

Human Anatomy and Physiology I & II

A. Linwood Holton Governor's School

2019-2020 Course Syllabus

Contact Information

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Office Hours: By appointment

Communication Guidelines

- Students must use the @hgs.k12.va.us email account to communicate with me.
- E-mail is the preferred method of communication for the course. All communication regarding absences/missed coursework/assignments should be made by e-mail.
- I will respond to e-mails within 24 hours during the week and within 48 hours on the weekend. If you do not hear from me in that time frame, please re-send the e-mail.

I. COURSE NAME/DUAL ENROLLMENT CREDIT

BIO 141 Human Anatomy and Physiology I - Lecture and Lab (4 credits); and BIO 142 Human Anatomy and Physiology II – Lecture and Lab (4 credits)

This class is a dual enrollment course. College credit is offered through one of four community colleges based on the location of the high school that the student attends. The four community colleges that may award credit are *Mountain Empire Community College, Southwest Virginia Community College, Virginia Highlands Community College, and Wytheville Community College.*

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II. COURSE DESCRIPTION

Biology 141 is the first of a two-semester course designed to introduce students to the fundamental principles of human anatomy and physiology. This course provides a comprehensive study of the human body, focusing on anatomy and physiology of cells, tissues, organs, and systems of the body. Human Anatomy and Physiology I consists of both a lecture (3 credits) and laboratory (1 credit) component. The lecture component will be worth 75% of your final grade and the lab component will be worth 25% of your final grade.

Biology 142 is the second of a two-semester course designed to introduce students to the fundamental principles of human anatomy and physiology. This course provides a comprehensive study of the human body, focusing on anatomy and physiology of cells, tissues, organs, and systems of the body. Human Anatomy and Physiology II consists of both a lecture (3 credits) and laboratory (1 credit) component. The lecture component will be worth 75% of your final grade and the lab component will be worth 25% of your final grade.

Prerequisites: High school biology and chemistry. BIO 141 is a prerequisite for BIO 142.

III. COURSE OBJECTIVES:

By the end of Bio 141, students will, at a minimum, be able to:

- Understand the relationship between structure/function and anatomy/physiology
- Identify and understand the hierarchical architecture of the human body, listing the levels of human organization from chemical to organismal level
- Name 40+ regional terms of the human body and correctly use 10+ directional terms
- Understand how general chemistry and biochemistry relates to the physiological processes of the human body:
 - Describe the difference between acids and bases
 - Describe the difference between inorganic molecules and organic molecules
 - Describe the difference between carbohydrates, proteins, lipids, and nucleic acids and provide examples of each
- Identify the anatomy and fundamental physiology of human body cells and their organelles:
 - Explain resting membrane potential and list what ions play a role
- Identify function, location, and all types and examples of the four major living tissues
- Identify anatomical features of the integumentary system and explain their physiological roles
- Identify anatomical features of bone tissue and explain their physiological roles
- Identify the axial and appendicular skeletal bones of the body and their unique surface markings and special features
- Identify anatomical features of the 3 major types of joints and explain their physiological roles
- Identify anatomy of the shoulder, elbow, hip, knee, and ankle joints
- List the organizational structure of muscle tissue from connective tissue covering to myofilament
- Explain the physiology of a muscle contraction from nervous stimulation to muscle shortening
- Name the major muscles of the human body
- Recall the basic principles behind naming muscles of the body
- Identify and understand the anatomical features of nervous tissue, the different types and locations, and the physiological role that they play in the body:

- Compare and contrast resting membrane potential, depolarization, graded potential, hyperpolarization, and action potential
- Identify and understand the anatomical features of the human brain, their different functions, and the physiological role that they play in the body

By the end of Bio 142, students will, at a minimum, be able to:

- Identify and understand the anatomical features of the human brain, their different functions, and the physiological role that they play in the body
- Identify and understand the anatomical features of the human spinal cord, their different functions, and the physiological role that they play in the body
- Recall the cranial nerves, their locations, and functions in the human body
- Recall the major spinal nerves, their locations, and functions in the human body
- Identify endocrine organs and tissues under the microscope
- Match hormone with correct origin and stimulus for release; name the target organ and effect that each hormone has on the body
- Understand the pathophysiology of 10+ endocrine disorders
- Describe the components of blood, all formed elements and functions, and the process of blood clotting
- Name structures of the heart and major blood vessels of the body
- Describe the pathway that blood takes through the heart and throughout the body
- Describe the mechanics of breathing and identify the specific organs and structures of the respiratory system
- Describe the act of mechanical and chemical digestion and the molecules and enzymes involved in the process
- Identify specific organs and structures of the digestive system
- Describe the act of making urine at the nephron in the kidney, and identify the specific organs and structures of the urinary system
- Identify the anatomy of the male and female reproductive system and explain their physiological roles

Program Learning Outcomes (PLOs) Addressed by this Course: This course satisfies four of the five PLO's. (2) Scientific Reasoning- Students will demonstrate understanding of scientific concepts, theories, and basic scientific reasoning; (3) Critical Thinking- Students will exhibit identified critical thinking skills to pose questions, process information, and make decisions; (4) Quantitative Reasoning- Student will compute, analyze, and communicate quantitative data using mathematical and logical methods to solve problems (e.g., table, graphs formulas, or other relative formats); (5) Information Literacy- Students will effectively gather, organize, apply and evaluate information with an understanding of its origins and the technologies used.

