Course Title: SCIT 1407 - Applied Human Anatomy and Physiology I

Course Description: SCIT 1407 is the first semester of a two-semester sequence in Anatomy and Physiology. The topics covered include: Body Organization, Biological Chemistry, Cell Morphology and Membrane Physiology, Tissues, Integumentary System, Musculoskeletal System, and Nervous System.

SCIT 1407 is designed and taught as the prerequisite course for students entering two-year Allied Health programs of study leading to an Associates degree. These programs include: Nursing, Radiology Technology, Medical Technology, Emergency Medical Services, and other technical/occupational programs. Please verify transfer credit with your College or University.

This course requires that each student possess a written, spoken and reading knowledge of the American English language at the college level (see Placement Performance Criteria for reading, writing, mathematics skills for Biology courses by number). This policy is established in the interest of individual student success. The Biology department reserves the right to modify any and all parts of the course at any time during the semester to facilitate the learning process.

Course Instructors: Several different instructors teach this course each semester. Each instructor will notify you of his/her own office hours, (posted at 2034-D in the X-bldg.) or access hours, their voice-mail number, and their e-mail address. You may leave messages with the Science Division Office: K-Bldg., Room 224, Telephone 972-860-4750. Messages may be left on Voice Mail (check with your instructor for their Voice Mail Box Number) or taken by the Division secretary. Calls will be answered by the instructor in sufficient time, during school hours (8am to 8:30pm, Monday through Thursday, and 8am to 4:30pm on Friday). Appointments may be made by students to see the instructor during office hours as posted at the beginning of each semester.


Required: 4. Ward’s BSCS Dissecting Kit  Ward’s Natural Science (available in the campus bookstore)

Required: 5. Lab coat, safety goggles, and disposable gloves for dissection (available in the campus bookstore)

Other non-required texts and manuals may be purchased at the bookstore and may serve as supplemental resources. It is strongly suggested to buy a small medical dictionary for reference.
**Student Learning Outcomes:** At the completion of the course the student will be able to:

1. State the basic physiological principles of the Cell, the Skin, the Skeletal system, the Muscular system, and the Nervous system.
2. Recognize and identify the basic gross and microscopic anatomical structures associated with the Human Tissue, Skin, Skeletal system, Muscular system and Nervous system.
3. State the interrelatedness of the major organ systems and how each organ system functions separately and as part of the integrated whole organism to maintain homeostasis.

**Activities:**

1. We will meet for lecture/discussion two times per week to cover the basic concepts of the course. In addition, the objectives for that week will be reviewed. **Lecture examinations will be given in class unless otherwise indicated by the instructor.**
2. Each student will complete a laboratory unit each week with weekly reports and be tested by laboratory practical examinations or weekly laboratory quizzes. Laboratory practical exams, quizzes, and reports are graded by your laboratory instructor and the grades are given to your lecture professor.
3. All examinations and quizzes are written by the Biology department.

**Grading:**

The final course grade is determined, by the lecture section professor, on the basis of points accumulated during the semester. Three types of evaluation instruments are given: lecture examinations, laboratory examinations, and quizzes. Each lecture examination will be comprised of multiple choice questions and is worth 100 points. **A 150 point cumulative final examination will be given during Final Exam Week, in class, not in the testing center.** The laboratory examinations and quizzes are also comprised of multiple choice questions. Each instructor may choose to assign homework or projects at different times during the semester for credit. Each lab exam is worth 100 points and each quiz is worth 10 points. A letter grade scale is applied to the point system based upon a percentage of the total possible points to be accumulated during the semester. **In order to pass the course, one must pass both the lecture and laboratory portions of the course. Students must pass the comprehensive lecture final to pass the course.**

- 90 - 100%   =   A
- 80 - 89%    =   B
- 70 - 79%    =   C
- 60 - 69%    =   D

<table>
<thead>
<tr>
<th>Five (5) Lecture exams @ 100 pts each</th>
<th>500pts</th>
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<tbody>
<tr>
<td>One Comprehensive Final Lecture Exam</td>
<td>150pts</td>
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<tr>
<td>Four Laboratory exams at 100 pts each</td>
<td>400pts</td>
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<tr>
<td>10 weekly lab quizzes @ 10 pts each</td>
<td>100pts</td>
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<td>10 weekly lab reports @ 10 pts each</td>
<td>100pts</td>
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<th>Total</th>
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<td>1250 pts</td>
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**Appeals concerning grades.** All appeals shall be initiated with the section instructor. If further appeal is desired, the next level is the Dean of the Science/Mathematics division followed by the Vice President of Instruction.

