

## Assignment 1

The assignment is to write a detailed step-by-step description of neuronal communication. You must describe processes that happen within a neuron and within the synapse with sufficient detail to demonstrate that you understand how each stage in the process is important. The assignment should be written in paragraph form. It will take 2-3 double-spaced pages to cover all topics. However, grades will be assigned based on content, not on length. This assignment does not require outside references. It is recommended that you rely on the textbook and lecture materials. The assignment will be graded based on how clear, accurate, and comprehensive your description is. You are not expected to describe processes not discussed in class or by the textbook.

### Concepts to include:

- Resting potential
- Concentration and electrical gradients
- Voltage-gated ion channels
- Flow of sodium and potassium ions across cell membrane
- Postsynaptic potential (both excitatory and inhibitory)
- Ligand-gated ion channels
- Membrane threshold
- Action potential
- Myelin
- Nodes of Ranvier
- Saltatory conduction
- Exocytosis
- Refractory period (both absolute and relative parts)
- Sodium potassium pump
- Neurotransmission
- Reuptake
- Enzyme activity in the synapse