Anatomy & Physiology Syllabus

Instructor: Mr. Stewart
Email: sstewart@goddardusd.com
Class Website: http://ehs.goddardusd.com/180019_3
Teacher Facebook: https://www.facebook.com/Stewartsays
Room: Eisenhower High School – 126  Plan Time: 8:34-9:28 am

Course Overview:
The purpose of this course is to facilitate your learning about something you have lived with your entire lives – your body. This course is designed for students who are planning to attend post-secondary education in medical or biological fields. Even if you do not fall into this category, this course will still prepare you for collegiate level academic expectations and make you more informed about the importance of the body and its form and function.

Course Materials: The following materials are required for this course
- Marieb’s Human Anatomy and Physiology: 7th edition (checkout from EHS)
- Optional: Netter's Anatomy Coloring Book 2nd Edition (1st & 2nd semester)
- Biozone: Anatomy & Physiology Student Workbook: 2nd edition (1st & 2nd semester)
- 3-Ring Binder (dividers optional)
- A small notebook or Composition Notebook
- Required Literature Novel/Reading (list available on class website)
- Pen, Pencil, post-it notes
- One set of colored pencils (optional, but will get use)
- One large box of non-latex exam gloves (for use with dissections)

Anatomy Course Description (1st Semester):
Anatomy is one of the two major concepts in understanding the human body. Specifically, it is the study of the structure of body parts, their relationships to one another, and their evolutionary relationships to structures in other organisms. It is because of the evolutionary relationships that we can better understand human anatomy through the dissection of non-human organisms during anatomy lab.

Physiology Course Description (2nd Semester):
Physiology is the second of the two major components of the function of the human body. Physiology is the study of the function of the body. In this portion of the course, you will be looking at how the body parts work and carry out the life-sustaining activities. Because physiology only makes sense when discussed in terms of anatomy, this portion of the course will be addressed in the second semester. The laboratory activities in this semester will involve investigation of physiological concepts through experimentation and simulation.

A&P Topic Outline: These topics will be covered, mostly following the below order:

1st semester: Anatomy
- Body Organization
- Tissues
- Skeletal Anatomy
- Joints/Articulations
- Cat Dissection
- Muscular Anatomy
- Osseous & Muscle Tissue

2nd semester: Physiology
- Biochemistry Review
- Integumentary System
- Nervous & Endocrine Systems
- Cardiovascular System and Blood
- Respiratory System
- Lymphatic and Immune Systems
- Digestive System
- Urinary and Reproductive Systems
- Visceral Anatomy
- Senses
Semester Grades:

Students will be graded on a total points system with the maximum number of points being dependent on the final number of assignments. The assignments in the class may consist of bell work, homework, tests, projects, & labs. Each semester, a cumulative final will also be included in the grade and will account for approximately 12% of the total grade. In addition, there will be several daily assignments. Since this is a college level course, most points will come from labs, quizzes, and tests.

EHS Grading Scale:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Points</th>
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<tbody>
<tr>
<td>A</td>
<td>95 - 100</td>
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<tr>
<td>A-</td>
<td>90 - 94</td>
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<tr>
<td>B+</td>
<td>87 - 89</td>
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<tr>
<td>B</td>
<td>83 - 86</td>
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<tr>
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<td>D+</td>
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<tr>
<td>D-</td>
<td>60 - 62</td>
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<tr>
<td>F</td>
<td>59 - 0</td>
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</tbody>
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Assignments are graded as quickly as possible. Larger projects, tests, assignments take me longer to thoroughly assess, so they are not immediately put into skyward. Students are reminded to check grades in skyward to make sure they have been correctly entered, and to let me know if there is an error.

Class Grading Guidelines: I expect you to turn in QUALITY assignments on time and understand that late work will result in a significant grade reduction (50%). Also, no late work will be accepted after the assignment has been graded and returned to the class.

Make-up Policy:

☑ Check my teacher web-page or with your seating partner for assignment information. All hand-outs missed will be available from Mr. Stewart and may be on the website. It is not MY responsibility to make sure you turn in your assignments; it is YOURS!
☑ When you are absent, you have the same number of days plus one day to make up the work without penalty. You must take the initiative to turn these in.
☑ If you are present in class the day an assignment or test is announced, you are responsible for sticking to that date. (For example, you are present on Monday and I announce a test for that Friday. If you were absent on Thurs, YOU WILL take the test on Friday.)
☑ If you miss a TEST, you must make it up within one week of the test date. You may be given a different version of the test.
☑ I will not accept late papers for items we grade IN CLASS unless you were absent that day.
☑ I am available after school most days until 3:45 to make-up tests/quizzes/labs/etc. Please make an appointment to complete make-up items then. Night Library is also an option for making up certain items.

