



**Anatomy and Physiology Syllabus  
CHS Science Department**

**Contact Information:** Parents may contact me by phone, email, or visiting the school.

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**CCSD Vision Statement:** The Chillicothe City School District will provide tomorrow's leaders with a high quality education by developing high expectations and positive personal relationships among students, staff, and community members.

**CCSD Mission Statement:** The Chillicothe City School District empowers students to learn, to lead, and to serve.

**Course Description and Prerequisite(s) from Course Handbook:**

Human Anatomy & Physiology is a course in which students develop conceptual knowledge of the human body. Through instruction, including laboratory activities, students apply concepts associated with human anatomy (structure) and physiology (function). Studies will include the process of homeostasis and the essentials of human function at the level of genes, cells, tissues, and organ systems. Students are to understand the structure, organization, and function of the various components of the healthy human body in order to apply this knowledge for personal health/wellness and in preparations for all health-related fields.

Students enrolled in this course will gain a basic understanding of the principles of atomic structure, bonding, molecules, and structural formulas, types of chemical reactions, principles of acids and bases, and molarity- as these topics relate to the human body. The course will include ample laboratory experiences in animal dissection that illustrate the application of the standards to the appropriate cells, tissues, organs, and organ systems of the human body through laboratory comparison. Dissection and simulation are both appropriate and necessary in this course.

**Learning Targets:** Defined below for clarity are the Unit Titles, Big Ideas of every Unit taught during this course, and the Essential Questions to be answered to better understand the Big Ideas. A student's ability to grasp and answer the Essential Questions will define whether or not he or she adequately learns and can apply the skills found in Big Ideas. This will ultimately define whether or not a student scores well on assessments administered for this course.

- **1st Quarter**
  - **Unit I Title: Levels Of Organization To The Human Body**

- **Big Idea #1:** I can learn the language of human anatomy and physiology
  - *Essential Question #1: Describe all the anatomical position, planes and cavities of the body.*
  - *Essential Question #2: Delineate in detail the levels of organization simplest too complex to the human body.*
  - *Essential Question #3: Identify all of the human body organ systems, their major organ(s) along with their primary functions.*
- **Big Idea #2:** I can understand how cells work, and how they work together, to understand human anatomy and physiology
  - *Essential Question #1: Cite and explain the functions of several organic molecules of life including: carbohydrates, proteins, lipids, nucleic acids, water, DNA/RNA, ATP and pH balance.*
  - *Essential Question #2: Identify the anatomical parts/organelles of a human cell.*
  - *Essential Question #3: Explain the physiology of the parts/organelles of a typical cell.*
- **Big Idea #3:** I can understand the cells life cycle and the formation of tissues to the human body
  - *Essential Question #1: Describe with specific steps detail the process of Mitosis and Meiosis.*
  - *Essential Question #2: Identify and describe the functions of the four main types of body tissue.*
  - *Essential Question #3: Explain the anatomical set up for function of tissues to become organs and thus part of a body system.*
- **Unit II Title: Support and Movement Of The Human Body**
  - **Big Idea #1:** I can explain structure and function of membranes and the integumentary system
    - *Essential Question #1: Identify the different types of body membranes and serous fluids as well as synovial fluids.*
    - *Essential Question #2: Explain the structure and function of skin including the different glands and sensory receptors.*
    - *Essential Question #3: Explain the difference between the various skin conditions (bedsores, degree burns, herpes 1 and 2, fungal and tumors/cancers).*
  - **Big Idea #2:** I can explain structure and function of the skeletal system
    - *Essential Question #1: Describe the anatomical and physiological aspects of the skeletal system.*
    - *Essential Question #2: Identify and describe the various bones features, shapes and thus functions of the skeletal system.*
    - *Essential Question #3: Describe the general structures and functions of the three major categories of joints and common injuries to the skeletal system.*
  - **Big Idea #3:** I can explain structure and function of the muscular system

