

Human Anatomy & Physiology I (HSC 230) FALL 2019

Lecture: Mon/Weds 10:00-11:15 (Sections C-C4) JS 134

Laboratory: Mon 12-1:50 (Sections E) +

Tues 8-9:50 & 10-11:50 & 12-1:50 (Sections B, D & F) – All labs are in HSHP 119

Professor H. Borgeas, M.S.

Office: HSHP 208

E-mail: hborgeas@ut.edu

Office Hours: M & W 8:00-9:30, T 1:50 – 3:50 and by appointment

(NOTE: if I am not in this location, please check our lecture room or laboratory)

Course Materials:

1) **Bundled package of text book & Connect access card** (2 semesters worth & most cost effective).

Human Anatomy & Physiology, 8th edition, Saladin, 2017, McGraw Hill. Purchase at UT's bookstore -

specific for our class ISBN: 9781260253580

2) **Clicker:** iClicker Co., code can be purchased many places or can rent at UT's bookstore.

		Lecture Syllabus	<i>Reading Assignment</i>	<i>Lab Related</i>
<i>Week</i>	<i>Date</i>	<i>Topic</i>	Select pages from:	<i>Activities</i>
1	Aug 26 / 28	Introduction & Syllabus Terminology To The Human Body & Intro to Chemistry	Chapters 1 & 2 Atlas A	
2	Sep 2 / 4	<i>Monday No Lecture - Labor Day</i> Chemistry cont.	Chapter 3	
3	Sep 9 / 11	Cells: The Living Units of Form & Function Cells cont.	Chapter 3	Quiz #1
4	Sep 16 / 18	*MON EXAM I (Chapters 1-3) Genetics & Cellular Function	Chapter 4, 5 & 6	Lab Practical 1
5	Sep 23 / 25	Cellular Function & Histology Histology & Integumentary System	Chapter 6	
6	Sep 30/ Oct 2	Integumentary continued & Review EXAM II (Chapters 4-6)	Chapters 7 & 8	Quiz #2
7	Oct 7 / 9	Introduction to Bones & Skeletal Tissue Skeletal System continued	Chapters 8 & 9	Lab Practical 2
8	Oct 14 / 16	Arthrology & Discussion Board #1 Arthrology Continued & Review	Chapter 9	
9	Oct 21 / 23	*MON EXAM III (Chapters 7 - 9) Intro to Muscular System & Physiology	Chapter 11 & Atlas B	Quiz #3
10	Oct 28 / 30	Muscular Tissue Muscle Contraction & Relaxation <i>Note: last day to drop a course is Nov 5th</i>	Chapter 10	Quiz #4
11	Nov 4 / 6	Muscle Structure/Function Comparison EXAM IV (Chapters 10 – 11 / Atlas B)	Chapter 12	Lab Practical 3
12	Nov 11 / 13	Nervous System	Chapter 12 & 13	
13	Nov 18 / 20	Spinal Cord, Nerves & Reflexes	Chapters 14	
14	Nov 25 / 27	Autonomic Nervous System & Visceral Reflexes <i>No Classes after Tuesday</i>	Chapters 14 & 15 <i>Thanksgiving Break</i>	Quiz #5
15	Dec 2 / 4	Continue ANS & Reflexes EXAM V (Chapters 12-15)	Chapter 15	Lab Practical 4
16	December 11th WEDNESDAY 11am-1pm	Comprehensive Final (Chapters 1-15) Wed 11am-1pm		

The instructor reserves the right to modify the class schedule if needed.
Students will be notified of changes in advance via class, email or Blackboard.

Course Description: Human Anatomy & Physiology Lab I (HSC 234) is an introductory course that provides the foundation for those seeking to enter health care, athletic training, physical therapy or other associated careers. **This intensive course requires daily self-study to succeed.**

This course will draw material from the lab supplemental materials as well as the lecture textbook. It will provide an introduction to the basic tissues of the human body as well as the bones, muscles and brain. The primary objective in lab is to identify specific structures and the anatomical relationship between structures. Understanding anatomical relationships help us to understand the physiological processes that occur in those structures. These processes are described and studied in detail in the lecture portion of the class. The lab manual, lab exercises, interactive Anatomy & Physiology Revealed and other ancillary materials will be used to help ensure your success of understanding anatomy and physiology functions. After completion of this course, the student will be able to explain structures and functions of the covered body systems and be able to describe relationships between the body systems. This is a “hands-on” course designed to reinforce and supplement the principles taught in lecture.

Course Goals:

- 1) Develop a vocabulary of appropriate terminology to effectively communicate information related to anatomy and physiology.
- 2) Recognize the anatomical structures and explain the physiological functions of skeletal, muscular and nervous body systems.
- 3) Recognize and explain the principle of homeostasis and the use of feedback loops to control physiological systems in the human body.
- 4) Use anatomical knowledge to predict physiological consequences and use knowledge of function to predict the features of anatomical structures.
- 5) Recognize and explain the interrelationships within and between anatomical and physiological systems of the human body.
- 6) Synthesize ideas to make a connection between knowledge of anatomy and physiology and real-world situations, including healthy lifestyle decisions and homeostatic imbalances.
- 7) Demonstrate laboratory procedures used to examine anatomical structures and evaluate physiological functions of each organ system addressed in the course.
- 8) Evaluate anatomical structures at tissue, organ and organ system levels from preserved specimens.