**Make-up Examinations.** There are no makeup examinations.
Additional Important Information

1. **Cell phones, cell phone cameras, laptops, iPads, tablets and other electronic gear are strictly forbidden in classroom and in laboratory.** One warning will be issued. Subsequent violations will result in a drop procedure. The only exceptions to this policy will require ADA documentation of need. The **visible presence** of cell phones, earbuds, SmartWatches, or similar devices in the Testing Center will result in a test grade of “F”.

2. Please purchase eleven (11) long Apperson grading forms and twelve (12) short Apperson forms.
3. Students are responsible for information given in their absence.
4. The instructor also reserves the right to drop students from the roll for poor performance, poor attendance, cheating, etc. Please read the Brookhaven Code of Student Conduct in the school catalog.
5. The instructor reserves the right to change the syllabus at any time.
6. **Biology Resource and Tutoring Lab Hours:** To be posted during the first week of classes. Room X-2030.
7. Check eCampus (Blackboard) regularly, as this is where the instructor will post grades, announcements, course changes, additional assignments, special course documents (lab handouts and other class related materials).
8. **Photographing quizzes or exams is prohibited and will result in a grade of F in the course.**
9. **No eating or drinking in the classroom or laboratory. Violations will result in dismissal from the class.**
10. **Read assigned text chapters and lab exercises prior to class.**

**Biology Resource and Tutoring Lab:** X2030. For many years we have run a Review/Tutoring laboratory in Biology for review of laboratory slides, models and dissections. This lab is staffed by a person who helps enrolled biology students with their laboratory review or by a qualified Biology tutor. This is a place where you may review the material you have studied during your regular laboratory session, with the exception of dissected specimens, which are not permitted in the BRC. The BRC does not take the place of the regular lab section meeting. Do not bring your family members, especially children, to lab. The tutoring services will be available on a scheduled basis. Room X-2030.

**Attendance:** Students are expected to attend, on time, all classes in which they are enrolled. You have the responsibility to attend class and to consult with the instructor when an absence occurs. **Students who miss three lecture classes or two laboratory sessions without an adequate explanation may be dropped at the discretion of the instructor.** If you are not in class when roll is taken, you are counted as absent.

**Promptness.** Habitual lateness to class is a distraction to the instructor and your classmates who are in class on time. If there is a reason that you cannot attend class at the scheduled time (e.g. work, health, family), you will need to rearrange your schedule to eliminate the conflicts or drop the course. **If it is necessary for you to leave the class during lecture, DO NOT RETURN. Get the notes and announcements from someone in your class.**

**Holidays/ Religious Observances.** Students desiring to observe a religious holy day which will result in a class absence, must notify their instructor in writing for each class no later than the 15th calendar day after the first class day of the semester in which the absence will occur. The student is required to complete any assignments or take any examinations which may have been missed within a reasonable time.

**Lateral transfers.** No lateral transfer will be granted without written documentation of need. Students who wish to complete a lateral transfer to another biology section must consult the instructor in the class in which they are enrolled. There will be no transfers after the second week of classes.
Withdrawal. If necessary, it is the responsibility of the student to withdraw from the course. This can be accomplished in the registrar’s office before the withdrawal date.

6 Drop Rule. Stop Before You Drop. For students who enrolled in college level courses for the first time in the fall of 2007, Texas Education Code 51.907 limits the number of courses a student may drop during Their college career. You may drop no more than six (6) courses during your entire undergraduate career unless the drop qualifies as an exception. The Advising Office can give you more information concerning these exceptions. Remember that once you have accumulated six (6) non-exempt drops, you cannot drop any other courses with a “W.” Therefore, please exercise caution when dropping courses in any Texas public institution of higher learning. You may access more information at www.dcccd.edu/coursedrops.

