Study Questions for Chapter 3

~ Identify the components of a *neuron*.

~ Distinguish among different types of neurons and support cells in the brain.

~ Explain how the *resting potential* of the neuron results from charged ions inside and outside the cell.

~ Describe the electrical signaling process by which information is transmitted within a neuron.

~ Using the six steps of *synaptic transmission,* describe how neurons communicate with one another through chemical signals.

~ Identify the major *neurotransmitters* and describe their functions.

~ Describe how some drugs alter synaptic transmission by mimicking or blocking normal neurotransmission; classify these drugs as either *agonists* or *antagonists*.

~ Describe the basic organization and distinguish the functional differences among major parts of the *central* and *peripheral nervous system*.

~ Identify the basic regions of the *hindbrain* and *midbrain* and describe their functions.

~ Describe the functions of the following *subcortical* structures: *thalamus, hypothalamus,* and *pituitary gland*.

~ Identify the components of the *limbic system* and describe their functions.

~ Define the *cerebral cortex,* describe its characteristics, and identify its four major lobes and their functions.

~ Provide several examples of *brain plasticity*.

~ Discuss, using the term *heritability,* how the *genes* of an individual interact with the environment to produce physiology and behavior that are unique.

~ Describe some of the important findings about brain anatomy and function that have resulted from studies of people and animals with brain damage, including the emotional functions of the frontal lobe and the distinct roles of the left and right hemispheres.

~ Describe several structural and functional *brain imaging* techniques.