- *Essential Question #1: Identify and explain the muscle tissues (3) and their functions.*
    - *Essential Question #2: Describe skeletal muscle action(s) and cite the origin, action and function of the major skeletal muscles.*
    - *Essential Question #3: Describe common injuries and disorders to the muscle system.*
  - **2nd Quarter**
    - **Unit III Title: Integration & Coordination Of The Human Body**
      - **Big Idea #1:** I can describe in detail structure and function of the nervous system
        - *Essential Question #1: Differentiate between the central and peripheral nervous system and explain the function of each including nerve structures and functions, as well as its branches and cellular make up.*
        - *Essential Question #2: Explain nerve impulse transmission to the central as well as peripheral systems.*
        - *Essential Question #3: Describe with detail the physiological implications of select injuries and disorders to the working nervous system.*
      - **Big Idea #2: :** I can describe in detail structure and function of the sensory system
        - *Essential Question #1: Explain the structures and functions of the human eye.*
        - *Essential Question #2: Explain the structures and functions of the human ear.*
        - *Essential Question #3: Delineate the organs and tissues involved in the ability to smell and taste.*
      - **Big Idea #3:** I can describe in detail structure and function of the endocrine system
        - *Essential Question #1: Describe the anatomy as well as locations and the physiology of the organs of the endocrine system.*
        - *Essential Question #2: Identify and explain the hormones of the endocrine system.*
        - *Essential Question #3: Explain endocrine diseases and disorders to the functioning of the human body.*
    - **Unit IV Title: Transport Throughout The Human Body**
      - **Big Idea #1:** I can delineate details of the structure and function of the respiratory system
        - *Essential Question #1: Describe the structure and function of the respiratory system with emphasis on the organs of the system.*
        - *Essential Question #2: Delineate the mechanics of the respiratory system and the connection to the circulatory system with O<sub>2</sub>/CO<sub>2</sub> exchanges.*
        - *Essential Question #3: Explain the cause and effect of respiratory system illnesses, diseases and disorders to the effect of the human body performance.*

- **Big Idea #2:** I can delineate details of the structure and function of the blood fluid as it pertains to our body systems
    - *Essential Question #1: Describe the function and composition of blood.*
    - *Essential Question #2: Explain the various blood types and the importance of them with transplants and transfusions.*
    - *Essential Question #3: Identify blood disorders and diseases and the cause/effect to the human body.*
  - **Big Idea #3:** I can delineate details of the structure and function of the cardiovascular system
    - *Essential Question #1: Describe the structure and function of the cardiovascular system.*
    - *Essential Question #2: Explain in detail the structure of the heart and blood vessels as well as the function of circulation.*
    - *Essential Question #3: List and explain heart diseases with prevention as well as intervention medically strategies.*
- **MID-TERM EXAM**
- **3rd Quarter**
  - **Unit V Title: Absorption & Excretion Of The human body**
    - **Big Idea #1:** I can learn the structure and function of the lymphatic system
      - *Essential Question #1: Explain the two primary functions of the lymphatic system. Describe the ways the two processes work homeostatic-ally to keep the body healthy.*
      - *Essential Question #2: Define compliment system and explain the main difference between the classical pathway and the alternative pathway of this system.*
      - *Essential Question #3: Delineate the difference between humoral immunity (antibody-mediated immunity) and cellular immunity (cell-mediated immunity).*
    - **Big Idea #2:** I can learn the structure and function of the digestive system
      - *Essential Question #1: Identify, cite and explain the major categories of nutrients and their importance to a healthy working body.*
      - *Essential Question #2: Identify the organs of the digestive system and explain their functions.*
      - *Essential Question #3: Describe some of the common disorders and diseases of the digestive system and health practices to prevent and or manage them.*
    - **Big Idea #3:** I can learn the structure and function of the urinary system
      - *Essential Question #1: Identify the anatomy of the kidney and then physiology of the kidney.*
      - *Essential Question #2: Explain the process for urine formation, storage and subsequent excretion.*
      - *Essential Question #3: Describe urinary system disorders, diseases, and treatments options.*