Cheating/Plagiarism: Cases of cheating and/or plagiarism will result in zeros for ALL involved. This includes daily work, assessments, labs, and internet research, etc. Group work does not mean the work completed should be identical. You should adjust the ideas of a group into those of your own. THINK FOR YOURSELF!

If I suspect you of cheating on a test or assignment, you will receive a 0% without question. Earn your own grade or suffer the consequences. Parents & Administration will be notified.

Food/Drink: Food and drink are not allowed in the classroom. You may consume food and drinks during passing period. Any food or drink which you do not finish will need to be placed on the shelf by the door until after class.

Electronic Devices: School policy has become a BYOD policy. This means that VERY occasionally your electronic device might be used as a learning tool (such as to input calendar items with due dates). By and large, however, I feel that electronic devices serve as a distraction during class time and should not be utilized. I would ask that, during class time, phones be put on silent (NOT on vibrate), be out of sight, and not be checked.

I expect all purses and bags to be placed on the floor beside you or hanging on the chair behind you. No bags will be allowed to sit upon the desk during class time. Mostly this is so these items are less likely to be damaged by materials on desks or take up instructional space.
Anatomy & Physiology
Syllabus

Parents & students
Both parents and students are invited to e-mail, write a note to, or call me for clarification of assignments, rules, to express opinions, or for whatever reason. There is a class website available and I recommend that both parents and students routinely check this site for class and assignment information. I also want both parents and students to be aware of the expectations in the class. Because of this, the first assignment for this class is this syllabus (which will be kept in the student’s notebook). To receive the points for this assignment, this informational page must be returned by Friday filled out and with the signature of the parent and the student. If parents have any concern, feel free to contact me.

***Important note: Mr. Stewart will not be available after 6pm at conferences on Oct 20th.***

____________________________________  ___________________________________
Student signature                            Parent signature

_________               ___________
Date                        Date

Anatomy & Physiology
Syllabus

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____________________________________  ___________________________________
Student signature                            Parent signature

_________               ___________
Date                        Date
Human Anatomy – Advanced Standing Course
Submitted by: Shawn Stewart at Eisenhower High School

Required Text:
*Human Anatomy & Physiology 7th Edition* by Elaine N. Marieb and Katja Hoehn

Required Workbooks:

Anatomy Course Objectives: in this course students will
- Be acquainted with and practice using terminology that describes structures and regions of the human body
- Conduct dissections of the domestic cat for comparative anatomical study
- Use their knowledge of anatomical terminology and structures to discuss and/or write about current health issues
- Become familiar with the rigorous demands of courses and careers in the health profession
- Work cooperatively with classmates to make the classroom environment conducive for learning

Anatomy Course Requirements & Assessments
- Each student will build a collection of basic research over common health-related topics connected with a variety of body systems
- Students will participate in discussion forums and complete a project over their summer reading selection
- Laboratory work:
  - Identification of bones, and macroscopic and microscopic bone structures
  - Identification of joints, joint structures and types of movements at joints
  - Dissections of the cat are broken into approximately 14 individual dissections to be done over a 9-week period – for identification of muscles and visceral organs
- Each unit will have a unit test
  - Unit tests are a combination of matching, multiple choice, short answer, fill in the blank, lab identification items, and occasionally an essay
- Lab Practical Exams
  - Students will be exposed to 3 lab practical exams to prepare them for high level anatomy courses
    - Bones
    - Muscles
    - Visceral anatomy
- Final Exam – will be cumulative for the semester

Newman University Concurrent Credit Information: Fall 2015
- BIOL 2032 (Human Anatomy) 2 hours
- BIOL 2031 (Human Anatomy Identification Lab) 1 hour
2015 Anatomy Unit Objectives
1st Semester (Aug-Dec) – Anatomy

Body Organization – Ch 1
✓ Define anatomy and physiology
✓ Describe the major characteristics of life and the factors required for the maintenance of life
✓ Define homeostasis and explain its importance to survival
✓ Describe a homeostatic mechanism
✓ Explain the levels of organization of the human body
✓ Locate and name the major organ systems and body cavities and list the organs associated with each
✓ Use anatomical terminology to describe body positions, sections, and regions
✓ Identify membranes and describe their importance

Tissues – Ch 4
✓ Explain the levels of organization of the human body
✓ List characteristics of 4 categories of body tissues
✓ Identify images, function, and location of different body tissues

Gross Skeletal Anatomy – Ch 7
Axial Skeletal Anatomy
✓ Name and identify the bones of the vertebral column, pectoral girdle, pelvic girdle, and cranium.
✓ Name and identify specific bone formations on bones in the regions listed above.
Appendicular Skeletal Anatomy
✓ Name and identify the bones of the upper and lower appendages.
✓ Name and identify specific bone formations on bones of the upper and lower appendages.