Learning Objectives:

This is a “hands-on” course designed to reinforce and supplement the principles taught in lecture.

At the end of this course, the student will be able to:

- A) Analyze anatomical features and apply how they function together within the human body at cellular, tissue, organ and body system levels.
- B) Explain how various organ systems respond to maintain homeostasis using feedback loop mechanisms.
- C) Understand and communicate to others how human anatomical and physiological terminology enables success in medical professions.
- D) Distinguish the differences in organs and organ systems as well as their interconnectivity.
- E) Explain the differences in cellular and tissue structures and functions associated with organ systems.
- F) Understand skeletal system organization and the building of bones.
- G) Demonstrate how structure and function of muscle groups leads to physical activity and muscle contraction.
- H) Demonstrate a proficiency in the organs and processes of the nervous system.
- I) Predict the types of problems that would occur in the body if the skeletal, muscular and nervous systems could not maintain homeostasis.
- J) Analyze medical cases and reasons for possible treatments.
- K) Formulate hypotheses regarding why organ system diseases result in specific symptoms.

Learning Outcomes:

Upon completion of this course, the student will be able to:

- 1) Define the terms anatomy and physiology as well as give specific examples to show the interrelationship between those terms.
- 2) Describe, in order from simplest to most complex, the major levels of organization in the human organism.
- 3) Create a spreadsheet of the body systems and list all the histology tissues associated with each system. This spreadsheet also includes the major components and functions of each system.
- 4) Describe accurately a person in anatomical position the quadrants, regions and major directional terms.
- 5) Identify the various planes in which a body might be dissected and the appearance of a body presented along those planes.
- 6) Identify the components of a feedback loop and explain the function of each and how they maintain homeostasis.
- 7) Provide an example of both a negative as well as positive feedback loop in the body to relay information. Describe the specific cells or molecules (cells, organs, hormones, target cells) included in the feedback loop.
- 8) Predict the types of problems that would occur in the body if various organ systems studied in this course could not maintain homeostasis and allowed regulated variables (body conditions) to move away from normal.
- 9) Distinguish amongst the terms: atoms, molecules, elements, compounds, electrons, solution, solute, solvent, organic, inorganic, pH, acid, base, acidic, neutral, alkaline, hypertonic, hypotonic and isotonic.
- 10) Relate the number of electrons in an electron shell to an atom's chemical stability and its ability to form chemical bonds.
- 11) Give examples of physiological significance of body solutions being acidic, neutral or alkaline.
- 12) Describe accurately the four macromolecule categories of organic compounds. Provide specific functions and examples of the compounds found in the human body.
- 13) Describe the generalized reversible reaction for release of energy from ATP and explain the role of ATP in the cell.
- 14) Given a picture of a cell, students will be able to accurately describe the functional role of relevant cellular structures in the process of homeostasis as well as students will be able to properly label the components of cellular structures.
- 15) A patient is having problems making the protein hormone insulin. Students will be able to construct the processes of transcription and translation by creating a flowchart of all the steps in protein development and explain it to the patient.
- 16) Analyze the different tissue types in the muscular, reproductive, digestive, respiratory, urinary systems by comparing their differences in epithelial and connective tissues, and then relate problems with these tissues to disease symptoms.
- 17) Explain membrane structure and function with regards to how carbohydrates, lipids and proteins are distributed in a cell membrane.
- 18) Describe the mechanism by which movement of materials occurs in the processes of simple diffusion, facilitated diffusion, osmosis, active transport, exocytosis, endocytosis, phagocytosis, and pinocytosis. The energy requirements for each process will be discussed.
- 19) Identify microscopically and accurately describe the four major tissue types.
- 20) Create a table that compares and contrasts the four major tissue types, specifically focusing on location, functional roles, and characteristics that are similar and/or different between the tissues. If appropriate, compare and contrast the roles of individual cell and fiber types within each tissue type.
- 21) Distinguish between exocrine and endocrine glands based on structure, function and location differences. Further classify the different kinds of exocrine glands based on the same criteria.

