

HUMAN ANATOMY & PHYSIOLOGY

2020-2021

COURSE DESCRIPTION

This course explores the structure and function of the human body at multiple levels: individual cells, their coming together to form tissues, the organization of tissues into organs, organs working together as parts of organ systems, and finally how those organ systems support one another to maintain the body. Normal structure and function are presented as a starting point, and then the effects of disease on structure and function are examined. The effects of disease are also considered at multiple levels, from cells to organ systems, and then beyond the effects on individuals to how diseases effect populations and societies.

COURSE OUTCOMES

Everything we do in Human Anatomy & Physiology (HAP) will come back to these three major course outcomes, in which every student should grow over the course of the year.

- Students will be able to find, understand, discuss, and critically analyze sources of HAP information by applying their work in projects and case studies so that they can make informed decisions for themselves and others.
- Students will be able to explain the interconnectedness of human body systems using technical terminology by creating and labeling a scale model of the human body so that they can better communicate about topics related to HAP.
- Students will be able to use HAP to honor and value diversity by applying what they learn in research and experiments so that they can empathize with and advocate for people who are different from themselves.

INSTRUCTOR INFORMATION

Dr. Stephanie Nelson

Classroom: 231U

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Office: 234U

TEXTBOOKS

Hole's Essentials of Human Anatomy & Physiology, High School edition. Shier, Butler, and Lewis. McGraw Hill Education. 2017.

A hardback textbook will be issued as well as access to an online textbook. The same textbook that you are issued (identified by number) must be returned at the end of the school year.

Access to the online textbook is via: <http://my.mheducation.com> If you do not already have an MH account, please create one with your CSG email address. For all students, the Join Code is: **MOiPwMWS** (note that the second character is a ZERO, not a letter O).

Anatomy & Physiology. Betts, et al. OpenStax. 2020.

This textbook is online-only but can be downloaded as a PDF or for Kindle for free. This is an alternative to *Hole's Essentials*; many students find it beneficial to have concepts explained in different ways on their journey to mastery.

Textbook website: <https://openstax.org/details/books/anatomy-and-physiology>

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CANVAS

Students have already been enrolled in the class Canvas page before the start of school. Course content, homework, and assessment details will all be given on this site. All due dates will be posted on the Canvas calendar. Be sure to check the Canvas site often!

E-MAIL

Your CSG e-mail and Announcements via Canvas (which can be forwarded to your CSG e-mail) will be our primary means of communication outside of class. Please check your CSG e-mail at least once a day for class announcements and/or reminders.

TEACHING STRATEGIES & NOTES

This year each section of HAP will be working on different “tracks” and will switch tracks at the semester mark.

Anatomy Track

Students will focus on using digital and/or physical scale models of the human body to learn the form and function of many of the human body systems. Emphasis is placed on the spatial relationships between organs and parts as well as natural variation in size, shape, color, and other characteristics. General function(s) will be inferred from these physical characteristics. There will NOT be graded tests or quizzes simply on memorizing the technical terms for human anatomical features – the goal is for students to become fluent with proper anatomical terminology through practice and repeat usage, not simply rote memorization.

Physiology Track

Students will take a deep dive into how two of the human body systems work, focusing on everything from the biochemistry to ecological levels. The first six-week module will focus on the Nervous System and Neurological Disorders. This module is a model for the next unit, which will be structured, but where students will choose what content to dive into based on their own interests. For the second module students will choose one of three options: 1.) Immune System and Infectious Disease, 2.) Digestive System, Metabolic Diseases, and Nutrition, or 3.) Lymphatic System, Cell Biology, and Cancer. At the end of this semester track students will share their newfound knowledge with the entire class.

Class content will primarily be delivered in a “flipped” format. We will discuss what this entails in detail in class, but in short this means that the initial learning and exposure to the content will happen outside of our classroom time and *before you come to class*. You will have choice in how you complete this, either reading the textbook, watching video(s), or (sometimes) listening to a podcast. Our time together in-class will be focused on discussing the content, working through homework/practice problems, and using the content you learned in labs and other application activities. This practice and reiteration is what helps cement the content and skills in your memory, so do not be discouraged if you do not understand everything that first time around!