Joints & Articulations – Ch 8
✓ Identify joints and classify them based on structure and movement
✓ Apply correct vocabulary when performing articulations at major body joints

Gross Muscular Anatomy – Ch 10
✓ Name and identify muscles of the human body
✓ Dissect and identify muscles of the cat (for comparative anatomy study)
✓ Describe the basic motion of the major muscles (or muscle groups)

Gross Visceral Anatomy
✓ Name and identify organs within body cavities
✓ Name and identify specific structures or regions of various organs
✓ Classify organs into correct body system(s)
✓ Dissect and identify visceral organs of the cat (for comparative anatomy study)

Cumulative Semester Final
Human Physiology – Advanced Standing Course
Submitted by: Shawn Stewart at Eisenhower High School

Required Text: Human Anatomy & Physiology 7th Edition by Elaine N. Marieb and Katja Hoehn
Required Workbooks:
Biozone: Anatomy & Physiology Student Workbook: 2nd edition

Physiology Course Objectives: in this course students will
- Learn the structures and functions of the cell and relate their knowledge of cells to organ and system physiology
- Be introduced to the physiology of the different human systems including skin, nervous, endocrine, cardiovascular, lymph, immune, respiratory, digestive, urinary and reproductive
- Investigate some physiological concepts through laboratory experimentation and simulations
- Practice utilizing the scientific method to collect, analyze and share data
- Become familiar with the rigorous demands of courses and careers in the health profession
- Work cooperatively with classmates to make the classroom environment conducive for learning

Physiology Course Requirements & Assessments
- Each student will create a portfolio for explorations of topics such as (but not limited to) health-related careers and educational options, volunteer services, approved readings, or disease studies.
- Students will be required to keep a laboratory notebook of all laboratory exercises, and will complete two formal lab write-ups during the semester.
- Students will attend a field trip to Newman University cadaver lab, and to observe a veterinarian perform a procedure
- Each unit will have a unit test
  - Unit tests are a combination of matching, multiple choice, short answer, fill in the blank, lab identification items, and essay
- Final Exam – will be cumulative for the semester

Physiology Labs to be conducted throughout the semester

<table>
<thead>
<tr>
<th>Osmosis &amp; the cell membrane</th>
<th>Determining blood pressure</th>
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<tbody>
<tr>
<td>DNA and genetic control</td>
<td>Design your own heart-rate lab</td>
</tr>
<tr>
<td>Skin sensory receptors</td>
<td>Lung volumes and capacities</td>
</tr>
<tr>
<td>Human reflexes</td>
<td>Enzymatic activity</td>
</tr>
<tr>
<td>Design your own reaction rate lab</td>
<td>Muscle function analysis</td>
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Newman University Concurrent Credit Information: Spring 2016
- BIOL 2052 (Human Physiology) 2 hours
- BIOL 2051 (Human Physiology Lab) 1 hour

2016 Physiology Unit Objectives
2nd Semester (Jan-May) – Physiology

Bio/Chem Review – Ch 2 & 3
✓ Understand the basic structure of a typical animal cell
✓ Draw and describe the fluid mosaic model of cell membrane structure
✓ Describe and demonstrate various types of movement/transport of molecules across a membrane
✓ Describe osmosis and factors affecting it
✓ Define membrane potential and electrochemical gradient, and explain how they play a role in intercellular interactions
✓ Model and summarize the events involved in genetic control of the cell
✓ Define enzyme and list important characteristics or functions of enzymes
✓ Compare and contrast the chemical structures, properties, functions and examples of the 4 major biological macromolecules
Bones & Osseous Tissue AND Muscle & Muscle Tissue – Ch 6 & 9
✓ List the functions of the skeletal and muscular systems
✓ Summarize bone growth and remodeling
✓ Identify bone markings and indicate their functional importance
✓ Describe the anatomy of a typical long bone and flat bone. Indicate the location and function of the structures within
✓ Label and describe the microscopic structure of compact and spongy bone
✓ Compare and contrast the basic types of muscle tissue
✓ Label and describe the microscopic structure of a skeletal muscle
✓ Label and describe the microscopic structure of the functional units of muscle
✓ Explain the sliding filament theory of muscular contraction

Integumentary System – Ch 5
✓ Identify the layers of the skin and list general functions of each layer
✓ Name the tissue types associated with the dermis and epidermis
✓ Explain the different functions of the skin
✓ Describe accessory organs (appendages) of the skin and their functions
✓ Explain how skin helps regulate body temperature
✓ Describe the 3 major types of skin cancer
✓ Explain how burns are classified and why serious burns are life-threatening
✓ Summarize the factors that determine skin color