- 22) A patient comes into the ER after an auto accident with third degree burns. Be able to recite the layers of the integumentary system and the corresponding layers involved in the different degrees of burns.
- 23) Explain the physiological importance of the presence or absence of: sweat glands (eccrine and apocrine), sebaceous glands, nails, hair (follicle and arrector pili muscle), and sensory receptors (Merkel cell, Meissner's & Pacinian corpuscles, hair follicle receptor, and temperature receptors).
- 24) Given a patient's medical history information including current symptoms, students will be able to accurately describe the functional role of the skeletal, muscular and nervous systems in the process of homeostasis.
- 25) Analyze the chemical and mechanical processes in the integumentary, skeletal, muscular and nervous systems by comparing their differences in structure and function, and then relate problems with these unique characteristics to disease symptoms.
- 26) Draw a flow chart of a human (starting with the skull and working to the feet) with all the main bones in the body listed, making note if each bone belongs to the appendicular or axial skeleton.
- 27) Describe to a patient with a broken femur the steps of endochondral (intracartilaginous) bone growth and remodeling. Contrast that information with intramembranous bone formation.
- 28) A physical therapy patient walks in and does not understand what a joint is and how it works. Students will be able to describe the tissues involved in a joint as well as the three functional and structural types of joints.
- 29) Given a picture of skeletal muscle cellular structures, students will be able to identify all structures with their functions.
- 30) Create a table that compares and contrasts the three muscles of the body (skeletal, smooth, and cardiac) and list their characteristics, specifically focusing on characteristics that are similar and/or different between each muscle type.
- 31) Explain muscle differences verbally to a patient.
- 32) Recognize and apply which muscle type(s) is/are utilized in different body systems.
- 33) Utilizing a concept map, flow chart or visual aid, be able to visually demonstrate the organization of the nervous system from both anatomical and functional perspectives.
- 34) A patient comes to the doctor and is diagnosed with brain cancer. Explain to the patient the location, different types and structures of neurons and neuroglia cells. Relate each to their function and how homeostatic imbalances occur if they do not function appropriately.
- 35) Contrast the relative concentrations of sodium, potassium and chloride ions inside and outside of a cell. Apply this information to explain how passive ion channels cause development of the resting membrane potential in neurons.
- 36) Discuss the sequence of events that must occur for an action potential to be generated.
- 37) Starting with a neuron (the dendrite), students will be able to make a flow chart of all the steps in a nervous system action potential, This includes initiating and carrying out the stimulus for muscle contraction, continuing with all the steps in a skeletal muscle contraction and ending with the muscle moving.
- 38) Utilizing a concept map, flow chart, visual aid or graph(s), be able to visually demonstrate neurophysiological processes that includes the mechanism of resting membrane potential, the production of actions potentials and impulse transmission.
- 39) Interpret a graph showing the voltage vs. time relationship of an action potential, and relate the terms depolarize, repolarize, and hyperpolarize to the events of an action potential.
- 40) Given a picture of a neuromuscular junction, students will draw a flow chart showing the chronological order of synaptic transmission within the body. This includes the importance of neurotransmitters and their roles in synaptic transmission.
- 41) Explain a complete reflex arc and compare this to the reflex arc when a doctor tests your knee reflex, listing all the parts in a flow chart. Include knowledge of somatic vs. visceral reflexes, monosynaptic vs. polysynaptic reflexes, and ipsilateral vs. contralateral reflexes.

- 42) A physical therapy patient is having back pain. Students will be able to identify the structures of the spinal cord and their function, with special attention made to differences in the three regions of the spinal cord that correspond to the three different vertebrae types, and then explain these to their client.
- 43) Describe the anatomical structures and functions of cranial and spinal nerves and spinal cord. Include knowledge of the gray and white matter, dorsal root ganglia, ventral root, ramus, plexus, tract and ganglion and how they relate to one another.
- 44) You are a doctor that must explain the division, origin, function of component parts of the brain that are damaged in a car accident victim and how these structures could lead to future issues with body homeostasis.
- 45) Using a visual aid, demonstrate the protective importance associated with the blood-brain barrier, meninges and cerebral spinal fluid, paying attention to what structures provide which function(s).

Comprehensive schedule of events

Date	Activity	Associated Points
Sep 11 (Weds)	Exam I	100
Sep 30 (*Mon)	Exam II	100
Oct 16 (Weds)	Exam III	100
Nov 4 (*Mon)	Exam IV	100
Dec 4 (Weds)	Exam V	100
Dec 11 (Weds)	Comprehensive Final - Exam VI	100
Semester Long	Pre-Lecture Assignments via Connect & Ancillary In-Class Assignments	60
	Lecture participation (part of which are earned via Clicker participation)	15
	TOTAL POINTS	675

Due Dates of Connect Assignments Submitted by 11:59pm

Chapter/Topic	Date
Terminology (Chapter 1)	Sun Sep 1
Human Body (2)	Tues Sep 3
Chemistry (3)	Sun Sep 8
Genetics/Cell Function (4)	Sun Sep 15
Histology (5)	Tues Sep 17
Integumentary (6)	Sun Sep 22
Bones (7)	Tues Oct 1
Skeletal Tissue (8)	Sun Oct 8
Arthrology (9)	Tues Oct 13
Muscle Physiology (11)	Sun Oct 20
Muscular System (10)	Sun Oct 27
Nervous System (12)	Sun Nov 10
Spinal Cord Nerve / Reflex (13)	Sun Nov 17
Brain & Cranial Nerves (14)	Sun Nov 24
ANS & Reflexes (15)	Tues Nov 26

Your success in the course:

It is your responsibility to preview & review the material before you come to class. Otherwise, the material will be difficult to grasp in class and you are likely to fall behind. In lecture your participation will make learning more enjoyable and easier for everyone. This is valued so highly that points are earned for it over the course of the semester. As lab and lecture may overlap in the course of the semester, learning is reinforced. By spending time in independent study in the Human Anatomy & Physiology “open lab hours”, your depth of course knowledge can be improved.

Communication & courtesy in the course:

You are free to email me questions or any communications you feel necessary. I usually respond quickly (within a few hours if I can). I need you to communicate professionally by letting me know in the email who you are (“*Hi Professor Borgeas, this is Heidi from HSC 230*” and then *signing off your name at the end*). I care about my students but expect a level of courtesy and professionalism given our academic environment as well as simply being a kind human being.

If you do not communicate professionally, I will not answer your email.

As a courtesy to the class, it is requested that student
Cell phones, Blackberries, etc. etc. be turned off or silenced before class.

Communication is distributed via your UT email account; you are expected to check this regularly as this is how most instructors contact with regards to schedule events/changes. Course materials will be posted on BlackBoard as well as announcements or supplemental material.

Attendance and promptness is expected. If you must miss a class due to a documented reason, please notify your instructor as soon as possible. The instructor reserves the right to offer no makeup or credit for invalid undocumented cases.

