Tour of the Cell
- Define the terms Cytology, Biochemistry, Cell fractionation, ultra-centrifugation.
- Compare and contrast the structure of prokaryotic and eukaryotic cells. What are the similarities and what are the differences?
- Review the “endosymbiotic theory” explaining the origins of eukaryotic cells.
- Recognize the importance of internal membranes for a eukaryotic cell and the diverse functions that take place within each compartment.
- Identify the components of the endomembrane system of eukaryotic cells by name, structure, and specific function(s).
- Identify the mitochondria and chloroplasts as cellular organelles independent from the endomembrane system. Cite evidence for their evolutionary origins as ancestral prokaryotes. What roles do they currently play within a eukaryotic cell?
- Describe the flow of genetic information from DNA to protein. What is the difference between transcription and translation? Review the Central Dogma of molecular biology.
- What are the three components of the cytoskeleton? What are the functions of each? Learn the specific names of the proteins that make up each. What are the functions of each?
- Identify the following sub-cellular structures and their functions, which do you find in animal or plant cells: tonoplast, centriole, plasmodesmata, tight junction, desmosome, gap junction, peroxisomes, lysosome, and nucleolus.