

## Lab 07 – 3/24/14

### Learning Objectives

By the end of this lab you should understand:

- The structure and function of neurons
- The nature of ions and action potentials
- The locations and primary functions of major parts of the brain

Key facts:

- An action potential is the depolarization of a neuron followed by the rapid repolarization
- The brain can be divided into three regions: forebrain, midbrain, and hindbrain
- Every major function of the brain is collaborative but many primary regions can be identified that serve specific purposes

Key skills:

- Identify key parts of a human brain and sheep brain
- Identify which parts of the brain are responsible for certain actions
- Draw the stages of a neuron's action potential in terms of its ion concentrations

Lab Procedure:

- Exercise #11: The Nervous System II
  - Activities #1 and #2: Observation of nervous structures
  - Activity #3: Sheep and human brains
- Group lab credit: sheep brain dissection
- Individual lab credit: parts of the brain

Sample lab exam questions:

- True/False: All vertebrates have a hindbrain
- Draw the inside and outside of a neuron at resting potential
- What ion movement will likely stimulate an action potential?
- Identify the function of the cerebellum
- Identify on this picture the location of the thalamus
- Where is the occipital lobe located?

Brain ID List:

- Brain protection
  - Meninges (dura mater)
  - Ventricles
  - Skull
  - Vertebral column
- Forebrain
  - Frontal lobe
  - Parietal lobe
  - Temporal lobe
  - Occipital lobe
  - Thalamus
  - Hypothalamus
  - Corpus callosum
- Hindbrain
  - Cerebellum
  - Brain stem (*Pons and Medulla oblongata*)