Preparation prior to lecture/lab is expected: While as lecture & lab can be complimentary & overlap at times, they vary in focus and detail of physiological function in the systems. It is important that you have read relevant text material prior to class so that conversations are more meaningful, complex and engaging for all.

Evaluation: Evaluation in this course will be based on a combination of six exams, pre-lecture Connect assignments, ancillary assignments & class participation (Total of 665 points). Participation (15 pts) is an important component to this course. The instructor reserves the right to add pop-quizzes or alternative assignment(s) when appropriate. Lecture exams will be administered on the dates specified in the lecture syllabus. Example exam questions will be handed out at least one week prior to the first exam in order to expose you to the style of the exams. Lecture exams will be worth 100 points each. Each test builds on the material previously presented and tested. Thus, older concepts may reappear in conjunction with newer concepts on tests. Additional information about exams will be given as their scheduled date approaches.

Testing policy: All electronic devices & materials are to be placed with the instructor at the front of the classroom. Any person found with any electronic device on or near their person during an exam will earn a 0 for that exam & reported for an Academic Integrity violation.

If you miss an exam due to a university verified emergency (i.e. death in the family), sanctioned event (i.e. athletic game/conference), documented illness or a personal issue verified by an academic Dean, those special circumstances will be taken under consideration for potential makeup. **Excused make-up exams are administered during final exams week.** It is the students’ responsibility to arrange the make-up test with me the week the final. Under special circumstances & by prior arrangement (to be determined by instructor) an exam may be taken early.

Please note: A letter grade of “C” or better in A&P I (HSC 230 & 234) is required to take A&P II (HSC 231 & 235). Unfortunately a student will be dropped from this course within the first week by UT registrar should the letter grade requirement not be met.

The instructor reserves the right to adjust the evaluation criteria in lieu of extenuating circumstances.

Grading scale

% of Total points	Letter Grade
100-92	A
88-91	AB
87-82	B
78-81	BC
77-72	C
71-68	CD
67-60	D
Less than 59	F

Grading scale table 1

Course Requirements, Policies & Procedures:

Academic Integrity and Conduct: All work must reflect the work of the person being graded. Evidence of plagiarism, even unintentional plagiarism, is unacceptable. Penalty ranges from “0” on an assignment to “F” for the course without regard to a student’s accumulated points. Any infraction will result in a written report filed with the Dean’s office. The professor reserves the right to assign whatever grade for the course the professor judges to be appropriate, including a grade of F, without regards to the students’ accumulated points. All quotations should be cited appropriately using APA in text citations and referencing. Academic dishonesty/cheating at The University of Tampa will not be tolerated. As faculty, we are mandated to report academic dishonesty/cheating. It is the students’ responsibility to refer to the University website for further explanations: [UT Academic Integrity and conduct policy](#).

Cheating is wrong and offensive and I take it very very personally.

Be respectful of yourself, your classmates, and ME... and take responsibility for the grade you earn.

Cheating, plagiarism, copying and any other behavior that is contrary to University standards of behavior will not be tolerated. Students caught violating any aspect of the University of Tampa’s Academic Integrity Policy will be penalized in all cases. Students may also face expulsion.

Academic dishonesty will not be tolerated and includes, but is not necessarily limited to the following:

- (1) Copying another person's work
- (2) Removing another student’s work from group file exchange areas.
- (3) Sharing the contents of testing materials with other students.
- (4) Failing to give proper credit to another individual’s ideas and/or published work.
- (5) Providing your work to another student for their use.
- (6) Inquiring as to other students’ received grades.
- (7) Attempting to influence peer evaluations.

Evidence of violation of any academic integrity policy in this class will subject students to:

- (1) Immediate dismissal from the course with a grade of "F" and;
 - (2) Referral to UT’s university-wide council on academic dishonesty for proper adjudication.
- Any student aiding another student will be considered to be an accessory and will be subject to the same penalties. Multiple academic violations on your record will result in permanent dismissal from the university.

Computer Requirements: Students need to have a University of Tampa e-mail address and check email each day during the course. Either your computer or a printed-out version of the PowerPoints is expected in the course. Phone usage to view course materials are not acceptable. You will need access to a computer for the entire course. You are required to bring the lab manual for all labs. Failure to come to class prepared can result in dismissal from that lecture or laboratory period due to failure to be prepared for class.

ADA Statement - Students with disabilities: If there is a student who requires accommodations because of any disability, please go to the Academic Success Center in North Walker Hall for information regarding registering as a student with a disability. You may also call (813) 257-5757 or email disability.services@ut.edu. Please feel free to discuss this issue with me, in private, if you need more information.

Class Disruption and Student Etiquette: Every student has the right to a comfortable learning environment where the open and honest exchange of ideas may freely occur. Each student is expected to do his or her part to ensure that the classroom (and anywhere else the class may meet) remains conducive to learning. This includes respectful and courteous treatment of all in the classroom. According to the terms of the University of Tampa Disruption Policy, the professor will take immediate action when inappropriate behavior occurs.

Disruption may include acts or words of a student in a classroom or teaching environment that directs attention away from the class activity. These may include noisy distractions and/or persistent disrespectful interruptions. Please turn off all mobile phones, PDAs, hand-held PCs, text messaging devices, and smartwatches (unless otherwise directed by faculty). Coming to class late is a disruption so please try to avoid this behavior. It is important to establish class rules for behaving properly, both in person as well as online. Any student not conducting themselves appropriately are referred to the campus judicial system for a possible of the student conduct code and/or other appropriate sections.

