Psychology 101

Chapter 3 Objectives

After studying this chapter, students should be able to:

1. Identify the components of a *neuron*, and distinguish among three major types of neurons.

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

3. Describe the electrical signaling process—the *action potential*—by which information is transmitted within a neuron.

4. Describe how neurons communicate with one another through chemical signals using the six steps of *synaptic transmission*.

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

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

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

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

9. Describe the functions of the following *subcortical* structures: *thalamus*, *hypothalamus*, *pituitary gland*, *hippocampus*, *amygdala*, and *basal ganglia*.

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

11. Provide several examples of *brain plasticity*.

12. Discuss the evolution of the human nervous system.

13. Describe how the *genes* of an individual interact with the environment to produce behavior.

14. 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.

15. Describe two techniques to record electrical activity in the brain.

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

