

BIME 6006
HUMAN PHYSIOLOGY FOR BIOENGINEERS
Spring 2017

CLASS DAYS and TIME: Tuesday and Thursday, 8:30am – 9:45am, January 10 – June 16
CLASSROOM: Academic Learning and Teaching Center (AL&TC) 2.211
COURSE FACULTY: James Stockand, Ph.D. (Course Director), Jean Jiang, Ph.D.
OFFICE LOCATION and HOURS: 3.035V Medical School Building; To be arranged with faculty
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READ THIS DOCUMENT CAREFULLY - YOU ARE RESPONSIBLE FOR ITS CONTENTS.

COURSE DESCRIPTION AND OBJECTIVES

The objective of this course is to introduce students to human physiology with emphasis on physical principles, guiding rules, and quantitative approaches. The course will focus on cellular function and physiological processes as applied to human systems including cardiovascular, respiratory, musculoskeletal, nervous, digestive, renal, reproductive and endocrine.

Pre-requisites – Undergraduate Biology or its equivalent

Semester credit hours – 3 credit hours

By the end of this course, each student should be able to:

- Understand the basic concepts of human physiology.

COURSE ORGANIZATION

The main teaching modalities used in this course include:

- 1) Didactic lectures designed to convey information to the students in traditional lecture format
- 2) In-class discussion on specific topics.

Materials – Instructors' handouts may be used.

Computer Access – Students may need access to a computer and the internet to obtain course materials if applicable.

Reading Assignments – Reading assignments will be provided during the lecture.

ATTENDANCE

Attendance is mandatory. Students are expected to attend all classes and to be on time. In cases of illness or other serious event, the student is responsible for all materials presented on that day. There will be no make-ups for missed lectures.

TEXTBOOKS

Required: Human Physiology 7th ed., D. Silverthorn (Available in the UTHSCSA bookstore)

Recommended: Reading assignments are assigned.

GRADING POLICIES AND EXAMINATION PROCEDURES

The course will have four exams. Exams will be worth 25% each.

Grade scales: A = 90-100% B = 80-89% C = 70-79% D = 60-69% F = < 69%

REQUESTS FOR ACCOMODATIONS FOR DISABILITIES

In accordance with policy 4.2.3, **Request for Accommodation Under the ADA and the ADA Amendments Act of 2008 (ADAAA)**, any student requesting accommodation must submit the appropriate request for accommodation under the American with Disabilities Act (ADA, form 100) to his/her appropriate Associate Dean of their School and a copy to the ADA Coordinator. Additional information may be obtained at <http://uthscsa.edu/eo/request.asp>.

ACADEMIC INTEGRITY AND PROFESSIONALISM

Any student who commits an act of academic dishonesty is subject to discipline as prescribed by the UT System Rules and Regulations of the Board of Regents. Academic dishonesty includes, but is not limited to, cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an exam for another person, signing attendance sheets for another student, and any act designed to give unfair advantage to a student or the attempt to commit such an act. Additional information may be obtained at <http://catalog.uthscsa.edu/generalinformation/generalacademicpolicies/academicdishonestypolicy/>

TITLE IX AT UTHSCSA

Title IX Defined:

Title of the Education Amendments of 1972 is a federal law that prohibits sex discrimination in education. It reads “no person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity receiving Federal financial assistance.”

University of Texas Health Science Center San Antonio’s Commitment:

University of Texas Health Science Center San Antonio (UTHSCSA) is committed to maintaining a learning environment that is free from discriminatory conduct based on gender. As required by Title IX, UTHSCSA does not discriminate on the basis of sex in its education programs and activities, and it encourages any student, faculty, or staff member who thinks that he or she has been subjected to sex discrimination, sexual harassment (including sexual violence) or sexual misconduct to immediately report the incident to the Title IX Director.

In an emergency, victims of sexual abuse should call 911. For non-emergencies, they may contact UPD at 210-567-2800. Additional information may be obtained at <http://students.uthscsa.edu/titleix/>

EMAIL POLICY

All course communication will be conducted by e-mail using the student’s Livemail account. Students are expected to check their e-mail accounts regularly and are responsible for materials, assignments, notifications, and test materials distributed by e-mail.

