

Suffolk County Community College
Eastern Campus - Riverhead, New York

Anatomy and Physiology I – BIO130
Fall 2009
CRN # 91256 Section # 300

<p><u>Instructor:</u> Amy Warena Czura, Ph.D. (pronounced: dok ter zhur ra) czuraa@sunysuffolk.edu (*email is the best way to reach me!!!) Shinnecock 219 548-2628 (Department secretary) 548-3560 (Dr. Czura's voice mail) web site: http://www2.sunysuffolk.edu/czuraa</p>	<p><u>Office Hours:</u> Tuesday 7:50 – 8:20, 11:50 – 1:00 Wednesday 9:15 – 11:00 Thursday 7:50 – 8:20, 11:50 – 1:00 Or by appointment Anytime via email!</p>
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Textbooks: Fundamentals of Anatomy and Physiology, Seventh Edition ISBN# 9780805383126 or Eighth Edition ISBN# 9780321505712, by Frederic H. Martini, Benjamin Cummings, 2006 or 2009.

**Note: if you have another current college-level Anatomy and Physiology text such as Marieb or Tortora you do not have to purchase this particular book, assuming you take good notes in class and are capable of self-guided reading. See me if you have questions.

Human Anatomy and Physiology Laboratory Manual Cat Version, Eighth Edition ISBN# 9780805372533 or Ninth Edition ISBN# 9780805372632 by Elaine N. Marieb, Benjamin Cummings, 2005 or 2008.

**Everyone will need his/her own copy of this lab text.

Supplemental study aides (completely optional: look them over at the library before you spend the money):

A Visual Analogy Guide to Human Anatomy & Physiology, by Paul A. Krieger, Morton Publishing Company, 2009. ISBN# 9780895828019 (There are also just the Anatomy ISBN# 9780895826596 or just the Physiology ISBN# 9780895827074 versions available)

An Illustrated Atlas of the Skeletal Muscles, by Bradley S. Bowden and Joan M. Bowden, Morton Publishing Company, 2005. ISBN# 0895826704

Anatomy and Physiology Revealed 2.0 CD-ROM, McGraw-Hill, 2008.

ISBN#978-0-07-337807-7 or purchase a one-year subscription at <http://www.mhhe.com/biosci2/anatomyrevealed/> (Be careful on Amazon or similar shopping sites: earlier versions do not have all the body systems like 2.0 or the on-line access do.)

*Supplemental study aides are available at the Eastern Campus Library at the reserve desk under Czura. This collection includes a copy of each of the above supplements as well as other coloring books, atlases, teacher's editions with study questions answers, flash cards, and copies of lectures notes and lab materials. A complete listing is available on my website <http://www2.sunysuffolk.edu/czuraa>

Required materials for in class use:

1. Notebook paper or printed notes from the website pertaining to the chapter being discussed
2. Writing implements
3. Instructor provided handout pertaining to the chapter being discussed
4. Lab book for use during lab periods

Course description:

This course will introduce students to the basic structure and function of the human body. Students will learn general chemical principles and basic cellular biology in order to better understand the principles of human biology. A variety of anatomical terms and physiological functions pertaining to the human body will be explored. When appropriate, active dissection and observational specimens will be utilized to demonstrate anatomical features.

In the first half of the two-semester Anatomy and Physiology course, students will study the characteristics of various tissue types, the integument system, skeletal system, muscular system and nervous system, focusing both on the anatomical features as well as achieving an understanding of their actions and functions. The remaining systems will be explored in Anatomy and Physiology II.