Please make sure you follow the below, as a minimum limit to behavior:

- Address faculty and students by name in technology communication. Thank them for their time. Sign off on the email at the end. Work on your professional communication.
- Be respectful of others' views and opinions. Avoid "flaming" (publicly attacking or insulting), as this can cause hurt feelings and decrease the chances of obtaining different points of view.
- Be sensitive to the fact that classmates represent a wide variety of different political and religious beliefs as well as cultural and linguistic backgrounds. Disagreeing is fine and even encouraged but remember that college dictates rational discourse (using evidence and logic in your responses rather than personal attacks).
- Use proper spelling, grammar and punctuation.

Participation/Attendance: Class participation is highly encouraged as many point-based activities occur during class time. Attendance will be documented for each class. Students are encouraged to attend every class and be prepared to participate in all class activities. Missing a class will result in failure to conduct in-class assignments and failure to receive in class handouts. The complete University General Attendance Policy can be found at [UT academic policies for classroom attendance and participation](#)

Emergency preparedness: In case of any adverse condition or situation which could interrupt the schedule of classes, each student is asked to access www.ut.edu for information about the status of the campus and class meetings. In addition, please refer to <http://ut.blackboard.com/> for announcements and other important information. Students are responsible for accessing this information. Keep following the syllabus as much as possible, given a situation.

Faculty Role and Involvement: My role is to help you succeed in your education. I will make important and difficult notes available to you through the class resources, as well as online communications. Usually, tests will be graded within 5 days of taking the exam and grades will be posted on Blackboard. I will also maintain contact with you throughout the week using email, regarding laboratory information, questions, and testing updates. I check my email multiple times each day, so emailing me questions is an efficient and fast way to get a response. Please check your email (which ever email account you listed under Blackboard) daily as I will send you testing information, handouts, and other laboratory information using email. Take full advantage of opportunities such as study sessions, AEP tutors, laboratory assistants and appointments in office hours. I will provide you with opportunities for office hours, but it is your responsibility to seek help when needed. Remember to use your fellow students as a resource; organizing weekly study groups is recommended.

Academic Resources: Learning is a process and it is my job to help you succeed in this process. However it is up to you to know the material, stay current with content, coordinate with students in the lab to form study groups and seek help when needed.

****In addition to myself, other instructors, student assistants and the AEP Center, please make sure to avail yourself to the HSC I & II "open lab hours" in HSHP 105 & 119.** Open lab times schedule will be posted on Blackboard as well as outside the laboratory rooms. This should be utilized for extra learning time.

Recording of Class Sessions: A student shall not, without my express authorization, make or receive any recording, including but not limited to audio and video recordings, of any class, co-curricular meeting, organizational meeting, or meeting with me. Further, it is not permissible to post my class lectures/course materials on the web.

Special Needs / Students with Disabilities / Request for Accommodation: If there is any student who has special needs because of any disability, please feel free to discuss more of this issue with me. Documentation must be provided to the instructor from the Associate Director of the ACE, Student Disabilities Services. *Please note: contact first the Academic Center of Excellence to Student Disabilities Services. They are located in North Walker Hall (phone number 813-258-7251).* Requests for accommodations should be submitted to the instructor within the first two weeks of the course.

Religious Observations: UT will reasonably accommodate the religious observance, practices and beliefs of students in its admissions, class attendance, examination policies and work assignments. Students must notify instructors at least one week prior to a religious observation.

UT Calendar: It is the student's responsibility to keep up with important dates, such as registration, payment and course withdrawal timelines. You may find this information at UT's webpage at [UT Academic calendar](#)

Reporting Sexual Violence / Title IX Statement Regarding Disclosures: Sexual violence includes nonconsensual sexual contact and nonconsensual sexual intercourse (which is any type of sexual contact without your explicit consent, including rape), dating violence, sexual harassment, sexual exploitation, domestic violence, and stalking. You may reach out for confidential help (see contact info below) or report an incident for investigation.

If you choose to write or speak about an incident of sexual violence and **disclose that this violence occurred while you were a UT student**, the instructor is obligated to report the incident to the Title IX Deputy Coordinator for Students. The purpose of this report is to provide a safe and nondiscriminatory environment for all students. The Deputy Coordinator or his or her designee will contact you to let you know about the resources, accommodations, and support services at UT and possibilities for holding the perpetrator accountable. If you do not want the Title IX Coordinator notified, instead of disclosing this information to your instructor, you can speak confidentially with the individuals listed below. They can connect you with support services and discuss options for holding the perpetrator accountable.

There is an exception to this required reporting for preventative education programs and public awareness events or forums. While the instructor is not required to report disclosures during these instances, unless you make or initiate a complaint, during these programs or events, the instructor or another University official will ensure that the students are aware of the available resources at UT, such as counseling, health, and mental health services, and it will provide information about Title IX, how to file a Title IX complaint, how to make a confidential report, and the procedure for reporting sexual violence.

