

BIO54H Applied Human Anatomy & Physiology: Support, Movement & Integration	1.5 Units
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Office & Office Hours: by appointment OR

- * Tuesdays: in KC215 from 2:15-3:15 pm 408-864-8640
- Wednesday: from 8:30-11:00 am in Science Resource Center (SC3)
408-864-8921
- Thursdays: in KC215 from 8:00-9:00am 408-864-8640

Course Description: Survey of human anatomy and physiology with emphasis on homeostatic limits of the human body. The skeletal, muscular and nervous systems including somatic and special senses will be covered.

Prerequisites: High School Biology or BIO10, 11, 12, 13, 14 or 15. Especially designed for students planning careers in Medical Assisting, Licensed Vocational Nursing, Education, Speech, Home Economics, Psychology, Physical Education and/or recreation. Not open to students with credit in Biology 40A, B or C equivalent.

Advisory: English Writing 100A, and Reading 201 (or Language Arts 200) or English as a Second Language 161-163

One hour lecture, 1.5 hours laboratory, one additional hour to be arranged

<p>Please note:: This six week online course runs from Monday, Nov. 6 to Thursday, Dec. 14, 2017. The only on campus requirement for students is the cumulative final exam during the last week of the course in the Science Resource Center. Students are required to view weekly video lectures online AND take weekly chapter tests online on Canvas. The final must be taken no later than 3pm on Dec. 14, 2017. The best way to contact the instructor is by email.</p>

DROP POLICY: Students who do not log onto the course catalyst site by Thursday, Nov. 9, 2017 at 5pm will be considered NO SHOWS and will be dropped from the course. It is the student's responsibility to be aware of the college's drop policy. Students who do not take any chapter tests and effectively are "no shows" will receive an F in the course. There are no make-ups for missed online quizzes.

Student Learning Outcome: Distinguish between the functions of the skeletal system and the muscular systems and evaluate the interrelationship of these two systems in producing movement.

Course Objectives:

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

- A. Describe the general microscopic structure of a bone and list the functions of its parts.
- B. Explain how ancestral human bones can offer an anthropologic perspective of how Homo-Sapiens developed and how they lived.
- C. Identify the bones and major features of bones, including the markers of cessation of growth and evidence of aging and gender.
- D. Name the major parts of a skeletal muscle and describe the function of each.
- E. Explain the major events of skeletal muscle contraction.
- F. Describe the locations and actions of the major skeletal muscles.
- G. Examine how differences in structure and function are used to classify neurons.
- H. List the events that lead to the conduction of a nerve impulse and discuss current drugs and ancient practices that influence nerve conduction.
- I. Identify the structures and function of the nervous system.
- J. Compare and contrast the 2 division of the autonomic nervous system
- K. Describe the somatic senses and how a sensation arises.
- L. Name the mechanisms for each of the special senses.

Expanded Description: Content and Form

- A. Describe the general microscopic structure of bone & list the functions of its parts.
 - 1. Bone development and growth
 - 2. Support, protection and body movement
 - 3. Blood cell formation and storage of inorganic salts
- B. Explain how ancestral human bones can offer an anthropologic perspective of how Homo-Sapiens developed and how they lived

1. Cranial capacities of a variety of primates, a prehistoric South African man and modern man document the evolution of intelligence.
 2. Evidence of skeletal procedures performed over time track growing medical knowledge across cultures.
 3. Changes of vertebrae, hands, and feet over millions of years correlate with the ability to walk upright and the increasing use of hands
- C. Identify the bones and major features of bones, including the markers of cessation of growth and evidence of aging and gender.
1. Skeletal organization
 2. Skull and vertebral column
 3. Thoracic cage and pectoral girdle
 4. Pelvic girdle and limbs
 5. Epiphyseal plates, bone volume, and mineral content
- D. Name the major parts of a skeletal muscle and describe the function of each.
1. Connective tissue coverings
 2. Skeletal fibers and myofibrils
 3. Neuromuscular junction and motor units
- E. Explain the major events of skeletal muscle contraction.
1. Role of Myosin and actin
 2. Stimulus for contraction
 3. Energy sources, oxygen supply and cellular respiration
- F. Describe the locations and actions of the major skeletal muscles.
1. Muscles of the face, head and neck
 2. Muscles of the pectoral girdle and upper extremities
 3. Muscles of the abdominal wall, pelvic outlet, the legs and feet.
- G. Examine how differences in structure and function are used to classify neurons
1. Sensory function derives from sensory receptors
 2. Integrative function translates sensation into perceptions.
 3. Motor function directs effectors: Muscles and glands
 4. Bipolar, unipolar, and multipolar neurons
- H. List the events that lead to the conduction of a nerve impulse and discuss current drugs and ancient practices that influence nerve conduction.
1. Movement of ions across cell membranes
 2. Resting potential to action potential
 3. Neurotransmitters and impulse processing
 4. Non-Western practices that affect neurotransmitter
 5. Pharmacology: medical, household, and street drugs
- I. Identify the structures and function of the nervous system.