Instructional goals/learning objectives:

Students will demonstrate a gain in the intimate knowledge of the molecular, cellular, and histological knowledge of the human body. Instructional goals include, but are not limited to, the following:

- Communicate about the human body using standard anatomical language.
- Understand physiological principles based on the foundation of homeostasis.
- Identify the levels of organization of human structure and their relatedness.
- Review chemical principles and nomenclature to facilitate comprehension of biological principles.
- Distinguish between organic and inorganic compounds.
- Explain the molecular basis of life's dependence on water.
- Discuss the importance of electrolytes, pH and the role of buffers in body fluids.
- Discuss the structure and functions of carbohydrates, lipids, proteins, nucleic acids, and high-energy compounds.
- Introduce the principles of cytology.
- Describe the organelles of a human cell and the functions of each.
- Provide an understanding of cell membrane structure and function and transmembrane potential.
- Outline the process of protein synthesis.
- Discuss the nature and importance of the genetic code.
- Explain the processes and functions of nuclear and cellular division.
- Discuss the functions and implications of stem cells and cell differentiation.
- Introduce the principles of histology.
- Discuss the properties, functions and relationship between form and function for each epithelial type.
- Compare the structures and functions of the various types of connective tissues.
- Describe the three types of muscle tissue and their specialized structures.
- Describe the structure of neural tissue in terms of neurons and neuroglia.
- Describe how injury, aging and mutation affects tissues of the body.
- Specify the general structure and functions of the integumentary system including epidermis, dermis and all accessory structures.
- Explain what accounts for individual, age-related, and racial differences in skin and accessory integument structures.
- Discuss the effects of UV radiation and its relatedness to Vitamin D production.
- Discuss structure, function and secretion types of integumentary glands.
- Explain thermoregulation as related to the integumentary system.
- Describe how the skin responds to injury and repairs itself.
- Introduce the functions of the skeletal system.
- Describe the histology of bone including matrix, cells, and coverings.
- Compare the formation of intramembranous and endochondrial bone.
- Outline the process of bone remodeling and adaptation to stress.
- Discuss the effects of nutrients, hormones, and aging on bone development and the skeletal system.
- Outline how hormones interact with bone cells to maintain constant blood calcium levels.
- Describe the anatomy and cellular mechanisms of fracture repair.
- Identify all the bones and relevant bone markings of the axial skeleton and their relatedness to each other.
- Describe the curvatures of the spinal column and their functions.
- Identify the vertebral regions and compare and contrast their functional characteristics.
- Identify the bones and bone markings of the pectoral girdle and their relatedness to each other.
- Identify the bones and bone markings of the upper limbs and their relatedness to each other.
- Identify the bones and bone markings of the pelvic girdle and their relatedness to each other.
- Identify the bones and bone markings of the lower limbs and their relatedness to each other.
- Explain how skeletal structure can reveal information about an individual.
- List and describe structural and functional categories of joints.
- Describe the general structure of synovial joints.
- Detail the form and function of synovial joints and use anatomical terms to describe movements.

- Describe the cellular and histological features of muscles as organs.
- Identify and characterize the components of a sarcomere.
- Identify the components of a neuromuscular junction and how they function in nerve-muscle control.
- Detail the steps in excitation-contraction coupling.
- Explain key steps in contraction of a skeletal muscle fiber.
- Describe whole muscle contractile behaviors, hypertrophy, and atrophy.
- Describe muscle energetics, fatigue and recovery.
- Relate motor unit types to performance.
- Describe muscle architecture and its relatedness to mechanics.
- Identify the origins, insertions, and actions of prime movers of the skeleton.
- Characterize the anatomical and functional divisions of the nervous system.
- Describe neuron anatomy and classification.
- Introduce CNS and PNS neuroglia.
- Explain the origin and maintenance of resting potential.
- Compare and contrast graded potentials and action potentials.
- Describe nervous impulse generation, transmission and modification.
- Describe the gross and cross-sectional anatomy of the spinal cord and nerves.
- Explain the structure and function of spinal and cranial meninges and CSF.
- Outline nerve formation, plexuses and peripheral distributions.
- Show how neuronal organization supports information processing.
- Describe reflex arcs.
- Name the major anatomical regions of the brain and outline their individual functions.
- Identify the components and functions of the limbic system.
- Define the cerebral aspects: motor and sensory cortex areas, white matter, and basal nuclei.
- Name and identify the twelve cranial nerves and their functions.
- Describe the general properties of sensory receptors, sensation and perception.
- Explore the structure, function and neurochemistry of both divisions of the Autonomic Nervous System.
- Describe the cellular anatomy and physiology of olfaction.
- Describe the cellular anatomy and physiology of gustation.
- Describe the anatomy and physiology of the eye and accessory structures.
- Outline the cellular and molecular transduction of light into perceptions of vision and color.
- Describe the anatomy and physiology of the outer, middle and inner ear.
- Trace the histological and cellular mechanisms of equilibrium and hearing.

