

Anatomy and Physiology Disclosure (Syllabus)

I. COURSE: Medical Anatomy and Physiology (Instructor: Jay Marshall, M.D.)

II. COURSE OBJECTIVES:

The strands and standards for this course are provided by the Utah State Board of Education Department of Career Technical Education (CTE). This is a 30 page document and so is too long to include in this disclosure, but can be found at

<https://www.schools.utah.gov/file/0b08fd3e-5e5b-4b0b-a244-4863e0102219>

I have also placed a copy of this document on my website www.dmarscience.com in the Anatomy and Physiology Section. In accomplishing these objectives it will be my intent to provide the student with multiple conceptual frameworks for the study of anatomy and physiology that will allow the them to (1) organize the content they will be learning in a logical, consistent, and retrievable manner, and which (2) will promote the development of critical thinking skills and the use of scientific inquiry as an approach to the natural world.

III. TEXT: There is no official text for this course. Instructional materials will be provided either before or at the time of the corresponding discussion (see V. Course Management for further details).

IV. COURSE OUTLINE: In accordance with the USOE Strands and Standards, this course will proceed through the following outline. (the number of the strand/standard covered follows the topic in parentheses)

(0) Orientation to the Class

- (0-1) The Structure of Anatomy and Physiology (Strand 1/Standards 1-3, 8, 9)
- (0-2) Basic Anatomic Terminology (Strand 1/Standards 4-7)

(1) Unit 1 The Chemical Basis of Life

- (1-1) Matter, Energy and Atomic Structure (Strand 2/Standards 1-2)
- (1-2) Chemical Bonding / Chemical Compounds (Strand 2/Standards 3-5)
- (1-3) Water (Strand 2/Standard 9)
- (1-4) Solutions / Suspensions / Acids and Bases (Strand 2/Standards 6-8)
- (1-5) Organic Reactions and Compounds (Strand 2/Standards 10-11)

(2) Unit 2 Cell Structure and Function

- (2-1) Review of Basic Cell Components (Strand 3/Standards 1, 7)
- (2-2) Membrane Function (Strand 3/Standards 2-6)
- (2-3) Cellular Respiration (Strand 2/Standard 12)
- (2-4) Cell Division—Need for Cell Division (Strand 3/Standard 8)
- (2-5) Cell Division—Chromosome Structure (Strand 3/Standard 8)
- (2-6) Cell Division—Cell Cycle (Strand 3/Standard 8)
- (2-7) Cell Division—Mitosis (Strand 3/Standard 8)
- (2-8) Cell Division—Meiosis (Strand 3/Standard 8)
- (2-9) Cell Division—DNA Synthesis and Basic Genetics (Strand 3/Standard 7, 8)
- (2-10) Protein Synthesis (Strand 3/Standard 7, 8)
- (2-11) Tissues—Embryologic Development (Strand 4/Standard 1)

