

Advanced Biology (Science)

Honors Elective – Semester – 11/12

Prerequisites: None

Course Purpose

The purpose of Advanced Biology is to more fully appreciate and learn about the wonderful, created structure and function of the human musculoskeletal system.

Course Goal

The course is designed to meet the preparation needs of college bound students especially thinking of possible health related fields of study like a medical doctor, nurse, physician's assistant, nurse's aid, physical therapist, physical therapist assistant, X-ray technician, athletic trainer, phlebotomist, chiropractor, medical secretary, physical education teacher, health educator, dietician, coach, and many more.

Course Objectives

The **teacher** will:

1. Lead the students to a greater appreciation of God's wonderful creation of our bodies.
2. Teach the language of human anatomy.
3. Teach the topics of human anatomy that affect our daily and future lives.
4. Demonstrate enthusiasm for learning the human body.

The **student** will:

1. Appreciate more fully the intricate structure of the human body.
2. Learn the "language" of human anatomy and be able to speak in scientific terminology.
3. Be aware of medical terms and make better diagnoses of common injuries.
4. Develop study habits that will be used in college.

Course Outline

- I. The language of anatomy
 - A. Introduction to medical terminology and Latin terms
 - B. Overview of common landmarks
 - C. Classes of joints
- II. Axial skeleton
 - A. Bones and landmarks of the skull
 - B. Bones, landmarks, and common injuries of the vertebrae, ribs, and sternum
 - C. Muscles of axial skeleton
- III. Inferior appendicular skeleton
 - A. Bones, landmarks, and common injuries (esp. the knee and ankle) of the inferior extremity
 - B. Muscles of inferior extremity
- IV. Superior appendicular skeleton
 - A. Bones, landmarks, and common injuries of the superior extremity
 - B. Muscles of superior extremity
- V. Major blood vessels and nerves (class project?)
- VI. Muscle contractions
 - A. Anatomy and physiology of a muscle cell and its contraction
 - B. Training muscle – skeletal and cardiac
 - C. Body Fat determination
- VII. Surgery viewings / guest speakers / youtube clips and paper writeups

Instructional Strategies

Students can expect a variety of instructional methods throughout the year: taking notes from the instructor – which is mostly helping you learn/remember what is in the prepared packet of notes, reading/studying in the textbook, demonstration, videos, bone pass labs, power point presentations, and guest speakers. The student's progress will be evaluated through tests, quizzes, and papers. Usually a test happens every three to four weeks. Usually one quiz happens per week and one "surgery writeup" every other week.

Grading

Your grade will be weighted the following way:

Quizzes = 20%, Unit Tests = 45%, Surgery/Guest Speaker Write-ups = 15%, Semester Test = 20%

There is no extra credit! Your score is your score.

* These are the minimum percentages needed for each letter grade

97 = A	81 = C+
93 = A-	78 = C
	75 = C-
90 = B+	
87 = B	72 = D+
84 = B-	68 = D
	65 = D-
	Under 65 = F

Student Materials

The Human Body: Concepts of Anatomy and Physiology. Bruce D. Wingerd, DVD's from *The Learning Channel*, prepared teacher led notes, youtube videos, other supplemental materials, guest speakers, and field trips.

Classroom Procedures

Students study material as it is presented from prepared lab notes. The textbook is also used for some topics. There won't be many "daily work" assignments given. It is best to review the material daily or else find yourself way behind. It can be a lot to memorize. The room is open for extra "skeleton time" or "muscle models" before school, 2nd hour, 3rd hour, 6th hour, 8th hour, and sometimes after school.