

## **Week 1 Meiosis and Mendelian Genetics**

### **Learning Goal: Understand the mechanisms by which an organism's genome is passed on to the next generation through sexual reproduction**

After the pre-class assignments you should be able to:

- Define and relate the terms gene, allele, genotype, phenotype, homozygosity, and heterozygosity
- Describe, using diagrams, the sequence of events involving DNA in meiosis from chromosome duplication through chromosome segregation
- Explain how meiosis is different from mitosis
- Describe Mendel's principle of segregation and principle of independent assortment
- Explain how independent assortment during meiosis can lead to new combinations of alleles of unlinked genes
- Describe how nondisjunction can cause variation in chromosome number between gametes

By the time you take the first midterm you should also be able to:

- Distinguish between sister chromatids and homologous chromosomes
- Calculate the probability of a particular gamete being produced from an individual, assuming independent segregation of alleles
- Predict how chromosome numbers in a gamete may vary depending on non-disjunction during meiosis