1. Central nervous system: brain and spinal cord
 2. Peripheral nervous system: cranial and spinal nerves
- J. Compare and contrast the 2 division of the autonomic nervous system.
1. Sympathetic division: activation for energy expending situations
 2. Parasympathetic division: restoration to a restful state
- K. Describe the somatic senses and how a sensation arises.
1. Types of sensory receptors
 2. Brain interpretation of sensory impulses
 3. Projection to pinpoint region of stimulation
- L. Name the mechanisms for each of the special senses.
1. Olfactory receptors, organs and pathways
 2. Taste receptors, sensations and pathways
 3. Conduction of a sound wave and auditory nerve pathways
 4. Light refraction, visual receptors and nerve pathways

Assignments

- Reading from Assigned Text
- Written Lab Reports
- Weekly Chapter Tests
- Cumulative Final Exam

Grading:

4 Chapter Tests @ 30 points each	120 points
Lab Reports	45
Final Exam	100
total possible points	265

Grading Standard For Exams and Final Grade

A	90-100%
B	80-89%
C	66-79%
D	50-65%
F	<50%

Extra Credit is available. Please pick up your lab assignments from Bonnie Mell in the Science Resource Center during the first week of the course. Extra credit must be handed in prior to taking the final exam. Chapter tests are scored immediately online so students can see their score. Lab reports will be graded at the end of the course. Neither the tests nor the lab reports will be returned to the student.

Lab Reports: Complete the specified lab exercise BEFORE completing the lab report. The lab exercise will give you directions on how to do the lab report and may be used to study for the chapter test. Turn in specified lab reports only, no the lab exercises. Be careful to follow all directions on the labs and complete all questions. Label all sketches and drawings as the directions state. Although you will be doing several lab reports, only three will be randomly chosen to be graded in detail. Failure to hand in any weeks assigned lab report will cause a point deduction from the possible 45 point total for lab reports for the course.

Format for Lab Reports:

1. Be legible and stapled together with pages in proper order.
2. Follow directions specified. Label drawings as specified. All questions answered.
3. All lab reports must be handed in BEFORE taking the final exam.

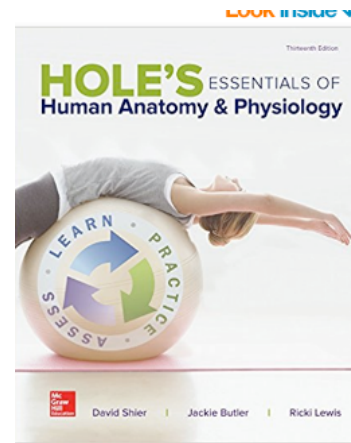
Attendance: Students will spend 3-5 hours per week watching the video lecture, studying, completing lab assignments, and taking chapter tests. Your attendance and effort significantly influence your ability to learn, enjoy and succeed in this and any course. Students are to sign in and out of lab.

Essential Student Materials: Access to video, Scantrons with number 2 pencils, computer access to Instructor's Webpage

Minimum College Facilities: Laboratory facilities including microscopes, human tissues slides, anatomical models, computers with interactive capability, headsets for private audio, basic medical equipment for assessment of vision, hearing, reflexes, blood pressure, respiratory capacity, etc.

1 Required Text and 1 Required Lab Manual:

- Hole's Essentials of Human Anatomy & Physiology, 13th edition, Publisher McGraw Hill, Authors: Shier, Butler and Lewis ISBN: 978-1-259-27736-8
- Laboratory Manual Hole's Essentials of Human Anatomy & Physiology, 13th Edition, McGraw Hill. Authors: Shier, Butler and Lewis ISBN: 978-1-259-86940-2



Academic Dishonesty and Plagiarism Policy. Academic dishonesty includes cheating, fabricating or falsifying information or sources, improper collaboration, submitting the same paper for different classes without permission, and plagiarism. Plagiarism occurs when students deliberately or unintentionally use another person's language, ideas, or materials and present them as their own without properly acknowledging and citing the source. Academic and/or administrative sanctions may be applied in cases of academic dishonesty.

Academic consequences may include:

1. Receiving a failing grade on the test, paper or exam
2. Having course grade lowered
3. Receiving a grade of F in the course

Administrative consequences may include

1. Being placed on disciplinary probation
2. Being placed on disciplinary suspension
3. Being expelled
4. Students may also be subject to arrest and or heavy fines if the academic dishonesty offense violates state or federal law.

Here is the link to De Anza's Policy on Academic Integrity.<http://www.deanza.edu/studenthandbook/academic-integrity.html>

Note to students with disabilities:

If you have a disability related need for reasonable academic accommodations or services in this course, provide (name of Instructor) with a Test Accommodation Verification Form (also known as a TAV form) from Disability Support Services (DSS) or the Educational Diagnostic Center (EDC). Students are expected to give five days notice of the need for accommodations. Students with disabilities can obtain a TAV form from their DSS counselor (864-8753 DSS main number) or EDC advisor (864-8839)."