Visual Perception: A Window to Brain and Behavior
Lecture 1- Neurons, Synapses, Neurotransmitters, Action Potentials

Reading: Joy of Visual Perception Eye Brain and Vision Brain and Mind UT Health Neurosciences Outline	**Looking:** Synapse Structure - Neuroanatomy Basics How Synapses Work (multiple synapses) Neurohistology Membrane Potential

1. Be able to identify the following morphological features of the neuron and to describe the role they play in receiving and transmitting neural impulses.
    a. neuron
    b. cell body (soma)
    c. dendrite
    d. axon
    e. axon hillock
    f. presynaptic bulb (axon terminal)
    g. synapse
    h. myelin sheath
    i. node of Ranvier

2. Understand the basic functioning of the neural membrane and action potentials and be familiar with the following terms and concepts:
    a. ion concentrations inside and outside the neuron (how do they give rise to the membrane resting potential ?)
    b. resting potential
    c. depolarization and hyperpolarization
    d. action potential
    e. refractory period
    f. propagation of action potential

3. Understand the role each of the following plays in the transmission of electrical signals (information) between neurons
    a. neurotransmitter
    b. synaptic vesicle
    c. synaptic cleft
    d. postsynaptic receptor
    e. excitatory and inhibitory synaptic transmission

4. "Recognize" the names of the major neurotransmitters and their primary 'effect'
    a. acetylcholine [Ach]
    b. norepinephrine (noradrenaline) [NE,NAd]
    c. dopamine [DA]
    d. serotonin (5-hydroxytryptamine) [5-HT]
    e. glutamate
    f. GABA (gamma-aminobutyric acid)

5. Understand the following properties of a neuron's response
    a. Summation of excitation and inhibition
    b. Stimulus strength versus firing rate