For more information, see The University of Tampa's Title IX resources at [Title IX PDF](#) and [Title IX and Sexual Misconduct Procedures](#). To make a confidential report of sexual violence, please contact:

- The Victim's Advocacy Hotline: (813) 257-3900
- Dickey Health & Wellness Center (wellness@ut.edu) 813.257.1877
- Health and Counseling Center (healthcenter@ut.edu) 813.253.6250

Campus Closure Statement - Course interruption due to adverse conditions: In case of any adverse condition or situation which could interrupt the schedule of classes, each student is asked to access [UT homepage](#) for information about the status of the campus and class meetings. In addition, please refer to ut.blackboard.edu for announcements and other important information. You are responsible for accessing this information.

Technical Support

Students can contact the Student Help Desk via email at StudentHelp@ut.edu or at (813) 253-6255. The Student Help Desk is located at the front desk of the Jaeb Computer Center. Additional resources can be found in SpartanWeb, Campus Life tab, under the Information Technology link. Tutorials and instructions are also accessible through the [Ed Tech website](#)

How to Use Blackboard:

- 1) Go to www.ut.edu
- 2) Click on Blackboard link
- 3) Click login
- 4) Type in username (mine is "hborges")
- 5) Type in your password (you can change your password once you login)
- 6) Click "Course/Catalog" tab at the top
- 7) Search for "HSC 230"
- 8) Click on the link to "HSC 230/Borges"
- 9) They will either have already registered you within my course or you may register if need be - you do not need a password, just an email address that you will check daily

Once you are registered and you want to download the lectures:

- 1) Click on "Lectures & Ancillary Materials" on the HSC 230 page—a blue button on the left column
- 2) Click on the folder for the lecture materials - files will pop up
- 3) Click on each file name - one at a time
- 4) You will have the option to "open" or "save" - save it to the desktop
- 5) Once it is saved, go to the desktop and open the file - you will need to be at a computer that has PowerPoint, Word, and Excel on it - all university computers have these programs
- 6) Once the file opens, go to "file" menu, scroll down to print
- 7) At the bottom, you can print 'one slide per page', '3 slides per page' which will give you lines for taking notes', or any other combination - these options are on the pull-down menu at the bottom left of the window box
- 8) Most slides will be in color - however, printing them up in black and white is perfect, so you can select this option in the pull-down menu also located in the bottom left of the window box.
- 9) Once you have selected how you want the files to print, just click "print"

If you have any problems, contact the help computer desk in the computer center next to Cass and the ROTC building. They have students and faculty who are specialty trained to help others with Blackboard, Email, PowerPoint, and other computer related problems.

Help Desk Contact Info

Off Campus Phone: 253-6293 On Campus Phone: x 6293
Fax: 253-6286 Email: HelpDesk@ut.edu
http://www.ut.edu/ct/services/help_desk.html

iClicker Instructions:

I will be using the student response system in class this term. iClicker helps me to understand what you know and gives everyone a chance to participate in class. I will use iClicker to keep track of attendance in addition to gauging where students are strong in class content as well as where I can help support where they are weak.

Participation with iClicker as well as the Connect pre-lecture assignments will account for 12% of your total grade.

Of the 22 times that we will be using the clicker in lecture, I will drop 4 of the lowest scores to account for times you forget to bring your clicker to class, were ill or had an emergency that you could not attend class.

You may purchase the iClicker from the UT bookstore or online. See previous syllabus information for ISBN to purchase.

How to register:

To receive credit for the responses you submit with iClicker, you must register by the drop/add deadline. Students who register after this time will not receive credit.

*Register your clicker on **iclicker.com**

*You must register your clicker on **iclicker.com**. Use your (replace this value with whatever appears on your roster in the Student ID field, e.g., email address) in the student ID field. This will allow me to match your responses with your name.

*If you're renting or using a used clicker, there is no need for the previous owner to unregister nor do you need their name/info. You simply write in your personal information and that will cause you to be the active user for the course.

*If you are renting a clicker, there is a ~\$7.00 charge associated through iClicker to connect to the course. This is standard protocol for all rented clickers now.

*If you make a mistake registering, just register again - the correct information will take precedence.

How to use:

Select A, B, C or D.

Cheating - I consider bringing a fellow student's iClicker to class to be cheating and a violation of the University Honor Code. If you are caught with a remote other than your own or have votes in a class that you did not attend, you will forfeit all clicker points and may face additional disciplinary action.

Reading and Assignment Calendar

All Readings & Connect Assignments are to be completed PRIOR to the class period where they are listed.

All assignments MUST be submitted through the provided blackboard links. E-mail and paper submissions will not be accepted.