Core Competencies Addressed by this Course: This course satisfies the following six out of seven core competencies: (I) Communication, (II) Critical Thinking, (IV) Information Literacy, (V) Personal Development, (VI) Quantitative Reasoning and (VII) Scientific Reasoning. The above educational competencies will be met through reading assignments, classroom or online discussion, worksheets, laboratory activities and reports, and chapter exams.

IV. REQUIRED TEXTS AND MATERIALS

- 1) **Textbook:** *Human Anatomy and Physiology*, Marieb and Hoehn, 11th edition ISBN10: 0-13-476630-X; ISBN13: 978-0-13-476630-0. This textbook is the property of A. Linwood Holton Governor's School and must be returned to the Governor's School at the end of the course in the same condition it was issued.
- 2) **Supplemental text/lab manual:** *A Visual Analogy Guide to Human Anatomy*, Krieger, 4th edition. ISBN10: 1-61731-624-1; ISBN13: 978-1-61731-624-1. This text is issued and will become the property of the student. You may highlight, take notes, and complete assignments in this book.
- 3) **Course Webpages:** Canvas Learning Management System and Jigsaw Interactive Software (enrollment/login instructions will be issued to each student); Mastering A&P (enrollment/login codes/instructions will be issued to each student)
- 4) **E-mail:** Assignments and important course announcements will be posted to your Canvas account and/or e-mailed to your @hgs.k12.va.us account. You should check your Canvas announcements and e-mail every day before class begins. Some assignments will be collected via e-mail at aplab@hgs.k12.va.us.

V. TEACHING METHODS/COURSE DELIVERY

This course is taught using Jigsaw interactive software in a synchronous format. Tests and assignments will be administered online. Each class lecture is recorded and archived for student access. Please be aware that all chats (group and private) and activities during class session are recorded and available to the instructor/ administration.

During lecture, a variety of teaching methods will be employed, including power points, videos/images, and white boards. In lab, activities and assignments will take place to enhance lecture topics. There will be three planned laboratory days throughout the course that will take place on site at the Governor's School or at a field location to be determined. In these labs, microscope slides, models, cadavers, and animal organs will be examined and/or dissected. You will be expected to participate in class with a partner or in groups from time to time, especially in laboratory.

VI. COURSE POLICIES

Daily Announcements: Check your ALHGS e-mail and Canvas announcements before the beginning of each class period for updates, assignments, and schedule changes.

Test/Assignment Schedule: Test and assignment dates will be emailed and/or posted on Canvas.

Cadaver Lab Policy: The observation and dissection of a human cadaver will be used as a supplement during some laboratory activities. If a student has concerns regarding entering the cadaver lab for any reason (medical/pregnancy/asthma, sensitivity to latex, etc. or otherwise), please discuss with instructor in private prior to laboratory session. Anyone who does enter the cadaver lab will be expected to demonstrate professionalism and respect for the cadaver at all times or will be

asked to leave the laboratory IMMEDIATELY. NO cell phones or cameras are allowed in the cadaver lab.

Make-up Work Policy: The student is responsible for the subsequent completion of all work missed during an absence. Adjusted deadlines for make-up assignments and tests will be determined by the instructor but should be completed within 2 school days after a student returns to class. Any assignment missed and not made up will affect the grade, regardless of the reason for the absence

Quiz/Test Policy: Quizzes and tests will be given with each unit of study. Quizzes and tests will be proctored by a facilitator at the students' home high schools and will be closed note, closed book, closed internet search, timed assignments to be completed individually. Test make-ups may be granted at the instructor's discretion if proper documentation is provided from the student.

Cell Phone Policy: Cell phones should be silenced and put away during lecture and lab. **IF YOU ARE CAUGHT USING A CELL PHONE FOR ANY REASON DURING A TEST, IT WILL BE CONSIDERED ACADEMIC VIOLATION.**

VII. GRADING CRITERIA & EVALUATION METHOD

Grading scale: The grading scheme is 100% objective and based on the TOTAL of your earned scores. There are 1000 points available in each semester. There will be NO extra credit projects assigned for individual students.

Grading scale:

900-1000	A (90-100%)
800-899	B (80-89%)
700-799	C (70-79%)
600-699	D (60-69%)
Below 600	F (<60%)

ALHGS submits numeric and letter grades to your high school. At the end of the 6wks/9wks, your grade will be the percentage of the total possible points that you have earned on the last day of the grading period. For this course, the grade you receive in December (1st semester) will be the final grade for BIO 141 and the grade earned in May (2nd semester) is the final grade for BIO 142. The letter grade is submitted to the community college for your transcript.

