

**BMD 330 and 334: Human Physiology**  
**Chapter 10 Objectives**

**The Nervous System: Central Nervous System**

1. Describe the different classes of glial cells and their basic functions.
2. Describe the basic anatomy of the brain and spinal cord, and relate structure to function. Indicate which structures protect the CNS, and which are directly involved in neural signaling.
3. Describe the anatomy, physiology, and consequences of the blood-brain barrier.
4. Describe the energy supplies of the brain, and explain why blood flow is so critical to the CNS.
5. Describe the anatomy of the spinal cord and spinal nerves. Explain the functional difference of the gray and white matter.
6. Describe the anatomy of the brain and provide basic functions for the various subdivisions.
7. Define reflex arc. Describe the following reflex pathways: muscle spindle stretch reflex, withdrawal reflex, and crossed-extensor reflex.
8. Explain voluntary control of skeletal muscles, and describe the different areas of the brain that contribute to voluntary control. Compare motor control by the pyramidal tract and extrapyramidal tracts.
9. Describe the different functions of the two language centers: Wernicke's area and Broca's area.
10. Describe the different stages of sleep and how the brain shifts from the sleep state to the awake state.
11. Describe the different types of learning and memory. Define neural plasticity and explain how it contributes to learning and memory.