Policies, Attendance and Student Responsibilities:

Attendance

Attendance is mandatory, and you are expected to arrive on time. Regardless of excuse YOU are solely responsible for all material covered in class, both lecture and lab. There will be ***NO make-up*** lab exercises, quizzes, or exams. If you must miss a quiz for a VALID REASON you must contact me BEFORE the start of class (email or voicemail) to be excused from receiving the grade of zero. Because the lowest exam grade is dropped, a missed exam, regardless of reason, with a grade of zero, now becomes the grade you drop.

The college defines excessive absence or lateness as more than the equivalent of one week of class meetings during the semester. Excessive absence or tardiness may lead to failure of the course.

Cell phones and recorders

TURN OFF YOUR CELL PHONE!!! If your phone, pager, or other noise producing electronic device disrupts the lecture you will be asked to leave the class. The college does not permit the use of cell phones for any reason, including as a calculator, during exams. Talking on a cell phone, text messaging, web surfing, and other distracting activities are strictly prohibited. If you are caught engaged in activities not pertinent to the lesson, the distracting object may be confiscated or you may be asked to leave the class.

Use of audio recorders is permitted so long as they do not interfere with the learning process of others. You are welcome to place your recorder on the front table for better sound quality.

Required reading and preparation

You are required to read the chapters pertaining to the lecture and lab in advance to be familiar with the material. The lecture experience is a much more useful when the time can be spent learning the concepts rather than attempting to decipher new and unfamiliar vocabulary. The lecture period is

inadequate to complete your learning of this dense material. The majority of your comprehension will depend on your reading and studying outside of class. For college courses, expect to spend a minimum of three hours studying outside of class for every hour in it. For courses as dense as this one, expect to spend even more time getting yourself appropriately invested.

Withdrawal and Failure

Do not vanish from the course. If you decide that you no longer wish to be enrolled in the class, regardless of reason, you *must officially withdraw yourself* at the registrar's office by the mid-semester withdrawal date indicated on the academic calendar. If you fail to attend the assigned meeting times and exams without filing withdrawal paperwork you will be issued a permanent grade of "F" for the course. I will allow withdrawals from the course up to and including last day for anyone who does not achieve a C or higher as the final grade. You will need to acquire and fill out the proper form, have it signed by me, and submit it to the registrar no later than 5pm on the last day of class. Do note that a W will not affect your GPA, but it also does not count as credits toward full-time status.

Regardless of your situation at any point in the semester, come speak to me BEFORE withdrawing so we can assess your standing. Many students panic over one bad grade and it would be a shame for you to throw the course away if you are doing better than you think. Since I do allow you to withdraw at the end, there is no risk in sticking it out.

How to get the most out of this course (a.k.a. how to get a good grade):

The texts

All quiz and exam questions will be derived from material covered in class, therefore your notes are very important. Your textbook is a required reference tool to aid in your complete understanding of material covered in class. You are not held responsible for material in addition to that being outlined in class however your reading of the pertinent text is essential to your learning. You are responsible for complete comprehension of all of the material outlined in class and that can only be accomplished by extensive reading on your own. We simply do not have time to cover it all in adequate detail to insure your complete understanding in class alone.

Your notes

PDF files or hard copy prints of the Power Point slides/overheads used in class can be found on my web site at www2.sunysuffolk.edu/czuraa or in the Eastern campus library at the reserve desk. Students who know that they are slow note-takers often choose to come to class with the Power Point notes and take margin notes as necessary while I lecture. Other students choose to copy notes from the projected slides during the lecture. Either way, you should get in the habit of recopying your notes after each lecture, using your text book as a guide to add clarity where necessary. The recopying will serve three purposes:

1. It will reinforce the material, as repetition is the key to learning
2. It will make you aware of anything you were unclear on so that you could ask for clarification in the next class period or during office hours while the material is still timely
3. It will provide you with a nice clear study aid for exams and quizzes so you can spend your study time learning from your notes instead of trying to decipher them.