- (2-12) Tissues—Epithelium (Strand 4/Standard 1)
- (2-13) Tissues—Connective Tissues (Strand 4/Standard 1)
- (2-14) Tissues—Repair (Strand 4/Standard 1)
- (3) Unit 3 Maintaining Boundaries—Membranes and the Integumentary System
 - (3-1) Types of Membranes and Their Functions (Strand 4/Standard 3)
 - (3-2) The Integumentary System—Structure and Function (Strand 4/Standards 2, 4-6)
 - (3-3) The Integumentary System—Developmental Aspects and Pathology (Strand 4/Standard 7)
- (4) Unit 4 Maintaining a Stable Internal Environment—Movement
 - (4-1) Skeletal System—General Features and Physiology (Strand 5/Standards 1-6)
 - (4-2) Skeletal System—General Divisions of the Skeletal System (Strand 5/Standard 7)
 - (4-3) Skeletal System—Pectoral Girdle (Strand 5/Standards 8, 10, 11)
 - (4-4) Skeletal System—Arm (Strand 5/Standards 8, 10, 11)
 - (4-5) Skeletal System—Forearm (Strand 5/Standards 8, 10, 11)
 - (4-6) Skeletal System—Hand (Strand 5/Standards 8, 10, 11)
 - (4-7) Skeletal System—Pelvic Girdle (Strand 5/Standards 8, 10, 11)
 - (4-8) Skeletal System—Thigh (Strand 5/Standards 8, 10, 11)
 - (4-9) Skeletal System—Leg (Strand 5/Standards 8, 10, 11)
 - (4-10) Skeletal System—Foot (Strand 5/Standards 8, 10, 11)
 - (4-11) Skeletal System—Skull (Strand 5/Standards 8, 10, 11)
 - (4-12) Skeletal System—Vertebral Column (Strand 5/Standards 8-11)
 - (4-13) Skeletal System—Thoracic Cage (Strand 5/Standards 8, 10, 11)
 - (4-14) Skeletal System—Developmental Aspects and Pathology (Strand 5/Standard 12)
 - (4-15) Muscular System—General Features and Physiology (Strand 6/Standards 1-6)
 - (4-16) Muscular System—Scalp and Facial Muscles (Strand 6/Standards 7-9)
 - (4-17) Muscular System—Pectoral Girdle / Upper Limb (Strand 6/Standards 7-9)
 - (4-18) Muscular System—Trunk (Strand 6/Standards 7-9)
 - (4-19) Muscular System—Pelvic Girdle / Lower Limb (Strand 6/Standards 7-9)
 - (4-20) Muscular System—Developmental Aspects and Pathology (Strand 6/Standard 10)
- (5) Unit 5 Maintaining a Stable Internal Environment—Responsiveness
 - (5-1) Nervous System—General Features and Physiology (Strand 7/Standards 1-4, 6, 12, 13)
 - (5-2) Nervous System—Cerebrum, Ventricular System and Brain Stem (Strand 7/Standards 5, 7-11)
 - (5-3) Nervous System—CNS Functioning (Strand 7/Standards 5, 7-11)
 - (5-4) Nervous System—(Strand 7/Standards 15, 16)
 - (5-5) Nervous System—Developmental Aspects and Pathology (Strand 7/Standard 14, 17)
 - (5-6) Endocrine System—General Features and Physiology (Strand 8/Standards 1,2)
 - (5-7) Endocrine System—Hypothalamus and Pituitary (Strand 8/Standard 3)
 - (5-8) Endocrine System—Thyroid / Parathyroids (Strand 8/Standard 3)
 - (5-9) Endocrine System—Adrenal (Strand 8/Standard 3)
 - (5-10) Endocrine System—Pancreas (Strand 8/Standard 3)

- (5-11) Endocrine System—Developmental Aspects and Pathology (Strand 8/Standard 4)
- (5-13) Immune System—General Features / Humoral Response (Strand 10, Standards 3-5)
- (5-14) Immune System—Cellular Response / Transplantation (Strand 10, Standards 3-5)
- (5-15) Immune System—Developmental Aspects and Pathology Transplantation (Strand 10, Standard 6)
- (6) Unit 6 Maintaining a Stable Internal Environment—Distribution of Biomaterials
 - (6-1) Cardiovascular System—General Features and Physiology (Strand 11/ Standards 1, 10)
 - (6-2) Cardiovascular System—Heart and Great Vessels (Strand 11/ Standards 2-9, 11-13)
 - (6-3) Cardiovascular System—Circulation of the Head and Neck (Strand 11/ Standard 4)
 - (6-4) Cardiovascular System—Circulation of the Viscera (Strand 11/ Standard 4)
 - (6-5) Cardiovascular System—Circulation of the Limbs (Strand 11/ Standard 4)
 - (6-6) Cardiovascular System—Developmental Aspects and Pathology (Strand 11/ Standard 14)
 - (6-7) Blood System—Components and Their Functions (Strand 9/Standards 1-3)
 - (6-8) Blood System—Hemostasis (Strand 9/Standards 4, 5)
 - (6-9) Blood System—Blood Typing (Strand 9/Standard 6)
 - (6-10) Blood System—Developmental Aspects and Pathophysiology (Strand 9/ Standard 7)
 - (6-11) Lymphatic System—Components and Functions (Strand 10/Standards 1-2)
 - (6-12) Lymphatic System—Developmental Aspects and Pathophysiology (Strand 10/ Standard 6)
- (7) Unit 7 Acquiring Energy and Biomaterials—Digestion
 - (7-1) Digestive System—Components and Functions (Strand 13/Standards 1-12)
 - (7-2) Digestive System—Developmental Aspects and Pathology (Strand 13/Standard 13)
- (8) Unit 8 Acquiring Energy and Biomaterials—Metabolism (Cellular Metabolism discussed in Unit 2)
 - (8-1) Respiratory System—Components and Functions (Strand 12/Standards 1-9)
 - (8-2) Respiratory System—Developmental Aspect and Pathology (Strand 12 / Standard 10)
- (9) Unit 9 Maintaining A Stable Internal Environment—Excretion
 - (9-1) Urinary System—Components and Functions (Strand 14/Standards 1-7)
 - (9-2) Urinary System—Developmental Aspects and Pathology (Strand 14 / Standard 8)
- (10) Unit 10 Persisting in the Environment—Reproduction
 - (10-1) Reproductive System—Components and Functions (Strand 15/Standards 1-13)
 - (10-2) Reproductive System—Developmental Aspects and Pathology (Strand 15/ 14 Standard 8)