Nervous System – Ch 11-14
✓ List the basic functions of the NS.
✓ Distinguish between CNS, PNS, ANS, SNS, and between the sympathetic and parasympathetic divisions; note their parts and functions
✓ Name and identify the regions and structures of the adult brain; note their functions
✓ Name and describe the three devices that protect the brain
✓ Draw, label and define neuron. Describe its important structural components and their functions.
✓ Draw, label and define synapse. Describe how a synapse functions.
✓ Define resting membrane potential and describe its electrochemical basis.
✓ Explain how action potentials are generated and propagated along neurons.
✓ Classify general sensory receptors by stimulus type.
✓ Draw and label the components of a reflex arc.

Endocrine System – Ch 16
✓ Identify endocrine organs, the major hormones they secrete, and their target organs and effects
✓ Distinguish between endocrine and exocrine glands
✓ Outline the two major mechanisms by which hormones bring about their effects on target tissues
✓ Explain how the nervous system controls hormonal secretion
✓ Explain how negative feedback mechanisms regulate hormonal secretion

Cardiovascular System AND Blood – Ch 17 - 19
✓ List the functions of blood
✓ Describe the composition and physical characteristics of whole blood, and give the function of each portion
✓ Explain why blood is a connective tissue
✓ Describe the structure, function, and production of erythrocytes
✓ Describe the process of hemostasis
✓ Describe the ABO and Rh blood groups. Explain the basis of transfusion reactions and blood reactions between fetal and maternal tissues
✓ Name the coverings of the heart
✓ Describe the structure and function of the 4 heart chambers, the heart valves, and the major coronary arteries
✓ Trace the pathway of blood through the heart
✓ Compare and contrast skeletal and cardiac muscle tissue
✓ Name the components of the conduction system of the heart, and trace the conduction pathway
✓ Describe the timing and events of the cardiac cycle, and locate them on a normal electrocardiogram tracing
✓ Identify the three layers of a typical blood vessel
Identify arteries, veins and capillaries, and compare and contrast the structure and function of each
Describe the functional importance of bloodflow through the pulmonary circuit, systemic circuit, and hepatic portal system
Perform vital signs

Lymph & Immune Systems – Ch 20 & 21
- Describe general functions of the lymphatic system
- Describe lymph nodes and their major functions
- Identify and describe function of the thymus and spleen
- Define and identify innate and adaptive defenses
- Describe the inflammatory response
- Define antigen and describe how antigens affect the immune system

Respiratory System – Ch 22
- List and explain the functions of the respiratory system
- Identify respiratory organs and structures
- Summarize the events in inspiration and expiration
- Explain gas exchange at the alveolar level

Digestive System – Ch 23
- Describe the function of the digestive system, and differentiate between organs of the alimentary canal and accessory digestive organs.
- List and define the major processes occurring during digestive system activity.
- Describe the anatomy and basic function of each organ and accessory organ of the alimentary canal.
- Describe the mechanisms of chewing, swallowing, and peristalsis.
- Identify structural modifications of the wall of the stomach and small intestine than enhance the digestive process in these regions.
- Describe the composition of gastric juice, bile and pancreatic juice, and indicate the importance of each in chemical digestion.
- Summarize the events in cellular respiration, noting how the different molecules in food are broken down to release energy

Urinary & Reproductive Systems – Ch 25, 27 & 28
- Identify reproductive and urinary organs of both sexes, and list the functions of each organ
- Trace the pathway of blood through the kidney
- Explain the events of urine formation
- Explain how hormones control sexual characteristics and the male and female reproductive organs.
- Describe the events in the female menstrual cycle
- Summarize basic events of embryonic and fetal development
- Summarize the stages of pregnancy and birth
- Recognize different methods of birth control

Cumulative Semester Final

Special Senses – Ch 15 (after seniors leave – only for juniors)
- Identify structures of the eye and describe the function of each
- Trace the pathway of light through the eye and explain how light is focused on the retina
- Compare and contrast the roles of rods and cones in vision
- Trace the visual pathway to the visual cortex and summarize the steps in visual processing
- Describe the location, structure, and afferent pathways of taste and smell receptors
- Explain how taste and smell receptors are activated
- Identify the structures of the outer, middle and internal ears and describe the function of each
- Trace the sound conduction pathway to the fluids of the internal ear, through the spiral organ and to the temporal cortex
- Explain how the semicircular canals and vestibule help maintain dynamic and static equilibrium