

**HUMAN PHYSIOLOGY  
ZOOLOGY 2235-004, Lab Sec. 003, 005, & 007  
FALL 2015**

Instructor: Sandra Lehmann Vierra, MPH

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My Blackboard

Jupiter/Juno: Follow email to website (email me if you have not been added)

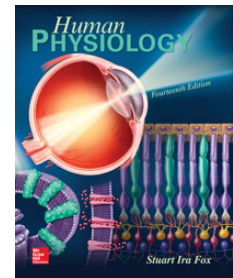
FB: Human Physiology at CSUStan (<https://www.facebook.com/groups/CSUStanPhysiology/>)

Office Hours: Room 252, T 11:30am-12:15pm and W 8:00-8:45pm, or by appt.

Note: Students are responsible for reading and knowing the information within this syllabus. If it is in the syllabus, do not ask the question; you will be referred back to the syllabus. The instructor reserves the right to make changes to the syllabus, points, and grading scale as necessary.

**Required Material**

- *Human Physiology*, 14<sup>th</sup> edition, Stuart Ira Fox, McGraw Hill Education, 2015 -- ebook or hardcopy
  - <http://connect.mheducation.com/class/s-vierra-csustan-tuesday>
  - <http://connect.mheducation.com/class/s-vierra-csustan-wednesday>
  - <http://connect.mheducation.com/class/s-vierra-csustan-thursday>
- Biopac Student Laboratory Guide, Biopac Systems Inc. (Blackboard)
- Lecture notes on Blackboard
- Recommended: basic calculator, 3-ring binder, colored pencils
- One 100-question exam scan-tron
- Access to and simple proficiency with computers
- iClicker



**Course Description**

Zoology 2235 is an in depth study into the functions of the human body. It covers physiological systems, with extended detail on metabolism, nerves, muscles, cardiovascular, respiratory, and urinary functions. For students desiring to enter nursing program or kinesiology. Course Prerequisites/ Requirements: BIOL 1010/1020 or BIOL 1050. Grade of C or better in ZOOL 2250 and Human Anatomy.

FALL 2015:      Lecture Sec. — TTh 12:30p-1:45p in P167  
                         Lab Sec. 005 — T 2:00p-4:50p in N229  
                         Lab Sec. 007 — W 9:00a-11:50a in N229  
                         Lab Sec. 003 — Th 2:00p-4:50p in N229

**Course Content**

The lecture content, in outline form, consists of the following topics:

1. The Study of Body Functions
2. Chemical Composition of the Body
3. Cell Structures and Genetic Control
4. Enzymes and Energy
5. Cell Respiration and Metabolism
6. Interactions Between Cells and the Extracellular Environment
7. The Nervous System: Neurons and Synapses
8. The Central Nervous System
9. The Autonomic Nervous System
10. Sensory Physiology
11. Endocrine Glands: Secretion and Action of Hormones
12. Muscle: Mechanisms of Contraction and Neural Control
13. Blood, Heart, and Circulation
14. Cardiac Output, Blood Flow, and Blood Pressure
15. The Immune System
16. Respiratory Physiology
17. Physiology of the Kidneys
18. The Digestive System
19. Reproduction

The methods of instruction for this material will be in the form of lectures, classroom discussions, the occasional multimedia/videotape, and laboratory assignments.

### Course Objectives

Students will:

1. Describe the topics studied in physiology and explain the importance of physiology in modern medicine.
2. Examine the role of the scientific method in the study of physiology as it relates to evaluating evidences and drawing logical conclusions.
3. Examine fundamental physiological principles, and the progression of structural levels of organization, and evaluate them as they apply to the homeostasis of human systems.
4. Investigate the chemical basis of life with emphasis on structure and function of macromolecules.
5. Describe the mechanisms of dehydration synthesis and hydrolysis reactions and their significance.
6. Examine the tissue level of organization and interpret the role of tissues in human systems.
7. Compare and contrast the location, organization and function of the four basic classifications of human tissues.
8. Define homeostasis and explain how this concept is used in physiology and medicine.
9. Describe the nature of negative and positive feedback loops and explain how these mechanisms act to maintain homeostasis.
10. Distinguish between intrinsic and extrinsic regulation and the roles of nervous and endocrine systems.
11. Examine and describe the major features and functions of the cardiovascular, respiratory, muscular, digestive, immune, reproductive, and renal systems and their contributions to homeostasis.