(Growth and Development Aspects of each system will be covered at the time of discussion of each system.)

(Fetal pig dissection and microscopy laboratories will occur throughout the year (see “Lab” section under Course Management)

V. COURSE MANAGEMENT:

This course occurs during period B8.

Required Materials—

-Please obtain a three ring binder, (preferably a two to three-inch binder) **to be used just for this class**—this binder should contain sections for class notes, dissection handouts, drawings, questions of the day, vocabulary, and professional development. Participation points will be lost if the notes are not organized as requested.

Participation/Lecture— **Class notes** for lectures will be regularly provided before or at the time of lecture. These will usually include blanks to be filled in during lecture time. Completion of these notes as well as participation in discussion during class time will be the basis for a daily participation grade of 10 points. I will collect and review the notes daily and incomplete notes will result in a loss of some participation points. **If you miss class it is your responsibility to obtain missing notes from a classmate or the website.**

Questions of the Day (QOD's) At the beginning of many lectures I will ask a **question of the day** based on the previous day's lecture—the students will be informed about upcoming QOD's and their content. These will be worth five or more points. **Many of the QOD's will not be planned in advance and so will not show up on the web site ahead of time—so, it will be important for the student to take note of an upcoming QOD and not forget to review the concept before class the next day.**

Dissections—Lab activities will generally relate to fetal pig dissection and dissection of organs from animals that have anatomy similar to humans. Worksheets will be provided for these activities and are to be kept in the binder along with class notes, vocab, and sketches. The number of points available for each activity will vary depending on the complexity. Students will not be required to actually perform the dissection if they have a severe aversion to this activity, but must be fully engaged in observation and group discussion of objectives of the dissection.

Homework—the amount of homework will vary with the chapter and time available and will be mainly used for concepts that require practice or repeated exposure to learn. The text of all homework assignments will be provided. A firm due date will be provided at the time of the assignment. These will be returned along with answer keys and will provide review material for tests.

Vocabulary—Students will be required to keep a vocabulary “journal.” Vocabulary words corresponding to each section of notes, and their definitions, will be provided in the notes

and students will be required to write provided definitions in the journal, which will simply consist of a separate section of sheets of lined paper in their binder. Each definition will be worth one half a point. Vocabulary may be completed any time prior to the corresponding test and will be checked at the time of each test.

Sketching—We will also do a large amount very basic sketching during the course to aid our learning of anatomic structures and relationships. Although these do not need to be artistic masterpieces, there will need to be enough detail to aid learning, and they will often provide the basis for questions of the day. I will provide blank paper for these drawings and I will expect you to keep them organized in a separate portion of the same binder in which you keep your notes. Each drawing will be worth two points, and, like vocabulary, will be graded at the time of each test.

Tests—Tests will generally occur at the end of every unit or more frequently if the unit is long. A detailed study guide will be provided for each test. There will be comprehensive semester and year-end final exams. You will also take a state-sponsored skill certification exam at the end of the school year. This exam will provide the opportunity to obtain state certification in Medical Anatomy and Physiology. However, performance on this test will not factor into your final grade.

Professional Development—As this course is a Health Science CTE course and there is a major requirement to learn about a variety of health science careers, during each quarter the student will be required to obtain 200 professional development points. Although there will be a large number of ways to accumulate these points, the easiest way to accomplish this will be to join and participate in HOSA (Health Occupation Students of America), although this requires a membership fee of \$25. However, there are plenty of options to obtain points that don't require joining HOSA. Each quarter the student will be given a checklist of available options with descriptions, available number of points and a checklist for teacher approval of the activities. This checklist plus any documentation of the activity must be included in the binder.

