

## Course Project: Structure and Function - Working Together

### The Project

Your study this term covers both Anatomy (**structure** of body parts—their forms and how they are organized) and Physiology (**function** of body parts—what they do and how they do it). Structure and function work together to accomplish the smooth operation of the body. For example, as your textbook says in Chapter 1, the human hand consists of small, thin bones with joints (structure), which help us grasp objects (function). At a higher level, the different organ systems (cardiovascular or skeletal or muscular systems) integrate structure and function to keep the whole body working as a unit in balance (**homeostasis**). The nervous and endocrine systems – due to their structure – are able to control and adjust various organ functions to help maintain balance or homeostasis. By homeostasis we mean an internal environment of stability, which is one of the most important requirements of a healthy body.

For this project, you are required to write a paper that demonstrates your understanding of the ways structure and function work together in the body. Specifically, you will achieve this by researching and reporting on the structure and function of two systems of the body and how they work together to maintain homeostasis.

### Project Structure

Your paper should include:

1. An introduction describing why you chose these two organ systems – for example skeletal and muscular. This should be 1-2 paragraphs in length.
2. Organ System 1: Describe the major components of the system (structure), and how the system works (function). You need to use at least one source in addition to your text for this information. You should not just quote your sources, but put the information into your own words. This description should be 3-6 paragraphs in length. Be sure to cite your references in APA format. (See note below.)
3. Organ System 2: The same information for your second system (structure and function) that you gave for System 1.
4. Describe how the two organ systems you chose work together in the human body to keep the body running smoothly (homeostasis). This should be 3-6 paragraphs in length.
5. Describe your thoughts regarding the following question:

Based on your study of how the structure and function of two organ systems collaborate to maintain the body's homeostasis, do you think it will ever be possible to create a robot that actually duplicates the organ systems of the body? For example, will there ever be a robot that replicates the coordination of muscles and nerves? (Maybe they already have such robots! You might check out the Massachusetts Institute of Technology site: <http://www.mit.edu/research/category/robo.html#links> for current robot research. At the bottom of the Web page are links to their current labs and research. You should also complete a web search using the keyword "robot." Finally, don't forget to check your local library.) Please explain your answer with examples. This description should be 4-6 paragraphs in length. Be sure to cite any sources you use in APA format.

### Required Project Elements

1. Title page
2. 4-6 pages typed on your computer, double-spaced at 12 point font. You will use your text and at least one additional source for each system. Remember to cite your sources in the body of your paper using APA format.
3. Reference page at the end of your paper in APA format.