

Learning Modules outline the tasks that should be completed to master the biology outcomes from each chapter or group of chapters. Some of the tasks are optional, but highly recommended. Mandatory tasks must be completed by the specified deadlines. Mandatory tasks will consist of a short on-line quiz over the reading, and a short on-line critical thinking question. Sometimes, there will also be group assignments that will be assigned during class.

Learning Module 9

Learning Outcomes for Chapter 14 & 15 - Genetic Inheritance.

1. Explain what Mendel contributed to our understanding of inheritance patterns.
2. Solve genetic problems and determine outcome probabilities when given the phenotypes and genotypes of the parents.
3. Explain how independent assortment contributes to genetic variation in the offspring.
4. Describe other types of inheritance that does not rely on true dominant-recessive allele relationships. These include multiple alleles, incomplete dominance, pleiotropy, epistasis, linked genes, polygenic inheritance, environment.
5. Correlate the inheritance of genes to the inheritance of chromosomes.
6. Predict outcomes in inheritance of sex-linked genes.
7. Describe how chromosomal number and structure can affect offspring.
8. Complete a pedigree to map a family's inheritance patterns

Learning Tasks

- 1) Read chapters 14 & 15.
- 2) Review these figures in chapter 14: Fig 14.3, 14.8, 14.12, 14.13, 14.15
- 3) Review these figures in chapter 15: Fig 15.2, 15.7, 15.9, 15.13
- 4) Go to the same link >http://en.wikipedia.org/wiki/Genetic_origins_of_Down_syndrome< and read about the causes and affects of Down Syndrome. How does nondisjunction and chromosome structure affect development?
- 5) Define the following, important biological terms.
 - A. Homologous chromosomes, alleles, gene locus, loci
 - B. Hybrid, homozygous dominant, heterozygous, homozygous recessive
 - C. Monohybrid cross, dihybrid cross
 - D. Theory of segregation, theory of independent assortment
 - E. Epistasis, pleiotropy, polygenic inheritance
 - F. Sex chromosomes, autosomes
 - G. Duplication, deletion, inversion, translocation
 - H. Nondisjunction, aneuploidy, polyploidy
- 8) **Question # 9 is posted at proferickson.com/ami. It is due Thursday, April 16th before class.**