- **Unit VI Title: Comparative Animal Dissection To The Human Body**
  - **Big Idea #1:** I can learn comparative anatomy for better understanding of the human body through application animal laboratory dissection safely
    - *Essential Question #1: Describe anatomical terminology to the animal for dissection applications.*
    - *Essential Question #2: Demonstrate proper lab set up and usage of equipment safely during the comparative anatomy/physiology dissections.*
    - *Essential Question #3: Apply medical protective wear during comparative dissections and be able to explain the importance of doing so always.*
  - **Big Idea #2:** I can make connections from dissection of the comparative animal body to understand better human organ structures and their connection with the body system(s)
    - *Essential Question #1: Describe systems exposed for organ viewing each lab.*
    - *Essential Question #2: Explain function of the organs/tissues exposed each lab session*
    - *Essential Question #3: Identify key organ anatomical features exposed in each dissection lab session.*
  - **Big Idea #3:** I can make connections from dissection of the comparative animal body to understand better organ functions and thus body system(s) integration
    - *Essential Question #1: Explain what comparative anatomy/physiology dissection is clearly stating why it is important.*
    - *Essential Question #2: Identify through dissection the major organs of the human body through dissection labs with the region of the body location in comparison.*
    - *Essential Question #3: Locate and describe up to six accessory organs and or nerves/tissues discovered during the dissection labs and their role in the healthy body.*
- **4th Quarter**
  - **Unit VII Title: The Human Life Cycle**
    - **Big Idea #1:** I can describe and explain the male reproductive system
      - *Essential Question #1: Describe the anatomy of the male reproductive system.*
      - *Essential Question #2: Explain how sperm are created and delivered for reproduction.*
      - *Essential Question #3: Describe the process of the male hormones.*
    - **Big Idea #2:** I can describe and explain the female reproductive system
      - *Essential Question #1: Describe the anatomy of the internal structures of the female reproductive system.*
      - *Essential Question #2: List and explain fully the steps of oogenesis.*
      - *Essential Question #3: Explain the hormones of the female body and the link to the monthly process and reproduction abilities.*

- **Big Idea #3:** I can describe and explain the reproductive process along with lifecycle growth
  - *Essential Question #1: Describe what fertilization is.*
  - *Essential Question #2: Explain after conception the process of pregnancy to full term birth.*
  - *Essential Question #3: Delineate the stages in detail of the human life cycle.*
- **Unit VIII Title: Human Anatomy & Physiology Life/Career Applications**
  - **Big Idea #1:** I can research +/- issues for understanding of the working human body
    - *Essential Question #1: Identify common medical abbreviations used in research and careers pertaining to human anatomy and physiology.*
    - *Essential Question #2: Cite the anatomy and physiology word elements applied to study of the body.*
    - *Essential Question #3: What are current +/- issues currently facing the field of anatomy and physiology for advancing the wellness of the human body?*
  - **Big Idea #2:** I can learn about anatomy and physiology at work as a career
    - *Essential Question #1: Identify and explain at least three careers of interest based on this course material that you could consider doing.*
    - *Essential Question #2: Explain what a medical professional is and cite at least five careers.*
    - *Essential Question #3: Identify what research is and tells us about the human body and improving health/longevity*
  - **Big Idea #3:** I can apply anatomy and physiology to my personal life to improve my working body throughout life
    - *Essential Question #1: What are issues to date in your life that have arose within your working body (tonsil ectomy, appendix surgery, ligament-knee etc.).*
    - *Essential Question #2: What are the major positive lifestyle factors one can do as regular habits to maintain a healthy human body?*
    - *Essential Question #3: What are common issues many face with anatomy/physiology that can be fixed with medical professional assistance as well as issues that one may have yet they can manage and continue successfully on their life cycle path with longevity?*
- **END OF COURSE EXAM**

**Course Materials:**

- Google Chromebook
- 3 Ring Binder
- Coloring Pencils
- Lab Unit: Gloves, Anti-bacterial gel, mask (optional), & lab dissection shirt.
- A & P LAB COURSE FEE \$30