It may seem like extra work, but faithful recopying will shorten your study time and lower your frustration level later, as well as allowing you to really learn the material instead of just memorizing facts in the short term. The more you write and read and hear the material, the better you will be able to retain it. This is not the kind of course where you catch up easily if you fall behind. Keep up on the material.

Make connections

Do not make the mistake of treating the lecture and the lab as completely different courses. Although the timing may not perfectly coincide, both aspects of the course deal with the same or at least

similar information. Lab provides a tactile and visual learning experience to complement the auditory information in the classroom. If an explanation or diagram is unclear in your textbook, look in your lab book and vice versa. The exams may have different emphasis on the details but the facts of Human Anatomy and Physiology remain the same.

Exam strategy

Always write something on exams and quizzes. There is no penalty for wrong answers. Partial credit will be given for any information that is accurate, even if the answer is incomplete. Certainly on multiple choice questions you might as well take a guess. Sometimes you know things you don't know you know and sometimes you can just get lucky.

Utilize the time you paid for

I have office hours. Ask when you fail to understand something, do not just ignore it and hope it goes away. There are no stupid questions and you will not be bothering me. The office hours are for you and I am more than willing to try to find a way to explain something to you so it will make sense.

Utilize the entire lab period. You are allowed to work at your own pace and leave whenever you feel you are finished, so there is the temptation to get out as early as possible. This is your time to get one-on-one instruction from me if you are in need of clarification. Make use of me! It might be your only chance to really make sure you understand what is going on.

Student assessment:

Quizzes

Quizzes will be given weekly and will cover the material since the previous quiz or exam, generally two lectures worth of material. You will be given approximately five minutes at the start of class to complete the quiz. Do not be late as quizzes will be collected promptly at five minutes past the start of class, regardless of when you arrived. If you wish more time you may come to class ten minutes early and begin on arrival. Quizzes are usually a fill-in format. The purpose of the quizzes is to insure that you are keeping up on the material weekly. Just cramming the night before an exam is a sure way to fail a course as dense as this one.

Lecture exams

Lecture material will be broken into four units with an exam on each unit. Exams are usually a multiple-choice format. The exams will cover the material since the last exam and are not cumulative. You will have the entire lecture period to complete the exam on the day it is scheduled. There will be no additional lecture material on the same day following an exam. For Lecture exams 1, 2, & 3, the exam may be repeated at home immediately following the in-class exam. The take-home exam must be turned in at the beginning of the next lecture period. Late take-home exams will not be accepted. The final grade for the exam will be calculated as the in-class score plus one-third of the positive difference between the in-class and take-home score. (Do NOT assume this means that you do not have to study for the in class exam. For example: You get an in-class score of 25 because you didn't study. But you work hard from your notes and your book and get a take-home score of 98. $98 - 25 = 73 \div 3 = 24.3$, so your final grade is $25 + 24.3 = 49.3$. At 50% you are still failing! It is therefore important to do as well as possible on the in-class part. This is merely a way to correct your mistakes and learn from them while earning a few extra points, not a mechanism to get you out of studying. The fourth exam, on the last day of class, will be a standard in-class exam with no take-home component.

Lab practical exams

Lab material will be broken into two parts with an exam on each. The practical exams will cover material since the previous exam and are not cumulative. Lab practical exams tend to be in the format of question stations around the room where you are asked to identify features on the slide/specimen/object.

Spelling does matter and no word banks are provided. The time allotted to a lab exam will be determined by the complexity of the exam and the manner in which it is administered. There will be no new lab activities on the same day following an exam.