### Course Policy, Student Conduct, and Expectations

- **Lecture Policy:** Courteous behavior is expected at all times. The expectations are basic.
  - Arrive on time to class. Coming in late is disrespectful. Two tardies equal one absence.
  - Respectful and positive attitudes toward all people.
  - No private talking or other disturbances during lecture. This includes talking while instructor lectures, talking while other students ask questions, disrupting discussions, or creating any other disrupting or disrespectful noise. You will be asked to leave class.
  - All cell phones off or on silent during class. **ABSOLUTELY NO TEXT MESSAGING!!** If you must take a phone call or text message, leave class. **Cell phones must be off (not even vibrating) and be completely stored in your backpack during exams.**
  - Computers are allowed in class, but you are on the honor system. No gaming or messaging. All notes will be posted in my Blackboard Site. During class you are encouraged to listen and take additional notes. Focus on listening in lecture.
  - Computer usage outside of class is HIGHLY RECOMMENDED. All students have access to computers and internet on campus.
  - Students must attend lecture. Attendance will be taken. It is the student's responsibility to notify the instructor of unavoidable absences as soon as possible so that the matter can be discussed.
  - Regardless of reason for missing class, the student is responsible for any information or assignments missed because of the absence. Students will also miss iClicker points for questions given during lecture. There is no making up missed iClicker points.
  - **Instructor may drop student without notice if 3 lectures are missed regardless of reason for missing.**
  - **Although instructor drops are likely, it is your responsibility to drop the class.** Failure to drop and attend class, may result in an "FW".
- **Laboratory Policy:**
  - Students must attend lab within their scheduled section.
  - Only one make-up lab may be completed during a different lab section during the same week in the case of personal emergency or legal responsibility, but this is only contingent on space availability and approval by instructor.
  - Students must be on time and must consistently attend lab. **Instructor will drop student without notice if more than 2 labs are missed regardless of your reason for missing.** Even missing one lab may be problematic. Vocabulary, concepts, and experiments covered in the laboratory are included on lecture exams and lab exams. Whether or not you complete the lab, you are responsible for the lab work. Any missed labs not arranged in advance, or for a documented medical emergency, will result in a 5% decrease in your entire grade and a zero for lab work that week.
  - **Every two late arrivals will be counted as an absence.**
  - **Leaving early before the lab work has been completed and checked will result in a zero.**

- **Every two incomplete labs will be counted as an absence.**
  - **Excessive late arrivals or incomplete assignments in lab may result in being DROPPED.**
  - Safe laboratory procedure and protocol must be followed at all times. **Safety glasses and lab coats are required for participation in lab.**
  - No pets or children allowed in lab.
  - Treat all lab equipment and supplies with respect. You are responsible for leaving the lab in a clean manner.
  - All cell phones/pagers off or on silent during lab. If you must take a phone call, go outside lab. **Cell phones must be off and be completely stored during exams.**
  - Respectful and positive attitudes only.
  - Students will work with partners, but are responsible to do their own work and in their own words. Lab instructor reserves right to issue a zero if there is evidence of copying – no excuses.
  - All students are required to complete all labs, regardless of personal objection to any lab procedure.
  - Students must have laboratory manual, lab coat, and closed-toe shoes each time you attend lab. A calculator and colored pencils are also suggested.
  - Lab worksheets are due at the **beginning** of the next lab and will be late after lab starts. Each lab is worth 10 points.
- **Reasonable Accommodations:** If you have a verified physical, medical, psychological, or learning disability or perhaps you feel you may have one of these disabilities which impact your ability to carry out assigned course work, please contact the Disability Resource Services (DRS) office. DRS staff will review your needs and determine what accommodations are necessary and appropriate. All information and documentation is confidential. DRS is located in the Mary Stuart Rodgers Bldg. Room MSR 210, phone (209) 667-3159. DRS students **MUST** take all exams by the day of the scheduled exam.
  - **Academic Honesty:** Academic honesty is expected of all students in this course. Academic dishonesty includes (but not limited to) cheating and plagiarism, and extends to students who may aid or abet such acts. Plagiarism is defined as presenting someone else's writing or ideas as your own, including copying from another student or printed source without citation. Cheating includes any attempt to defraud, deceive, or mislead the instructor in arriving at an honest grade assessment, including looking at or copying from another student's work, allowing another student to copy your work, exchanging written or oral communication, using notes, or opening a text book. If the unfortunate situation of academic dishonesty arises, the course policy is as follows: The student (or students) involved will receive a zero on the assignment or exam and a letter will be sent to the appropriate college authorities. This zero will be calculated into the student's total score. Once in the hands of the university, however, the student may be expelled from California State University, Stanislaus as indicated by the official University Policy regarding dishonesty and misconduct.
  - **Exam Policy:**
    - Lecture exams will be multiple-choice, true/false, matching, short answer, and essay.
    - Students must provide scan-trons when expected and will be required to use the computer.
    - All testing will be done in assigned lecture, lab section, and final assignment.
    - **MAKE-UP EXAMS ONLY IN EXTREME CASES!** In case of jury duty or other legal responsibility, verification will be required. In case of severe illness or death in immediate family, verification will also be required. Approved make-ups must be taken within the week of the exam.
  - **Lecture and Laboratory Evaluations**
    - **Lecture Exams:** There will be three midterm exams. They will cover the designated material and are not comprehensive, although material learned earlier as a foundation is necessary. They will be in the format of multiple choice, true/false, matching, short answer, and essay. The multiple choice portion of the exam will be made available online for you to take during a period starting 48 hours prior to the written portion of the exam. You will take this multiple choice exam online through the publisher Connect web site. During the 48 hour period you will have one hour to complete the exam. Once you start the online exam, you have to complete the entire exam, so be sure you have one hour of uninterrupted time when you log in, start, and finish. On the day of the exam, you will only have the written portion of the exam to take. Failure to appear at exam time without 24 hours prior notice to the instructor with an appropriate excuse, or an appropriately documented emergency, will result in zero points for that exam.
    - **iClicker Questions + Extra Assignments:** Most lectures, 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 the questions asked each day and an additional point for each correct answer. Also, occasionally you will have a pop quiz or simple assignment. Your