**Textbook:**

- TBA

### **Supplemental Textbook(s):**

- CHS Biology I Textbook
- CHS Biology II Textbook (retired)
- CHS Health Education Textbook (2)

### **Electronic Resources:**

- <https://www.getbodysmart.com/>
- <https://www.cliffsnotes.com/study-guides/anatomy-and-physiology>
- <https://www.rcc.edu/departments/mathsciencedepartment/lifesciences/2B%20Lab/Anatomy%20and%20Physiology-OpenStax%20College-with%20EDITS.pdf>
- <http://www.g-wlearning.com/healthsciences/9781619604124/student/index.htm>
- Other sources T.B.A. throughout the course

### **Course Expectations:**

This course is intended to provide an overview of the basic Human Anatomy and Physiology. It is intended for the student who wishes to pursue biology science for a health careers major in college and or technical schooling. This course will move at a fast pace and be rigorous. This course is set up to be a precursor for the college level anatomy and physiology courses, and expectations are high. Students must be prepared to negotiate studies in a college preparatory classroom throughout this course.

- Each student will be expected to keep all papers in their 3 ring binder. This includes graded work and work in progress.
  - Students are expected to have materials every day: textbook, paper, notebook, pencil or pen.
  - Students will be expected to complete all assignments on time.
  - Students will participate in classroom discussion/activities.
  - Students will check their individual Progress Book grades regularly.
- \* Each student must realize that this is a preparatory course for planned post high school education/training. In keeping with this philosophy, you are going to have certain expectations in regard to conduct, work ethic, and responsibility. Please be prepared every day to work toward meeting these expectations which will also likely require review and study outside the classroom.

### **Grading:**

Unit Exams	50%
Assessments (Including: Quizzes, Essays, Labs, and Projects)	30%
Class work/Homework	20%

- Each nine week's grade comprises 20% of a student's final grade.
- The Mid-Term Exam and End of Course Exam each comprise 10% of a student's final grade.

### **Grading Scale:**

The grading scale for Chillicothe High School can be found in the student handbook or online at <http://www.chillicothe.k12.oh.us/1/Content2/studenthandbook>.

**Late Work:** Late work will be subject to the Board-adopted policy on assignments that are submitted late (to be reviewed in class).

- Regardless of the absence type (excused, unexcused, OSS, etc.), students are expected to make up work and be held accountable for learning all material they missed.
- Any student who is absent from school will receive one (1) additional day for every day he/she missed to make up his/her work for full credit (100%).
- Any student who exceeds the allotted time to turn in an assignment for full credit may still submit work late for partial credit.
  - Any student who turns in work up to 1 week late must at least be given the opportunity to earn 75% on that assignment.
  - Any student who turns in work between 1 and 2 weeks late must at least be given the opportunity to earn 60% on that assignment.
- The end of the 9 weeks is the cut off point for teachers to accept late work from students for full or partial credit unless the teacher decides to give the student an incomplete for the 9 weeks due to extenuating circumstances.

**Performance Based Section: Writing**  
**Assignments/Exams/Presentations/Technology**

One or more of the End of Unit Exams may be Performance Based. According to the Ohio Department of Education, “Performance Based Assessments (PBA) provides authentic ways for students to demonstrate and apply their understanding of the content and skills within the standards. The performance based assessments will provide formative and summative information to inform instructional decision-making and help students move forward on their trajectory of learning.” Some examples of Performance Based Assessments include but are not limited to portfolios, experiments, group projects, demonstrations, essays, and presentations.



### **CHS Anatomy and Physiology Syllabus**

After you have reviewed the preceding packet of information with your parent(s) or guardian(s), please sign this sheet and return it to me so that I can verify you understand what I expect out of each and every one of my students.

Student Name (please print): \_\_\_\_\_

Student Signature: \_\_\_\_\_

Parent/Guardian Name (please print): \_\_\_\_\_

Parent/Guardian Signature: \_\_\_\_\_

Date: \_\_\_\_\_