

West LA College
HUMAN PHYSIOLOGY 001
Fall 2015
T & Th 6:45PM – 10PM
MSA 211
Section 4726



Course Description: This course explores the principles of human physiology. This course will encompass a broad variety of topics, including an introduction to the histology, cell biology, human genetics, and the major concepts of structure, function and pathology of the major human organ systems. This course is an extension of human anatomy and explores the physiological concepts of the human body at an in-depth level.

Course Objectives:

1. an understanding of general biologic concepts
2. an understanding of human physiology and how it relates to the mechanisms of human body function
3. an understanding of specific physiologic concepts such as: the electrical properties of cells, the regulation of human processes by hormones and nerves, the control of body temperature, blood pressure and respiration rate, the regulation of the urinary and reproductive system, the function of the heart and circulation system, the absorption of food and the integration of systems to maintain homeostasis
4. an understanding of specifically designed laboratory exercises in order to further our knowledge of specific physiologic systems
5. an enjoyment of science

WEST LA COLLEGE STUDENT LEARNING OUTCOMES (SLOs): West LA College as an institution is committed to an environment of learning and respect for its students. Its mission is to serve the community by providing quality instructional services through its programs and facilities. The college has created a series of Student Learning Outcomes (SLOs) that are designed to maximize the successes and experiences of the students here at WLAC.

A. Critical Thinking: Analyze problems by differentiating facts from opinions, using evidence, and using sound reasoning to specify multiple solutions and their consequences.

B. Communication: Effectively communicate thought in a clear, well-organized manner to persuade, inform, and convey ideas in academic, work, family, and community settings.

C. Quantitative Reasoning: identify, analyze, and solve problems that are quantitative in nature.

F. Technological Competence: Utilize the appropriate technology effectively for informational, academic, personal, and professional needs.

BIOLOGY PROGRAM (HEALTH SCIENCES) SLOs: In addition, the Health Sciences program within the Biology Division also has several unique SLOs.

A student who completes this program will be able to:

6. Use appropriate biological terminology to communicate with purpose and clarity, to consult others, and to question others empathically for the purpose of making informed decisions regarding the health status of a patient or a family member.
7. Recommend strategies to family members and/or patients that will help the human body recover from injury and/or defend itself against disease-causing microbes.
8. Recommend strategies to family members and/or patients that will protect the human body from the invasion of disease-causing microbes.
9. Explain how living things are organized, reproduce, acquire matter & energy, and inherit & express genetic instructions.

PHYSIOLOGY SLOs: At the end of the semester, the student should understand the following:

1. The chemical basis of life and how these chemicals can affect the function and health of the human body
2. The structure and function of the major cell types within the human and how this function is critical to human health
3. The function of the cellular components of a human cell
4. The structure and function of the human nervous system, including the functional roles of the somatic nervous system, the autonomic nervous system and special senses
5. The structure and function of the human cardiovascular system, including an understanding of how cardiac function (e.g. cardiac output, arterial blood pressure) impacts homeostasis
6. The structure and function of the human respiratory system, including an understanding of respiratory pressures, respiratory volumes and the function of hemoglobin in oxygen transport
7. The structure and function of the human digestive system, including an understanding of digestive enzymes and their impact on human nutrition
8. The structure and function of the human urinary system, including an understanding of renal physiology and how it impacts blood and urine composition
9. The function of the endocrine system, including an understanding of the human reproductive system

Prerequisites: this is a very rigorous course that will demand considerable time, effort and discipline. Therefore prerequisites will be strictly enforced. This course requires human anatomy and Biology 3 as prerequisites (minimum grade of "C") in addition to English 28. Also strongly recommended are English 101 and Chemistry 51.

Professor: Patricia Zuk, Ph.D

Phone: I do not provide students with my cell phone number. So - If you need to contact me immediately before class to tell me you are running late for an exam, you must do so through one of your fellow classmates – so be sure to exchange phone numbers. For other messages not of an urgent nature, leave an e-mail message at zukp@wlac.edu or zukpat@yahoo.com.

Website: I provide my students with basic versions of the lecture notes on my website – www.patriciazuk.com. This website is password protected with the username of **student** and the **case-sensitive password of #1Wlacstudent**. The notes are in powerpoint format and are easy to download and

print. Bring these printed lecture notes to class in order to help make your lectures easier and more productive. Please note - the lectures are “student lectures” and do NOT contain every detail you will find in my lecture presentations or will hear throughout my lectures. This is so that you are required to pay attention and write some things down. Therefore, please print out these lectures and bring them to class so that you may supplement them throughout the lecture/lab period with your own notes taken during class. I would recommend you print out a couple of lecture topics in advance in case we get done one lecture early and move onto the next topic. If you wish, you can bring a laptop since WLAC is a wi-fi campus. I update this site several times throughout the course and will let you know when you should go on-line to get new materials. You are welcome to tape my lectures.