Medical Ethics Dilemma Report—During the fourth quarter the student will investigate a medical ethical dilemma of interest to them and provide a written report. The format of this report may vary and details will be provided at the beginning of the fourth quarter.

Quarter Grade—The quarter grade will be based on the following weights:

Tests—35%

Questions of the Day—10%

Participation—15%

Professional Development—15%

Vocabulary/Sketches—5%

Homework—10%

Dissections—10%

Class Rules

It is my hope and intent that classes will always be conducted in an atmosphere of mutual respect and that there will never be a need for disciplinary action. However, should the need occur, such action will follow the guidelines set forth in the School Policies. My classroom policies include:

(1) Maintain a learning environment that is free of distraction.

Students should refrain from distracting other students from learning, or from disrupting the flow of instruction through excessive talking, noise or physical activity.

(2) Language and topic of conversation must be appropriate.

Swearing, vulgarity, and discussion of objectionable actions or words of others, or descriptions of objectionable material from TV shows, movies, and other media is not acceptable, even if you are only repeating the words of others. Forms of swear words that are intended as replacements for the actual swear word are also discouraged—especially any replacement of the “f” word. Additionally, any form of sexual innuendo, intended or unintended, is not acceptable.

(3) Respect everyone.

Disrespect of staff or of other students in any form is not acceptable. This includes any and all forms sexual harassment and racial, ethnic, or lifestyle stereotyping or slurring.

(4) Electronic devices are to be used only for educational purposes.

The use of electronic devices is encouraged for educational purposes. However, if I see use of a cell phone, music player of any type, or any other electronic device which is being used for non-educational purposes, and which, in my opinion, is providing a distraction for you or others, I will take the device until the end of class. For repeated offenses, the device may be taken to the office to be picked up by your parent. In addition, only materials necessary for conducting class will be allowed on desktops during class time.

(5) The only ingestible substance that may be brought into the room is water.

No food or beverages of any kind except for plain water will be allowed in the classroom unless for medicinal purposes (for example, cough drops). This includes mints, candy and gum.

Consequences

Depending on the nature of the infraction, I may issue a warning, a detention, or office referral. If I have to address continued infraction after a warning this will automatically result in a detention. If I have to address the issue a third time I will refer you to the office.

Leaving the Room During Class Time

If you need to leave the room during class time (restroom, drink, or locker for materials—**you will not be allowed to go to your car, so don't ask**), you do not need to interrupt the flow of the activity. Just get up, go to the provided clipboard, fill in your last name, where you are going, and time leaving. Take the room pass and go where you need to go, keeping the absence from the room to as short a time as possible—there should be no reason for you to be out of the room for more than five minutes. Upon return, sign in the time returned. Only one person may leave the room at a time. The number of times a student leaves the room will be monitored and access to this privilege will be limited if it appears that a student's use of it is becoming excessive.

Tardy Policy

If you enter the room after the bell rings please sign in on the sign-in form provided, including last name, date, and period. If you have a valid pass from the office or a teacher excusing you for being late, check the box indicating this and leave the pass in the container provided (a call or email from a teacher will also suffice). If you do not have such a pass I will mark you tardy and you will incur consequences according to school policy. If an unexcused tardy causes you to miss a question of the day you will not be allowed to take that QOD.

Absences/Late Work/Missed Test Policy

It is to your benefit to be present in class. Unexcused absences will incur consequences according to school policy. Work may be turned in late for full value only under the condition of an excused absence. Any work due on the day of the absence is due the class period you return or it will be considered late. Homework is due at the beginning of the assigned class period. You cannot complete it during that class time or get it to me at the end of the day—it will still be considered late. If the homework is completed but you left it at home it will still be considered late. However, late work can be turned in to me at any date after the due date until the corresponding test for a maximum of 85% of the original point value. If you are absent the day of a test/quiz you will either complete the test/quiz outside of class time prior to the next class, or in class on the day of your return, whichever happens first. Depending on the circumstances of the absence (for example, an extended illness) these rules may be modified at my discretion. Because tests are announced in advance and I provide thorough study guides, you will not be excused from taking a test on the day it is given if you miss the class period immediately preceding the test.

VI. INSTRUCTOR AVAILABILITY

Students can meet with me during flex time or most nights after school. You may also contact me as necessary through the school email, jay_marshall@summitacademyschools.org. **If you are struggling please do not hesitate to get help. I am committed to your learning!**