Lecture- (75%) – 750 points

Exam 1: Intro to the Human Body (50pts)
Exam 2: Chemistry (50pts)
Exam 3: Cell (50pts)
Exam 4: Tissues/Integumentary System (50pts)
Exam 5: Bone/ Skeletal Tissue (50pts)
Exam 6: Bones of Skeleton/Joints (50pts)
Exam 7: Muscle Physiology/Muscular System (50pts)

Laboratory- (25%) -250 points

Lab Practical 1: Tissue Histology (50 pts)
Lab Practical 2: Bone Practical (50 pts)
Lab Practical 3: Muscle Practical (50 pts)
Lab Assignments/Homework (100 pts)

Exam 8: Nervous Tissue + Nervous System (50pts)

Exam 9: Cumulative Final Exam (100 pts)

Quizzes (8) @ 10 pts (80 pts)

Homework/Learning modules (170 points)

Lecture- (75%) – 750 points

Exam 1: Nervous System (50pts)

Exam 2: Endocrine System (50 pts)

Exam 3: Blood (50 pts)

Exam 4: Heart and Blood Vessels (50 pts)

Exam 5: Respiratory System (50 pts)

Exam 6: Digestive System (50 pts)

Exam 7: Urinary System (50 pts)

Exam 8: Reproductive System (50 pts)

Cumulative Final Exam: (100 points)

Laboratory- (25%) - 250 points

Lab Unit 1: Nervous, Endocrine, Blood (50 pts)

Lab Unit 2: Heart, Vessels, Respiratory (50 pts)

Lab Unit 3: Digestive/Urinary Systems (50 pts)

Lab Assignments/Homework: (100 points)

Quizzes (8) @ 10 points (80 points)

Homework/Learning modules (170 points)

Note: The grading scheme is subject to change through the course of the semester as the schedule dictates. The OFFICIAL exam dates and lab test dates will be posted on Canvas and e-mail.

Failure to attend class or check your announcements/e-mails to keep up with test dates is not a reason for a make-up test.

VIII. DISABILITY STATEMENT

Students are encouraged to discuss any special problems, needs or accommodations with your instructor. If you have a disability or other need for reasonable accommodation in order to successfully complete the requirements of this course, please contact the director of the Holton Governor's School at (276) 619-4327 to discuss this matter confidentially. Necessary and reasonable accommodations for students with disabilities will be made when needed.

Individuals requiring temporary handicapped parking accommodations on the community college campus due to short-term illness should contact the Office of Student Services. All correspondence will be kept confidential.

IX: ATTENDANCE POLICY

Regular class attendance is required and necessary for your success in this course. Absences and tardiness are recorded. You are expected to attend all class sessions and to participate in all class activities and assignments. When absence from a class is necessary, it is the responsibility of the student to inform the instructor prior to the absence (when possible) or on the day of the absence by e-mail. A. Linwood Holton Governor's School is committed to academic quality and student

success. Elements that support both of these values are regular attendance and participation in class.

In addition, the attendance policies and expectations of the student's home high school are to be followed.

X: EMERGENCY STATEMENT

In the event of a major interruption of technological connectivity or an actual emergency affecting the student's school, the offices of ALHGS, or the community college through which a student is receiving his/her credit - course requirements, class meeting times or schedules, assignment deadlines, and grading schemes are subject to changes that may include alternative delivery methods, alternative methods of interaction with the instructor, alternate class materials, changes to class membership, a revised attendance policy; a revised semester calendar and/or grading scheme, etc.

For more general information about plans for dealing with such catastrophic events or emergencies, please consult the following resources:

- The A. Linwood Holton Governor's School Web-Page (<http://www.hgs.k12.va.us/>) and/or the college website.

Should such a situation arise, ALHGS's Administrator will work closely with the appropriate school division and college personnel to resolve it as soon as possible. Students will be contacted through available forms of communication and given specific directions as to how they will proceed to complete their course work, how timelines will be adjusted, etc.

XI: ACADEMIC CONDUCT POLICY (HONOR CODE)

Academic honesty is required and expected on all course assignments. Students must do their own original work on all assignments. Any student caught cheating or plagiarizing in any way, shape, or form or assisting another student in cheating or plagiarizing will receive a failing grade for the assignment. In addition, the home school and the Holton Governor's School may take disciplinary action. The Holton Governor's School disciplinary action may include expulsion from the course and the program. In addition, please see the Student Handbook for the community college affiliated with your high school for their full policy on academic integrity and the code of conduct for that institution.

Please keep in mind, providing information to another student regarding the content of a quiz or test (verbally, written, photographic, or any other medium) is considered a violation. Any screen shots, photographic images, printing, or other means of duplication of quizzes or tests is strictly prohibited.

XII: HOW TO SUCCEED:

You are ultimately responsible for the outcome of your educational experience. While the instructor will introduce you to fundamental concepts and explain why they are important, it is up to you to take time to master the material. You are expected to take an active role in the learning process by coming to class and taking notes, reading the textbook carefully, and studying the resources provided for you. Keep up with the material and devote plenty of time for studying outside of the classroom. You should study to understand and master the material each class period – do not wait until the day before the exam to begin studying.