Office hours: Tuesdays & Thursdays: MSB210 - from 6PM to the start of class.

Mailbox: Please do not leave written messages. I may not pick them up daily. Therefore, drop me an e-mail message to ensure I get your message.

Required Materials:

Course Text: I do not recommend a specific textbook as many physio texts are more than adequate. But I have listed a few texts you might find helpful. Save yourself some money and buy a used text. Older editions are more than adequate!!

1. ***Principles of Human Anatomy and Physiology, G. Tortora and B. Derrickson*** (11th edition). Earlier editions will be fine.
2. ***Human Physiology, L. Sherwood 6th edition. Thompson Publishing.*** Many figures in my lecture notes may be taken from this text. This is an excellent text for your collection. Earlier editions will be fine.
3. ***Vander’s Human Physiology, Widmaier 13th edition. McGraw Hill Publishing.*** This text is available on www.mhbm.com as an ebook with student assignments. You will have to register as a student on this site in order to access these assignments – if you wish to do them. They are NOT mandatory but may help you in your studying. However, registering on this site may allow you to purchase the ebook version of this textbook.
4. ***Fox Human Physiology, 13th edition. McGraw Hill Publishing.*** This would also be available through www.mhbm.com as an etext.
5. ***Human Physiology, D. Silverthorn 3rd edition. Pearson Publishing.*** This is a relatively advanced textbook and may be helpful in understanding some of the more difficult concepts

E-texts: In deference to those students who wish to have e-texts rather than paper ones, you may purchase an electronic copy of many of these texts listed above. In addition, you can also “bundle” your e-text with McGraw Hill’s on-line learning system ConnectPlus. This will give you access to various assignments that may help you in your studying (LearnSmart) and their on-line system of flashcards to help quiz you on what you have learned (SmartBook). You will also be given access to Anatomy and Physiology Revealed which will help you to remember the anatomy you should have already taken! To purchase an electronic copy of the Vander’s or Fox’s Human Physiology texts go to <http://www.mhbm.com>. Current pricing for 1 semester of ConnectPlus is \$85.00. Other online systems from other publishers may be available to you and I will give you information on those as I come to learn of them.

Recommended Materials:

The more reference material you can have for physiology the better. The bookstore has an excellent “Lab manual” that may help you integrate your previous anatomy knowledge with what you are learning in physiology. It is called “A visual analogy guide to Human Anatomy & Physiology” (2nd Edition). It is authored by Paul Krieger (ISBN-13: 978-161731-066-9, Morton Publishing). You might want to pick this up as it has several excellent diagrams and exercises to help in the understanding of major physiology concepts.

Other materials Needed:

1. Scantrons for exams. Form 882-N-E. These may be purchased in packets from any college bookstore.
2. Number 2 pencils for the scantrons
3. Notebooks – Even though I recommend that you bring the printed lectures to class, you will also be required to re-create simple figures and diagrams that I will present to you throughout lecture. So be sure to buy a notebook for taking notes. I would recommend a three ring binder as I will give you handouts throughout the semester. A three-ring binder will allow you to organize these handouts with your notes.
4. Colored pens – I would also recommend buying a pack of colored markers/pens/pencils for the drawings you will copy from the board.

Attendance: I will not take attendance at lecture/lab beyond the first week of class. However, you are all adults and must obviously realize that to do well you must come to lecture/lab. Your grade will depend on your active attendance and your participation during lectures. You will be responsible for all information, lecture notes etc... that you miss. **DO NOT skip a lecture and then ask me for help. There must be DIRE circumstances for you to miss an exam so don't even try it! THEREFORE CHECK YOUR SYLLABUS! SCHEDULING VACATIONS DURING EXAM TIMES WILL NOT BE CONSIDERED AN EXCUSE FOR MISSING AN EXAM!!! I cannot stress this enough.**

Drop dates: All enrollment procedures are to be completed by YOU!! **YOU are responsible for your enrollment status in this course and in all others!!!** So.....Be aware of drop dates. I will NOT drop you from the course until you confirm your decision with me. Therefore – if you choose to leave the class and do not drop – you will receive a failing grade at the end of the semester. You are responsible for obtaining this withdrawal by asking me to sign the appropriate withdrawal slip. If not, you will receive a failing grade and I will NOT comply with any appeals etc.... Therefore, be responsible. Please do NOT assume I will take responsibility for maintaining your enrollment status because I will not.