Week	Dates	Topics	Assignments and Objectives*	Deadline	Select lecture book pages to read	Assessment
1	Aug 26 / 28	Introduction, Terminology to Human Body & Intro to Chemistry	1. Read Introduction chapters 1 & 2 + Atlas A 2. Connect Assignment #1 ¹⁻¹⁰ 3. In class: Clicker Questions/Answers session	Before class	Chapters 1 & 2 Atlas A	Connect
2	Sep 2 / 4	Cells: The Living Units of Form & Function	1. Read Cell biology chapter 2. Connect Assignment #2 ^{7, 9-11, 35} 3. In class: Clicker Questions/Answers session	Before class	Chapter 3	Connect
3	Sep 9 / 11	Cells continued	1. Read continue Cell biology chapter 2. Connect Assignment #3 ^{7,8, 11-14, 17,18} 3. In class: Clicker Questions/Answers session Sep 11 In class: Lecture Exam I	Before class	Chapter 3	Lecture Exam I
4	Sep 16 / 18	Genetics & Cellular Function	1. Read Genetics & Cellular function chapters 2. Connect Assignments #4 & #5 ^{15,18, 35} 3. In class: Clicker Questions/Answers session	Before class	Chapters 4 & 5	Connect
5	Sep 23 / 25	Histology	1. Read Cellular function & Histology chapters 2. Connect Assignments #6 ^{16,19-23} 3. In class: Clicker Questions/Answers session	Before class	Chapters 5 & 6	Connect
6	Sep 30 / Oct 2	Introduction to Bones & Skeletal Tissue	1. Read Introduction to bones & skeletal tissue 2. Connect Assignments #7 & #8 ^{14,19, 20, 24-27} Sep 30 In class: Lecture Exam II 3. In class: Clicker Questions/Answers session	Before class	Chapters 7 & 8	Lecture Exam III & Connect
7	Oct 7 / 9	Arthrology	1. Read Skeletal tissue & Intro to Arthrology 2. Connect Assignments #9 ²⁶⁻²⁸ 3. In class: Clicker Questions/Answers session	Before class	Chapters 8 & 9	Connect
8	Oct 14 / 16	Arthrology continued	1. Read Introduction to Bones & Skeletal tissue 2. In class: Clicker Questions/Answers session Oct 16 In class: Lecture Exam III	Before class	Chapter 9	Lecture Exam III

Week	Dates	Topics	Assignments and Objectives*	Deadline	Select lecture book pages to read	Assessment
9	Oct 21 / 23	Introduction to Muscular System	1. Read Introduction to Muscular system chapters 2. Connect Assignments #11 ^{20,24, 25} 3. In class: Clicker Questions/Answers session	Before class	Chapter 11 & Atlas B	Connect
10	Oct 28 / 30	Muscle Physiology & Tissue	1. Read Introduction to Muscular system chapters 2. Connect Assignments #10 ²⁵⁻³² 3. In class: Clicker Questions/Answers session	Before class	Chapter 10	Connect
11	Nov 4 / 6	Muscle cont. & Introduction to Nervous	1. Read Muscle & Introduction to Nervous system chapter 2. Connect Assignments #12 ^{20, 24, 25, 33} Nov 4 In class: Lecture Exam IV 3. In class: Clicker Questions/Answers session <i>Note: last day to drop is Nov 5th</i>	Before class	Chapter 12	Lecture Exam IV & Connect
12	Nov 11 / 13	Nervous System	1. Read Nervous system chapter 2. Connect Assignments #13 ^{20, 24, 25, 35-39} 3. In class: Clicker Questions/Answers session	Before class	Chapters 12 & 13	Connect
13	Nov 18 / 20	Spinal cord, Nerves & Reflexes	1. Read Spinal cord, nerves and reflexes chapter 2. Connect Assignments #14 ^{40-43, 45} 3. In class: Clicker Questions/Answers session	Before class	Chapters 13 & 14	Connect
14	Nov 25 / 27	Brain + Cranial nerves & ANS + Visceral reflexes	1. Read Brain and cranial nerves & ANS + Visceral reflexes chapters 2. Connect Assignments #15 ^{8, 34, 40-45} 3. In class: Clicker Questions/Answers session <i>No Classes After Tuesday – Thanksgiving Break</i>	Before class	Chapters 14 & 15	Connect
15	Dec 2 / 4	ANS + Visceral reflexes	1. Read continue ANS + Visceral reflexes 2. In class: Clicker Questions/Answers session Dec 4 In class: Lecture Exam V	Before class	Chapter 5	Lecture Exam V
16	December 11 th WEDS 11am-1pm	All chapters addressed in semester (1-15)	Dec 11 In class: Cumulative Lecture Exam VI	In class	All chapters 1-15	Lecture Exam VI

General Disclaimer: The professor reserves the right to make changes to this syllabus as necessary. Students will be notified of changes in advance via class, email or Blackboard.

***Denotes the learning outcomes to which activities apply:**

1) Define the terms anatomy and physiology as well as give specific examples to show the interrelationship between those terms.