Grading:

Your performance on four lecture exams, ten weekly quick quizzes, and two lab practical exams will determine your grade. Each exam and the average of all the quizzes will count equally, and the lowest of these seven grades will be dropped (each counted grade will be approximately 16.7% of the total course score). If you have taken all exams and quizzes and have an “A” average, you may be excused from the last lecture exam. There are **no** additional curves or extra credit projects as your grade should represent the percentage of material you mastered. Your final grade will be calculated according to the college catalog as follows:

- 90% and above = A
- 85.0 – 89.9% = B+
- 80.0 – 84.9% = B
- 75.0 – 79.9% = C+
- 70.0 – 74.9% = C
- 65.0 – 69.9% = D+
- 60.0 – 64.9% = D
- 59% and below = F

Work hard and good luck! Record your grades here to keep track of your progress:

Quiz 1	
Quiz 2	
Quiz 3	
Quiz 4	
Quiz 5	
Quiz 6	
Quiz 7	
Quiz 8	
Quiz 9	
Quiz 10	
QUIZ AVERAGE	

Exam 1	
Exam 2	
Exam 3	
Exam 4	
Practical 1	
Practical 2	
QUIZ AVERAGE	

To calculate your final grade, add the highest of the six numbers above and divide by six.

Grades often seem a mystery to students. The numerical convention is to express grades as a percentage so that regardless of the number of questions on any one exam we are all representing the percent of material you got correct. When there are 100 points, you do the percent math automatically in your head, since percents are based on 100. So if you got 85 of them correct, you got 85% of them correct and thus a grade of 85% $[(85 \div 100) \times 100]$. When there are 83 questions and you got 71 of them correct, you got 85% percent of the questions correct and thus an 85% as a grade. (85.54% actually, $[(71 \div 83) \times 100]$.) The formula is always the same: number of questions correct divided by the total number of questions, multiplied by 100 equals the percent of questions correct and thus your grade. It is no mystery, just simple math!

BIO130 Lecture Schedule Mondays & Wednesdays 8:00 – 9:15

LEC #	DATE	TOPIC	CHAPTER for lecture
1	8/31/09	Course Policy and Introduction (Receive Chapter 2 Chemistry for homework*: you are expected to know the material up to Organic Chemistry for the next lecture! General Chemistry is a prerequisite: lecture time will not be spent reviewing it.)	1
2	9/2/09	Take Home Quiz Due Quiz 1 (on Lecture # 1 and Chemistry packet up to Organic) / Terminology & Organic Chemistry from homework packet	1, 2
	9/7/09	No Class: Labor Day	
3	9/9/09	Quiz 2 (Lec # 2) / Organic Chem & Cellular Organization	2, 3
4	9/14/09	Cellular Organization	3
5	9/16/09	Quiz 3 (Lec # 3, 4) / Cellular Organization	3
6	9/21/09	Cellular Organization, Cellular Respiration (on Exam 2 not Exam 1)	3, 25(Respiration only)
	9/23/09	EXAM 1 (Chapters 1, 2*(packet), 3 / Lectures # 1-6)	
	9/28/09	No Class: Yom Kippur	
7	9/30/09	Quiz 4 (Lec # 6 Respiration) / Tissues Take Home Exam Due	4
8	10/5/09	Tissues	4
9	10/7/09	Quiz 5 (Lec # 7, 8) / Tissues	4
10	10/12/09	Integumentary System	5
11	10/14/09	Quiz 6 (Lec # 9, 10) / Integumentary System	5
	10/19/09	EXAM 2 (Chapters 25(respiration), 4, 5 / Lectures # 6-11)	
12	10/21/09	Skeletal System Take Home Exam Due	6
13	10/26/09	Skeletal System	6, 7
14	10/28/09	Quiz 7 (Lec # 12, 13) / Skeletal System & Muscular System	8, 9
15	11/2/09	Muscular System	10
16	11/4/09	Quiz 8 (Lec # 14, 15) / Muscular System	10
17	11/9/09	Muscular System	10, 11
	11/11/09	No Class: Veterans Day	
	11/16/09	EXAM 3 (Chapters 6-11 / Lectures # 12-17)	
18	11/18/09	Nervous System Take Home Exam Due	12
19	11/23/09	Nervous System	12
20	11/25/09	Quiz 9 (Lec # 18, 19) / Nervous System	12, 13
21	11/30/09	Nervous System	13, 14
22	12/2/09	Quiz 10 (Lec # 20, 21) / Nervous System	14, 15
23	12/7/09	Nervous System	15, 16
24	12/9/09	Nervous System & Special Senses	16, 17
25	12/14/09	Special Senses	17
26	12/16/09	Special Senses	17
	12/21/09	EXAM 4 (Chapters 12-17 / Lectures # 18-26)	