Exams: All exams will include multiple-choice questions so bring a scantron and pencils. Exams may also include fill in the blank questions and short answers. The exams will encompass all lectures prior to the exam date. Your quizzes will be mainly short answer and fill in the blanks. **You will have five written exams and several quizzes throughout the semester.** All exams are equally weighted. All quizzes are equally weighted. You cannot make an exam or a quiz up – so check your personal schedule with that of the class. **Please be aware the WLAC Standards of Student Conduct will be strictly enforced for all examinations and during each class period.** Improper classroom conduct will result in verbal warnings and me asking you to leave the classroom. Plagiarism and any form of cheating during an exam or quiz will be grounds for me asking you to leave the classroom, confiscation of any testing material, a grade of “0” or “F” on such exams and possible

disciplinary action with the college. Please download and read the WLAC Standards of Student Conduct that is posted on www.patriciazuk.com under your WLAC physiology link.

Course Break-down:

Lecture exams: 5 exams @ 100 points each	500 points
Quizzes: 5 quizzes @ 10 points each	50 points
TOTAL	550 points

HUMAN PHYSIOLOGY WLAC

Patricia Zuk, Ph.D.

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FALL 2015

Schedule of Topics

Because several of you may opt to use different textbooks – actual chapter numbers for pre-class reading assignments are not given on this schedule. This means that you will have to find the corresponding topic in your textbook. You are expected to arrive at class prepared for each lecture. This will involve downloading and reading the lecture being planned for that class period and any text book chapters this topic involves.

<u>Week</u>	<u>Date</u>	<u>Topic</u>	
1	Sept 1 Sept 3	Introduction to Physiology, Basic Biochemistry and Homeostasis Cell Physiology The nucleus: Genetics, DNA, RNA and protein synthesis	
2	Sept 8 Sept 10	Cell Physiology cont..... The nucleus: Genetics, DNA, RNA and protein synthesis Cell Physiology cont... The plasma membrane: structure and composition Cellular transport and Membrane Potentials	DNA transcription lab
3	Sept 15 Sept 17	Cell Physiology cont... Cytoskeleton, cytosol and organelles Cellular respiration: glycolysis and oxidative phosphorylation LECTURE EXAM #1	QUIZ: DNA replication & transcription
4	Sept 22 Sept 24	The Nervous System Neurons and Glial cells Action Potentials and Synaptic transmission: Synapses The Central Nervous System Organization of the Nervous System: CNS & PNS Protection of the CNS: Cerebrospinal fluid Organization and Functions of the CNS	“Fun with your Brain” Lab
5	Sept 29 Oct 1	The Peripheral Nervous System The Somatic division and the Neuromuscular junction Reflexes The Peripheral Nervous System The Autonomic Nervous System	Reflexes Lab QUIZ: Nervous Tissue and the CNS

6	Oct 6	The Peripheral Nervous System (Special Senses) Sensory receptors & pathways Special Senses – Taste, Smell & Hearing	
	Oct 8	The Peripheral Nervous System (Special Senses) Special Senses – Vision	
7	Oct 13	LECTURE EXAM #2	
	Oct 15	The Endocrine System Hormones and the endocrine organs	
8	Oct 20	The Endocrine System cont.... Hormones & Neurotransmitters: types and modes of signaling Receptors & Signal transduction	
	Oct 22	The Reproductive System Reproductive Physiology	
9	Oct 27	Muscle Physiology	QUIZ: Endocrinology and the Reproductive Sys.
		Skeletal Muscle Contraction: Molecular Basis The mechanics of Skeletal muscle contraction	
	Oct 29	Muscle Physiology cont....	
10	Nov 3	LECTURE EXAM #3	
	Nov 5	Blood and the Immune System Hematology: blood composition Blood types and antigens Blood clotting	Blood lab
11	Nov 10	Immunity cont.... White blood cells and immunity	
	Nov 12	The Cardiovascular system Cardiac Physiology Cardiac cycle and output The EKG	
12	Nov 18	The Cardiovascular system cont... Blood vessels & blood pressure	Blood Pressure Lab
	Nov 20	Respiratory System Respiratory Mechanics Gas Exchange Control of Respiration	QUIZ: Blood & CV System

13	Nov 24	LECTURE EXAM #4	
	Nov 26	THANKSGIVING – NO CLASS	
14	Dec 1	Digestive System	
		Overall structure and function	
		Digestive enzymes: food breakdown and absorption	
		Control of the digestive system: energy balance	
		Homeostasis: insulin/glucagon action	
	Dec 3	Digestive System cont.....	
15	Dec 8	Urinary System	QUIZ: Digestive System
		Filtration pressures and rates	
		Control of reabsorption	
		Fluid and acid-base balances	
	Dec 10	LECTURE EXAM #5	

This is a TENTATIVE schedule of topics. Topics may be changed to accommodate time needed.