is responsible for carrying out all and understanding the assigned experiments.

### **Pre-lab Quizzes**

The first 5 minutes of each laboratory will be devoted to an iClicker quiz over the exercise to be conducted that day. Questions will be asked that you should be able to answer only if you read the day's exercise. Each quiz will be worth 5 points and there will be no making up the quiz if you are late or miss lab. If you forget your iClicker or it is not working at the time of the exam, you will not be able to make up the quiz. There will be 12 quizzes for a total of 60 points.

### **Laboratory Exercises**

For each laboratory exercises you will find worksheets for recording data and answering questions. These sheets are due on the due date listed on Blackboard under the Assignments tab, usually within 3 days, and will be submitted as a group for most exercises. Exceptions will be noted in BlackBoard. **All work must be turned in as a .doc or .pdf file.** No late exercise write-ups will be accepted. Be sure to put the lab group name and exercise number in the subject line. They are worth 5 points each for a total of 60 points.

If you fail to clean up your bench area or turn in your materials in a disorganized fashion, i.e. cables not neat but waded up, missing items from the list of materials, your group will lose 5 points for the lab exercise.

### **Homeostatic Imbalance Presentation**

For each laboratory, there will be two homeostatic imbalances topics for presentation. Each student will choose one to review and present. For your choice, you will prepare a PowerPoint presentation to be given at the beginning of the appropriate laboratory (20 points). The presenter will give an overview of the imbalance (provide symptoms and prognosis for the condition), talk about the physiological basis of the symptoms, state ways the condition may worsen (further homeostatic imbalance) and ways that the condition may improve (return toward homeostatic balance), and give a brief overview of treatments for the condition. The presentation should take no more than 10 minutes. You will sign up for a presentation at the link listed under the laboratory BlackBoard site and you must sign up by **January 31, 2020**. The PowerPoint file must be emailed to Dr. Nora Hallquist Hulse by 5:00 pm the Friday before you are to present, no late submissions will be accepted and you will receive a 0 for the assignment.

### Lab Practicums

There will be two laboratory practicums worth 30 points each. These exams will include 25 multiple choice or short answer questions and 5 stations for the practicum. The questions will be related to the exercises completed during the laboratory periods. Make sure you review and understand both the introductions to the labs and the write-ups.

### Course Grading

Your grades will be assigned as follows:

Assessment	Total Points
Exams	300
iClicker responses	50
Case Studies	90
Prelab quizzes	60
Lab Exercises	60
Homeostatic Imbalance Presentation	20
Lab practicums	60
Total	640

I will use plus/minus grading.

Grading Scale (%)	
94-100	A
90-93	A-
87-89	B+
84-86	B
80-83	B-
77-79	C+
74-76	C
70-73	C-
67-69	D+
64-66	D
60-63	D-
0 - 59	F

### Academic Dishonesty and Misconduct

Exams, reports, and presentations are indicators of individual performance. Copying off another student's exam, plagiarized reports, presentations or papers constitutes cheating. There is zero tolerance for cheating. Cheating in any capacity in this class will result in penalties ranging from a minimum of a zero on the assignment or exam to a maximum of expulsion from California State University, Stanislaus as indicated by the official University Policy regarding dishonesty and misconduct.

### Class attendance is highly recommended

Missing classes may result in poor performance in the course. You are responsible for any information or assignments you missed in your absence. You will also miss on iClicker points for questions given during lecture, there is no making up missed iClicker points. I highly recommend reading the assigned chapters before coming to class.

## **Grades of "Incomplete"**

*From The University Catalog –*

An Incomplete signifies (1) that a portion of required coursework has not been completed and evaluated in the prescribed time period due to unforeseen but fully justified reasons beyond the student's control, and (2) that there is still a possibility of earning credit. It is the responsibility of the student to bring pertinent information to the attention of the instructor and to determine from the instructor the remaining course requirements which must be satisfied to remove the Incomplete. The conditions for removal of the Incomplete shall be put in writing by the instructor and given to the student, with a copy placed on file with the department chair. A final grade will be assigned when the work agreed upon has been completed and evaluated.

Any Incomplete must be made up within the time limit set by the instructor; in any case, no more than one calendar year following the end of the term in which the Incomplete was assigned. An Incomplete should never be used to (1) give a failing student an opportunity to redo unsatisfactory work or complete additional work; or (2) give a student more time to complete his/her work when the reasons for the delay have been within his/her control. This limitation prevails whether or not the student maintains continuous enrollment. Failure to complete the assigned work will result in an incomplete reverting to a grade of NC for grading options 1 and 2, and to a grade of IC for grading option 3. (See the Academic Standards section of this catalog and the Schedule of Classes Informational Guide for grading options.)

In cases of prolonged illness or any emergency which necessitates an extension of time to complete the course, the student may petition through the academic department where the course was offered. Students may not be permitted to graduate until all Incompletes are removed or evaluated as "IC" grades. Students are not to reregister in courses in which they have an Incomplete.