Repeating the Course. Additional tuition will be charged upon the third enrollment for the same course.

Academic Dishonesty Academic dishonesty is the unauthorized giving or receiving of assistance on any graded assignment. All students are encouraged to examine the Brookhaven College Catalog section on Academic Dishonesty available in the registrar’s office, the Admissions office or in the LRC. Ethical conduct. Cheating in any form will be grounds for a performance grade of “F” and removal from the course, a block on the student’s transcript, and a permanent notation in the student’s file. Academic and/or Disciplinary suspension are also options which may result from cheating. Students entering the health care professions are held to a higher level of ethical behavior.

Support Services / ADA: Brookhaven faculty will make every reasonable attempt to accommodate students with special needs as provided for under the Americans with Disabilities Act. These students will need to present their needs to the Office of Special Services in room 124 of the S Building, (972-860-4847), for appropriate documentation. It is the responsibility of the student to present this documentation to the faculty member providing the accommodation at the beginning of the semester.

Institutional Policies- Brookhaven Institutional Policies may be accessed at the following link: www.BrookhavenCollege.edu/pdf/instruction/SyllabusAdd FL14.pdf
Your instructor may modify the Lecture or exam schedule as the semester proceeds. It is your responsibility to keep up with any announced changes.

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<thead>
<tr>
<th>Week/Date</th>
<th>Lecture Topic/Chapter</th>
<th>Laboratory Topic/ chapter</th>
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<tbody>
<tr>
<td>1: 8/31</td>
<td>Body Organization &amp; Biochemistry (1, 2)</td>
<td>3 &amp; 4 – Orientation, Safety**, Microscope, Cell</td>
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<tr>
<td>2: 9/07*</td>
<td>Cell Morph and Phys (3) No class Monday. Attend an alternate lab.</td>
<td>6 – Tissues 7 – Skin (Monday sections meet w/ other labs)*</td>
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<tr>
<td>3: 9/14</td>
<td>Cell Phys and Tissue (3, 4)</td>
<td>6 – Tissues 7 – Skin</td>
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<tr>
<td>4: 9/21</td>
<td>Lecture Exam 1 Integument(5)</td>
<td>Lab Practical Exam 1</td>
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<td>5: 9/28</td>
<td>Bone Tissue &amp; Physiology (s 6) No day classes 2/19-2/20…Classes on Fri eve, Sat, and Sun will meet</td>
<td>8 – Overview of Skeleton / Bone Histology 9 – Axial Skeleton</td>
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<tr>
<td>6: 10/05</td>
<td>Skeletal Sys &amp; Artic (7, 8)</td>
<td>9 – Axial Skeleton 10 – Appendicular Skeleton</td>
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<tr>
<td>7: 10/12</td>
<td>Lecture Exam 2 Muscle Tissue (9, 10)</td>
<td>10 – Appendicular Skeleton 11 – Articulations</td>
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<tr>
<td>8: 10/19</td>
<td>Muscle physiology (9, 10)</td>
<td>Lab Practical Exam 2</td>
</tr>
<tr>
<td>9: 10/26</td>
<td>Muscle Functional Groups, Kinesiology (10)</td>
<td>12 – Muscle Tissue (Micro / Macro) 13 – Muscles of the Face and Torso</td>
</tr>
<tr>
<td>10: 11/2</td>
<td>Lecture Exam 3 Nervous Sys. &amp; Physiology (11)</td>
<td>13- Muscles of the Arm / Leg Review</td>
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<tr>
<td>11: 11/9</td>
<td>Central Nervous System (12) 11/19 is the last day to drop with a grade of “W”</td>
<td>Lab Practical Exam 3 15- Nerve Tissue</td>
</tr>
<tr>
<td>13: 11/23*</td>
<td>Autonomic N.S (14) No classes Thurs, Fri, Sat.</td>
<td>19- Spinal cord and Peripheral nns. 20- Autonomic N.S. Thurs, Fri, Sat labs must attend Mon, Tue, Wed labs</td>
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<tr>
<td>14: 11/30</td>
<td>Special Senses (15))</td>
<td>22, 23, 24, 25 General and Special Sensation</td>
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<tr>
<td>15: 12/7</td>
<td>Special Senses (15 contd.)</td>
<td>Lab Practical Exam 4</td>
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<tr>
<td>16: 12/14</td>
<td>Comprehensive Finals and Lecture Exam 5</td>
<td>NO LABS</td>
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</table>

*See “A&P I Sections” under the Lab Resources tab in eCampus for a list of alternate sections and meeting times.