- final iclicker + extra assignments grade will be based on the percentage of points you have earned out of the total possible. You will then be awarded points out of a total of 100 corresponding to your percentage points earned. Anyone caught using two iClickers during a lecture will receive an F in the course along with the person who belongs to the second iClicker.
- **Lab Assignments:** Each lab corresponds to worksheets, lab write up, and/or quiz. All 13 scores will be included in the total score.
  - **Project:** This project will consist of a problem/condition/procedure in medicine that you are interested in. You will work individually to create a handout that may be provided to a patient or patient's family that informs them of a problem, condition, or procedure. The handout must include text, visual information, and sources. Each handout must be either a single sheet 8.5" x 11" flyer (front and back) or an 8.5" x 11" folded brochure (front and back). The handout must address each of the following topics:
    - o Anatomy and physiology relevant to the diagnosis of the disease or the procedure
    - o Potential symptoms and signs that might be presented/observed/expected from the disease OR the reasons for undergoing a procedure and any side effects or risk of a procedure
    - o Tests that might have to be performed in order to make the diagnosis of the disease or carry out a procedure
    - o Treatment possibilities and prognosis of a disease OR the cost benefits of a procedure

The student will first provide three ranked topic choices. Next, the instructor will decide and approve the topic. Once the topic is approved, the student will begin to gather sources -- books, scientific articles, and WEB sites. Each of these type of sources must be used. Be sure to write your own text and use only graphics that are in the common domain (with proper acknowledgement) or are personally created. Do not plagiarize! It is your job to explain the topic in your own words. Make sure your sources are cited at the end. MLA format is required. Be sure that it fits into the required space. If the assignment is not ready on the due date, you will lose 5 points per day that it is late.
  - **Case Studies:** There will be two case studies due during the semester. Students will be randomly assigned a case and will answer directed questions regarding the case. You will need to type up the answers to the questions, using MLA format. Students may (and are encourage to) work with others on the cases, but each students should have individualized write-ups. Plagiarism and copying will result in a zero for the case and the students will be reported to the University.
  - **Final:** There will be one final during Finals Week. It will consist of two sections: 1) A section of questions covering the remaining material not covered by previous lecture exams and 2) general cumulative material taken from all lecture material.
- **Grading Policy:**
    - Total = 900 plus pts
      - 3 Lecture Exams: 100 pts each for a total of 300 pts
      - iClicker Questions + Extra Assignments: 100 pts
      - 13 Lab Assignments: 10 pts each for a total of 130 pts
      - 1 Handout Project: 70 pts
      - 2 written case studies: 50 pts each for a total of 100 puts
      - 1 Final Comprehensive Exam: 200 pts (Final must be taken to receive a passing grade.)
    - Grades:
      - A: 93-100%
      - A-: 89-92%
      - B+: 86-88%
      - B: 83-85%
      - B-: 79-82%
      - C+: 76-78%
      - C: 73-75%
      - C-: 69-72%
      - D+: 66-68%
      - D: 60-65%
      - F 0-59%
    - Note: You are responsible for reviewing your grades periodically on Jupiter for mistakes.
  - **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.

### **How to Succeed in Physiology**

- Read the chapters before you come to class. This is VERY important.
- Feel free to contact the instructor if you have any questions. Actually, I encourage you to ask questions. You may also ask for help from your fellow students on Facebook.
- Form a study group to review material and study together.
- Only you can put in the time that will lead to a deep understanding of human physiology. Understanding translates into a good grade.