[http://catalog.csustan.edu/content.php?catoid=12&navoid=541&returnto=search#indi\\_stud\\_cour](http://catalog.csustan.edu/content.php?catoid=12&navoid=541&returnto=search#indi_stud_cour)

## **COURSE POLICIES: TECHNOLOGY AND MEDIA**

### **Email**

Questions regarding course materials should be directed to me at [mgrobner@csustan.edu](mailto:mgrobner@csustan.edu). Please be sure to put **ZOOL 4280** in the subject line as I get a lot of emails everyday and I want to be sure to respond to yours quickly. For issues with BlackBoard, please contact the helpdesk, linked from the BlackBoard login page.

### **Cell Phones**

Cell phones should not be out or used during class, if I see you using your cell phone in class I will ask you to leave as your use of a cell phone during lecture is disruptive to other students. During exams, cell phones must be turned off and placed upside down on your desk in front of you or secured in a backpack or book bag. Any cell phone found not in this manner during a test will result in an automatic F for the exam.

### **University Academic Conduct Policy**

There will be zero-tolerance for plagiarism/cheating. Plagiarism and/or cheating will result in an F for the class. For further information, please see the CSU Stanislaus catalog for Student Code of Conduct [http://catalog.csustan.edu/content.php?catoid=3&navoid=115#stud\\_cond](http://catalog.csustan.edu/content.php?catoid=3&navoid=115#stud_cond)

### **Laboratory conduct Policy**

Students found not following the policies for working in the laboratory will lose 5 points for each infraction. The policies working in the laboratory will be available on the Blackboard site and discussed the first day of laboratory.

## RESOURCES

### Disability Resource Services

CSU Stanislaus respects all forms of diversity. By university commitment and by law, students with disabilities are entitled to participate in academic activities and to be tested in a manner that accurately assesses their knowledge and skills. They also may qualify for reasonable accommodations that ensure equal access to lectures, labs, films, and other class-related activities. Please see the instructor if you need accommodations for a registered disability. Students can contact the Disability Resource Services office for additional information. The Disability Resource Services website can be accessed at

<http://www.csustan.edu/DRS/>

Phone: (209) 667-3159

### Recording Policy:

Audio or video recording of classes (tape and digital format) or use of cameras/phones to photograph or record lectures **is not permitted**. An exception is made for students registered with Disability Resource Services, who are approved for this accommodation. In such exceptions, DRS students will be asked to sign a "Recording Agreement" which disallows them from sharing recordings with other individuals unless approved by the DRS program.

## COURSE SCHEDULES

### Tentative Lecture Schedule\*

Materials will be active online with due dates, please check Blackboard periodically to make sure you don't miss any assignments.

DATE	TOPIC	CHAPTER
Jan 27, 29	Homeostasis: A Framework for Human Physiology	1
Jan 31, Feb 3	Chemical Composition of the Body	2
Feb 5, 7	Movement of Molecules Across Cell Membranes	3
Feb 10, 12	Cell Signaling	
Feb 14, 17, 19	Nervous System	12
Feb 24, 26	Central Nervous System	13
<b>Feb 28</b>	<b>EXAM 1</b>	
Mar 2, 4	Autonomic Nervous System	15
Mar 6, 9	Endocrine System	17
Mar 11, 13, 16	Muscle	10
Mar 18, 20	Cardiovascular system: Blood	18
Mar 30, Apr 1	Cardiovascular System: Heart	19
Apr 3, 6, 8	Cardiovascular System: Vessels and Circulation	20
<b>Apr 10</b>	<b>Exam 2</b>	
Apr 13, 15, 17	Immune System	21
Apr 20, 22, 24	Respiratory System	22
Apr 27, 29, May 1, 4	Digestive System/Metabolism	23, 24
May 6, 8, 11	Urinary System/Fluid Balance	25, 26
May 13, 15	Reproductive System	27
<b>May 20</b>	<b>Final Exam 8:30-10:30</b>	

\* The lecture schedule is tentative and can change during the term.

### Tentative Lab Schedule\*

<b>Date</b>		<b>Topic</b>	<b>Section</b>
Jan 27 or 29	1	Getting Started Introduction of General Conceptual Models	Homeostasis, Flowcharts and Metric System; sign up for presentations
Feb 3 or 5	2	Diffusion, Osmosis and Tonicity	Transport
Feb 10 or 12	3	Nervous System/BioPac Tutorial	Vision/Hearing
Feb 17 or 19	4	Electroencephalogram	BioPac 3 & 4
Feb 24 or 26	5	Polygraph	BioPac 9
Mar 2 or 4	6	Glucose	Plasma Glucose
<b>Mar 9 or 11</b>		<b>Lab Practicum 1</b>	
Mar 16 or 18	7	The Muscular System; Extra points for Lab Practicum 1	BioPac 1 & 2
<b>Mar 23 or 25</b>		<b>Spring Break</b>	
Mar 30 or Ap 1	8	Electrocardiography (ECG)	BioPac 5 & 7
Apr 6 or 8	9	Blood Pressure and Heart Sounds	BioPac 16 & 17
Apr 13 or 15	10	Immune System	Immunity
Apr 20 or 22	11	The Respiratory System	BioPac 12 & 13
Apr 27 or 29	12	Acid/Base Balance; Renal Regulation of Fluid and Electrolyte Balance, Urinalysis – “The Pee Lab”	Acid/Base; Renal
<b>May 4 or 6</b>		<b>Lab Practicum 2</b>	
May 11 or 13		Extra points for Lab Practicum 2	

\*The laboratory schedule is tentative and may change.