**Students must complete, download, and sign the Safety Lab before attending the first lab. Go to The “Lab Resources Tab” as above.
You should be able to:

1. Describe the body planes and cavities.
2. List and define the function of the organ systems as presented in Chapter 1.
3. Describe the structure of the atom.
4. Learn the chemical symbols for the elements found in the body.
5. Describe the forces which hold the atom together.
6. Define chemical bonding.
7. Compare the three types of chemical bonds: covalent, ionic and hydrogen.
8. Describe the solvent characteristics of water.
9. Describe the derivation of the pH scale.
10. Write the chemical equations for acid and base formation in water.
11. What is the function of a buffer in living systems and how do they work?
13. Describe the characteristics of carbon which make it suited for its role as the basic element in biomolecules.
14. Define: monomer, polymer, dehydration synthesis, hydrolysis, catalyst, enzyme, macromolecular building blocks, carbohydrate, monosaccharide, glucose, fat, steroid, fatty acid, glycerol triglyceride, nucleic acid, nucleotide, ribose, deoxyribose, phosphate, nitrogenous base, adenine, thymine, uracil, guanine, cytosine, glycoside linkage, peptide linkage, conformation, helix, pleated sheet, globular protein, fibrous protein, saturated fatty acid, primary structure, secondary structure, tertiary structure, quaternary structure.
15. Describe some of the functions of the different biomolecules.
16. What are the functions of enzymes and how do they work in the cell.
17. Describe the major characteristics of the four tissue types.
18. List the human cell organelles and their functions.
19. Describe the structural characteristics of the cellular membrane and how these characteristics explain the function of the membrane.
20. Describe the stages of the cellular division process known as mitosis.
21. Outline the process of protein synthesis beginning with transcription and ending with peptide elongation.
22. List the names of all the tissue subtypes and gives examples of locations in the body.
23. Describe the structure and function of hair.
24. Describe the structure and function of nails.
25. Describe the function of skin.
26. Compare the architectural differences between spongy bone and compact bone.
27. Describe the methods of bone formation in the body: intramembranous and endochondral.
28. Discuss the roles of Vitamin D, calcitonin, parathyroid hormone, and calcium metabolism on bone development and maintenance.
29. Describe and diagram the microscopic anatomy of skeletal muscle including the subcellular basis of visible cross striation.
30. Describe the cellular events during muscle contraction: a sequential list of events beginning with excitation, through contraction and ending with relaxation.
31. Describe the mechanism of action of acetylcholine at the neuromuscular junction as well as the mechanism of destruction of acetylcholine by cholinesterase.
32. Discuss the energy sources utilized by cells for contraction.
33. Describe the actions and list the muscles producing these movements at the following joints: shoulder, elbow, wrist, hip, knee, ankle.
34. Describe the major divisions and major functions of the nervous system.
35. Describe the events involved in neuron excitation and impulse transmission: resting potential, depolarization, repolarization, action potential, conduction.
36. Draw and describe the major ascending and descending tracts of the spinal cord and their functions.
37. Describe the reflex arc associated with spinal cord reflexes.
38. Distinguish between excitatory and inhibitory transmitters.
39. Explain the difference between the white and gray matter.
40. Draw midsagittal and coronal sections through the brain and label.
41. Locate and give the functions of the following: thalamus, hypothalamus, corpus callosum, internal capsule, basal ganglia.
42. Locate these functional areas of the brain: motor cortex, sensory cortex, association area of the cortex, limbic system.
reticular activating system.
46. Describe the structure and function of the cerebellum.
47. List the name, number and function of the cranial nerves.
48. Describe the structural and functional differences between the sympathetic and parasympathetic branches of the autonomic nervous system.
49. List the type and function of the different sensory receptors.
50. Describe the function of the eyes, ears, taste receptors, and smell receptors (vision, audition, gustation, olfaction).