- 2) Describe, in order from simplest to most complex, the major levels of organization in the human organism.
- 3) Create a spreadsheet of the body systems and list all the histology tissues associated with each system. This spreadsheet also includes the major components and functions of each system.
- 4) Describe accurately a person in anatomical position the quadrants, regions and major directional terms.
- 5) Identify the various planes in which a body might be dissected and the appearance of a body presented along those planes.
- 6) Identify the components of a feedback loop and explain the function of each and how they maintain homeostasis.
- 7) Provide an example of both a negative as well as positive feedback loop in the body to relay information. Describe the specific cells or molecules (cells, organs, hormones, target cells) included in the feedback loop.
- 8) Predict the types of problems that would occur in the body if various organ systems studied in this course could not maintain homeostasis and allowed regulated variables (body conditions) to move away from normal.
- 9) Distinguish amongst the terms: atoms, molecules, elements, compounds, electrons, solution, solute, solvent, organic, inorganic, pH, acid, base, acidic, neutral, alkaline, hypertonic, hypotonic and isotonic.
- 10) Relate the number of electrons in an electron shell to an atom's chemical stability and its ability to form chemical bonds.
- 11) Give examples of physiological significance of body solutions being acidic, neutral or alkaline.
- 12) Describe accurately the four macromolecule categories of organic compounds. Provide specific functions and examples of the compounds found in the human body.
- 13) Describe the generalized reversible reaction for release of energy from ATP and explain the role of ATP in the cell.
- 14) Given a picture of a cell, students will be able to accurately describe the functional role of relevant cellular structures in the process of homeostasis as well as students will be able to properly label the components of cellular structures.
- 15) A patient is having problems making the protein hormone insulin. Students will be able to construct the processes of transcription and translation by creating a flowchart of all the steps in protein development and explain it to the patient.
- 16) Analyze the different tissue types in the muscular, reproductive, digestive, respiratory, urinary systems by comparing their differences in epithelial and connective tissues, and then relate problems with these tissues to disease symptoms.
- 17) Explain membrane structure and function with regards to how carbohydrates, lipids and proteins are distributed in a cell membrane.
- 18) Describe the mechanism by which movement of materials occurs in the processes of simple diffusion, facilitated diffusion, osmosis, active transport, exocytosis, endocytosis, phagocytosis, and pinocytosis. The energy requirements for each process will be discussed.
- 19) Identify microscopically and accurately describe the four major tissue types.
- 20) Create a table that compares and contrasts the four major tissue types, specifically focusing on location, functional roles, and characteristics that are similar and/or different between the tissues. If appropriate, compare and contrast the roles of individual cell and fiber types within each tissue type.
- 21) Distinguish between exocrine and endocrine glands based on structure, function and location differences. Further classify the different kinds of exocrine glands based on the same criteria.
- 22) A patient comes into the ER after an auto accident with third degree burns. Be able to recite the layers of the integumentary system and the corresponding layers involved in the different degrees of burns.
- 23) Explain the physiological importance of the presence or absence of: sweat glands (eccrine and apocrine), sebaceous glands, nails, hair (follicle and arrector pili muscle), and sensory receptors (Merkel cell, Meissner's & Pacinian corpuscles, hair follicle receptor, and temperature receptors).
- 24) Given a patient's medical history information including current symptoms, students will be able to accurately describe the functional role of the skeletal, muscular and nervous systems in the process of homeostasis.
- 25) Analyze the chemical and mechanical processes in the integumentary, skeletal, muscular and nervous systems by comparing their differences in structure and function, and then relate problems with these unique characteristics to disease symptoms.
- 26) Draw a flow chart of a human (starting with the skull and working to the feet) with all the main bones in the body listed, making note if each bone belongs to the appendicular or axial skeleton.
- 27) Describe to a patient with a broken femur the steps of endochondral (intracartilaginous) bone growth and remodeling. Contrast that information with intramembranous bone formation.

- 28) A physical therapy patient walks in and does not understand what a joint is and how it works. Students will be able to describe the tissues involved in a joint as well as the three functional and structural types of joints.
- 29) Given a picture of skeletal muscle cellular structures, students will be able to identify all structures with their functions.
- 30) Create a table that compares and contrasts the three muscles of the body (skeletal, smooth, and cardiac) and list their characteristics, specifically focusing on characteristics that are similar and/or different between each muscle type.
- 31) Explain muscle differences verbally to a patient.
- 32) Recognize and apply which muscle type(s) is/are utilized in different body systems.
- 33) Utilizing a concept map, flow chart or visual aid, be able to visually demonstrate the organization of the nervous system from both anatomical and functional perspectives.
- 34) A patient comes to the doctor and is diagnosed with brain cancer. Explain to the patient the location, different types and structures of neurons and neuroglia cells. Relate each to their function and how homeostatic imbalances occur if they do not function appropriately.
- 35) Contrast the relative concentrations of sodium, potassium and chloride ions inside and outside of a cell. Apply this information to explain how passive ion channels cause development of the resting membrane potential in neurons.
- 36) Discuss the sequence of events that must occur for an action potential to be generated.
- 37) Starting with a neuron (the dendrite), students will be able to make a flow chart of all the steps in a nervous system action potential, This includes initiating and carrying out the stimulus for muscle contraction, continuing with all the steps in a skeletal muscle contraction and ending with the muscle moving.
- 38) Utilizing a concept map, flow chart, visual aid or graph(s), be able to visually demonstrate neurophysiological processes that includes the mechanism of resting membrane potential, the production of actions potentials and impulse transmission.
- 39) Interpret a graph showing the voltage vs. time relationship of an action potential, and relate the terms depolarize, repolarize, and hyperpolarize to the events of an action potential.
- 40) Given a picture of a neuromuscular junction, students will draw a flow chart showing the chronological order of synaptic transmission within the body. This includes the importance of neurotransmitters and their roles in synaptic transmission.
- 41) Explain a complete reflex arc and compare this to the reflex arc when a doctor tests your knee reflex, listing all the parts in a flow chart. Include knowledge of somatic vs. visceral reflexes, monosynaptic vs. polysynaptic reflexes, and ipsilateral vs. contralateral reflexes.
- 42) A physical therapy patient is having back pain. Students will be able to identify the structures of the spinal cord and their function, with special attention made to differences in the three regions of the spinal cord that correspond to the three different vertebrae types, and then explain these to their client.
- 43) Describe the anatomical structures and functions of cranial and spinal nerves and spinal cord. Include knowledge of the gray and white matter, dorsal root ganglia, ventral root, ramus, plexus, tract and ganglion and how they relate to one another.
- 44) You are a doctor that must explain the division, origin, function of component parts of the brain that are damaged in a car accident victim and how these structures could lead to future issues with body homeostasis.
- 45) Using a visual aid, demonstrate the protective importance associated with the blood-brain barrier, meninges and cerebral spinal fluid, paying attention to what structures provide which function(s).