*Note that all of Chapter 2 Chemistry will be included on Exam 1 but the notes will be handed out in class and students are expected to review this on their own as homework (Chemistry is a prerequisite: students are expected to already know General Chemistry material).

BIO130 Anatomy and Physiology I

East Campus

Laboratory Schedule Fall 2009

Course Coordinator: Amy Czura, S219, 548-3560, czuraa@sunysuffolk.edu

Laboratory Activity Book: Human Anatomy and Physiology Laboratory Manual Cat Version, Ninth Edition by Elaine N. Marieb, Benjamin Cummings, 2008.
 Web Resources and Objective Sheets at <http://www2.sunysuffolk.edu/czuraa>

CRN#	91256	91260	93299	93300	
Section#	300	301	402	403	
Instructor:	Czura	Sluyters	Kenny	Armenti	
P.A.:					
Date:	Monday	Tuesday	Monday	Thursday	
	08/31	09/01	09/14	09/10	Laboratory Activities: (See Objective Sheets for specific activities and exercises)
	09/14	09/08	09/21	09/17	Lab 1: Microscopy & Terminology (Ex. 1, 3, Supplement worksheet)
	09/21	09/22	10/05	09/24	Lab 2: Cell Anatomy & Transport Mechanisms (Ex. 4, 5)
	10/05	09/29	10/12	10/01	Lab 3: Cellular Processes: Mitosis, Cellular Respiration, & Enzyme Activity (Ex. 4, Supplemental experiment worksheet)
	10/12	10/06	10/19	10/08	Lab 4: Histology: Tissue Types (Ex. 6A)
	10/19	10/13	10/26	10/15	Lab 5: Integumentary System (Ex. 7)
	10/26	10/20	11/02	10/22	Lab 6: Skeletal System I: Bone Histology & Axial Skeleton Bones and Markings (Ex. 9, 10, 12)
	11/02	10/27	11/09	10/29	<i>Lab Practical Exam 1: Labs 1-6</i>
	11/09	11/03	11/16	11/05	Lab 7: Skeletal System II: Appendicular Skeleton Bones and Markings, Synovial Joints, & Movements (Ex. 11, 13)
	11/16	11/10	11/23	11/12	Lab 8: Muscular System I: Skeletal Muscle Anatomy, Locations & Actions (Ex. 14, 15)
	11/23	11/17	11/30	11/19	Lab 9: Muscular System II: Skeletal Muscle Origins and Insertions (Review appendicular skeleton markings in context of skeletal muscle attachments) (Ex. 15)
	11/30	11/24	12/07	12/03	Lab 10: Nervous System I: Nervous Tissue Anatomy, Spinal Cord, Spinal Nerves, & Reflexes (Ex. 17, 21, 22)
	12/07	12/01	12/14	12/10	Lab 11: Nervous System II: Brain and Cranial Nerves (Ex. 19)
	12/14	12/08	12/21	12/17	Lab 12: General and Special Senses (Ex. 23, 24, 25, 26)
	12/21	12/15	12/22	12/15	<i>Lab Practical Exam 2: Labs 7-12</i>
					*Movie: "Inside the Living Body"

*Day classes meet 15 times with a lecture before each lab. Night classes meet 14 times independent of lecture. Since the last meeting of day classes could be the same day for both lecture and lab, the last day lab is scheduled to watch a movie so that it is not possible that students would have an exam in both lecture and lab on the same day. The night classes can show this movie in the otherwise wasted second half of the lecture period after the lecture final exam.