## **Tentative Schedule of Assignments**

### **WEEK 1 (08/27)**

Th Lecture - Course Introduction; HOMEOSTASIS, Ch. 1

### **WEEK 2 (09/01, 09/03)**

T Lecture - TISSUES, Ch. 1

Th Lecture - CHEMICAL COMPOSITION OF THE BODY, Ch. 2

TWTh Lab - Introduction and Scientific Method

### **WEEK 3 (09/08, 09/10) — 09/07 — LABOR DAY (NO SCHOOL)**

T Lecture - CELL STRUCTURE, Ch. 3

Th Lecture - ENZYMES AND ENERGY, Ch. 4

**Handout Proposal due at beginning of lecture, 09/10**

TWTh Lab - Membrane Transport

### **WEEK 4 (09/15, 09/17)**

T Lecture - CELL RESPIRATION, Ch. 5

Th Lecture - METABOLISM, Ch. 5

TWTh Lab - Neuron Potentials and Reaction Time

### **WEEK 5 (09/22, 09/24)**

T Lecture - CELL INTERACTIONS, Ch. 6

Th Lecture - **EXAM 1 (Introduction - Metabolism)**

TWTh Lab - Autonomic Nervous System and Galvanic Skin Response

### **WEEK 6 (09/29, 10/01)**

T Lecture - THE NERVOUS SYSTEM: NEURONS AND SYNAPSES, Ch. 7

Th Lecture - CNS and ANS, Ch. 8 and 9

TWTh Lab - Muscle Physiology

### **WEEK 7 (10/06, 10/08)**

T Lecture - SENSORY PHYSIOLOGY, Ch. 10

Th Lecture - ENDOCRINE GLANDS, Ch. 11

TWTh Lab - The Heart and ECG

**CaseStudy #1 due at beginning of lab**

### **WEEK 8 (10/13, 10/15) — 10/13 — NON-INSTRUCTIONAL DAY (NO SCHOOL)**

Th Lecture - MUSCLE, Ch. 12

T Lab - No Lab

WTh Lab - Cardiovascular Physiology

### **WEEK 9 (10/20, 10/22)**

T Lecture - HEART PHYSIOLOGY, Ch. 13 and 14 (Heart and Circulation)

Th Lecture - **EXAM 2 (Cell Interactions - Endocrine)**

T Lab - Cardiovascular Physiology

WTh Lab - Pulmonary Physiology

### **WEEK 10 (10/27, 10/29)**

T Lecture - HEART PHYSIOLOGY, Ch. 13 and 14 (Heart and Circulation)

Th Lecture - BLOOD VESSELS, Ch. 13 and 14 (Blood Vessels and Circulation)

T Lab - Pulmonary Physiology

WTh Lab - Exercise Physiology

### **WEEK 11 (11/03, 11/05)**

T Lecture - BLOOD, Ch. 13 and THE IMMUNE SYSTEM, Ch. 15

Th Lecture - THE IMMUNE SYSTEM, Ch. 15

**Handout Draft due at beginning of lecture, 11/05**

T Lab - Exercise Physiology

WTh Lab - Acid/Base Balance

**WEEK 12 (11/10, 11/12) — 11/11 — VETERANS' DAY – NO SCHOOL**

T Lecture - RESPIRATORY PHYSIOLOGY, Ch. 16  
Th Lecture - RESPIRATORY PHYSIOLOGY, Ch. 16  
T Lab - Acid/Base Balance  
WTh Lab - No Lab

**WEEK 13 (11/17, 11/19)**

T Lecture - PHYSIOLOGY OF THE KIDNEYS, Ch. 17  
Th Lecture - **EXAM 3 (Muscle - Respiratory)**  
TWTh Lab - Renal Physiology

**WEEK 14 (11/24, 11/26) — 11/26-11/27 – THANKSGIVING BREAK -- NO CLASS**

T Lecture - DIGESTION, Ch. 18  
No Lab

**WEEK 15 (12/01, 12/03)**

T Lecture - DIGESTION, Ch. 18  
Th Lecture - REGULATION OF METABOLISM, Ch. 19  
**Final Handout Project due at beginning of lecture, 12/03**  
TWTh Lab - Glucose Metabolism

**WEEK 16 (12/08, 12/10)**

T Lecture - REGULATION OF METABOLISM, Ch. 19  
Th Lecture: REPRODUCTION, Ch. 20  
TWTh Lab - Digestion  
**Case Study #2 due at beginning of lab**

**WEEK 17 (12/17) -- FINALS**

**FINAL, Thursday, 12/17 @ 11:15p-1:15p in P167**