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EVALUATION

There will be no traditional tests or exams in this course. Student mastery of the course outcomes and learning objectives will be assessed during and at the end of each unit and at the end of each semester in a variety of ways, including written, oral, and digital products. Students will receive a numerical grade based on the weighted categories listed below.

Unit & Module Summative Assessments (Projects, Case Studies, etc.)

35% of the total grade

Whether within the *Anatomy Track* or the *Physiology Track*, students will work on learning and applying content within designated units (in *Physiology* those units are contained within the larger modules). Summative assessments focus on the integration and application of information to new and/or expanded contexts and can take a variety of forms, including written reports, presentations, or more creative projects. Each summative assessment will have a description, rubric, and due date posted on Canvas. Be sure to read these resources carefully in order to ensure that you are meeting all the requirements for grading.

Unit & Module Formative Assessments (Practice and “Home”work)

20% of the total grade

These are the smaller day-to-day assignments which many teachers would call “homework.” They allow students to practice working with the material in a low-stakes manner before using it on a Summative Assessment. Further, they help both the student and teacher determine which content or skills are most challenging, which are mastered quickly, and generally provide feedback on how the course is going.

Labs

35% of the total grade

Inquiry-based learning is an essential part of any science course. To this end you will be working on designing, executing, analyzing, and presenting data from your own experiments or research. Therefore, you will be expected to participate in all lab investigations. Lab activities will be followed by a variety of assessments, including but not limited to lab reports, worksheets, and poster/oral presentations.

Dissections

As long as we can be physically present in school there will be one non-human animal dissection lab performed in this class at the end of the *Anatomy Track* (or, alternatively, at the end of the second semester for all students). There is no true substitute for the experience of seeing actual animal systems *in situ* (in their original place/position). No other activity will give you the in-depth experiential knowledge that an actual dissection can. Therefore, I strongly encourage all students to at least be present for the dissection even if they do not do any cutting themselves. Performing and/or being present for the dissection will help students develop mastery of the concepts in the comparative anatomy unit of the class, but is *not required* to complete the associated *Anatomy Track* assessment.

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Reflections

10% of the total grade

Students will be asked to keep a running digital journal (most likely a GoogleDoc shared only with the teacher) where they reflect on what skills and/or content they have practiced that week, interesting ideas or stories, and comment on the how the course is going. These are evaluated based on thoughtfulness and depth, not specific content, but should not take more than 30 minutes of total time each week.

LAB MATERIALS

For the *Anatomy Track* each individual student will be issued a MANIKEN®, sculpting tools, and clay. These are to be used carefully within the classroom for Anatomy in Clay labs and should not leave the classroom at any time. If we are distance learning for any portion of a student's *Anatomy Track* semester, they will draw their muscles and other organs on pictures of a MANIKEN® using Adobe Photoshop (in-class training provided). These digital models will serve as a guide for students to apply clay to their models when we return to the classroom.

LATE ASSIGNMENT POLICY

Assignments are due at the date and time posted on Canvas. This allows me to give you timely feedback so that you can use my input as you study for the unit or refine your work for final submission. I will attempt to make these due dates predictable as possible over the course of a week so you will have the opportunity to plan in advance. There are no penalties for late assignments other than you most likely will not be able to fully benefit from the activities in class the following day (for homework) or will not get timely feedback from me on your work (for labs and projects), which can be particularly important as you complete drafts.

ABSENCES

In the event of an excused absence, I expect you to make every reasonable effort to compete work as per the student handbook. Contact someone from class or check on Canvas to determine what you missed. Please check in with me as soon as possible if anything is unclear. Make-up labs will need to be done on your own time and in the case of any perishable or time-sensitive materials, you may be given an alternative assignment instead of making up a lab. It is your responsibility to reach out to make the necessary arrangements to make-up missed activities, assignments, and assessments.

ACADEMIC HONESTY

As a student here at Columbus School for Girls it is expected that work is quality and original. Copied or plagiarized work will not be tolerated. Plagiarized work will receive a zero and be submitted to the Honor Council for consequences. Copied work will be graded and that grade divided among all participants equally. The goal is that you learn from your own work. Science is a collaborative endeavor and you'll often work with your peers, however, any work turned in individually must be in your own words to demonstrate understanding.