

Week 4 Sensory Systems

Learning Goal: Understand how the nervous system collects sensory information from the environment.

After finishing the pre-class assignments, students will be able to...

- Identify critical cells involved in auditory and visual sensory transmission to the brain.
- Describe how hair cells function to transduce mechanical signals to the brain.
- Describe parts of a simple reflex circuit.

After this class meeting, students will be able to...

- Predict how photoreceptors change in response to light exposure.
- Explain how sensory information is encoded in action potentials.
- Explain how the processes of vision and hearing occur.
- Evaluate the molecular effect of a stimulus on a sensory pathway.
- Predict how changes in a sensory pathway will affect sensory perception.

Week 4 Muscles

Learning Goal: Understand how skeletal muscle functions in response to signals from the nervous system.

After finishing the pre-class assignments, students will be able to...

- Describe the structure and function of a neuromuscular junction.
- Identify cellular, molecular, and protein components involved in muscle contraction and explain their role.
- Relate the structure of skeletal muscle to its function in generating a contractile force.
- Describe the cross-bridge cycle in a skeletal muscle.

After this class meeting, students will be able to...

- Predict the effect of toxins or genetic mutations on the function of skeletal muscles.
- Evaluate the physiological consequences of altering the structure/function of skeletal muscle components (e.g., SR, myosin, troponin).
- Compare and contrast the structure and function of slow-twitch versus fast-twitch muscles.