USE OF RECORDING DEVICES

The use of recording devices is allowed.

ELECTRONIC DEVICES

Cell phones may not be used in class and must be shut off during class. Laptops or tablets can be used in class for class—related purposes and note taking. They may not be used for e-mail, web surfing, or any activity not related to class.

Dates (Day)	Topic	Reading	Lecturer
Jan 10, 2017	Introduction		Stockand
Jan 12, 2017	Homeostasis	1 - 19	Stockand
Jan 17, 2017	Genetic Code; Proteins and Enzymes	29 - 53	Stockand
Jan 19, 2017	Cell Structure	59 - 88	Stockand
Jan 24, 2017	Biochemistry and Metabolic Pathways	93 - 118	Stockand
Jan 26, 2017	Diffusion and Movement Across Membranes	123 - 160	Stockand
Jan 31, 2017	Body Fluid Compartments		Stockand
Feb 2, 2017	Signal Transduction and Control of Cellular Function	166 -192	Stockand
Feb 7, 2017	<i>Review for Exam 1</i>		Stockand
Feb 9, 2017	EXAM 1		Stockand
Feb 14, 2017	Bioelectricity	227 - 268	Stockand Shapiro
Feb 16, 2017	Central and Peripheral Nervous Systems	275 - 305	Stockand
Feb 21, 2017	Sensory Physiology	310 - 354	Stockand
Feb 23, 2017	Skeletal Muscle	379 - 402	Stockand
Feb 28, 2017	Somatic Nervous System	371 - 375, 420 - 431	Stockand
Mar 2, 2017	Smooth and Cardiac Muscle	403 - 412	Stockand
Mar 7, 2017	Autonomic Nervous System	359 - 370, 418 - 420	Stockand
Mar 9, 2017	<i>Review for Exam 2</i>		Stockand
Mar 14, 2017	spring break, no class		
Mar 16, 2017	spring break, no class		
Mar 21, 2017	EXAM 2		Stockand
Mar 23, 2017	The Cardiovascular System	436 - 442	Stockand
Mar 28, 2017	The Heart as a Pump	443 - 473	Stockand
Mar 30, 2017	Vascular and Lymphatic Systems	479 - 506	Stockand
Apr 4, 2017	Blood	512 - 530	Stockand
Apr 6, 2017	Filtration and the Renal Corpuscle	590 - 602	Stockand
Apr 11, 2017	Transport and the Renal Tubule	602 -612	Stockand
Apr 13, 2017	Fluid and Electrolyte Balance, Micturition	613, 619 - 640	Stockand
Apr 18, 2017	Renal Acid Base Balance	641 - 649	Stockand
Apr 20, 2017	<i>Review for Exam 3</i>		Stockand
Apr 25, 2017	EXAM 3		Stockand
Apr 27, 2017	Respiratory System	535 - 544	Stockand
May 2, 2017	The Lungs as a Pump	544 - 560	Stockand
May 4, 2017	Gas Exchange and Transport	565 - 580	Stockand
May 9, 2017	Control of Respiration and Revisiting Acid-Base	580 - 585	Stockand
May 11, 2017	Endocrine System	197 - 208, 215 - 218	Stockand
May 16, 2017	Hypothalamic-Pituitary Axis	209 - 214, 218 - 220	Stockand
May 18, 2017	Endocrine Control of Growth and Metabolism	730 - 742	Stockand
May 23, 2017	Endocrine Control of Ca and Bone	743 - 750	Stockand
May 25, 2017	Sex Determination and Male Reproductive System	801 - 815	Stockand
May 30, 2017	Female Reproductive Physiology	816 - 834	Stockand
Jun 1, 2017	Digestive System and the Enteric Nervous System	655 - 687	Stockand
Jun 6, 2017	Homeostatic Control of Metabolism	698 - 720	Stockand
Jun 8, 2017	Immune System and Body Defense	754 - 782	Stockand
Jun 13, 2017	<i>Review for Exam 4</i>		Stockand
Jun 15, 2017	EXAM 4		Stockand