

## Biology Chapter 11: Study Guide

### Section 1

- Definitions

Genetics	Trait	Allele
Fertilization	Hybrid	Segregation
True-breeding	Gene	Gamete

- Know who Gregor Mendel is, what is considered the father of and what he studied
- Be able to determine if a plant is a true-breeding plant
- Know the traits that Mendel studied as well as the alleles
- Know the names of each generation (i.e. P, F<sub>1</sub>, F<sub>2</sub>, F<sub>3</sub> generation, etc)
- Be able to determine if a plant is a hybrid
- Be able to describe the process of segregation and what it means
- Know what gametes are and what they contain

### Section 2

- Definitions

Probability	Homozygous	Phenotype
Punnett square	Heterozygous	Genotype

- Be able to determine the probability of a situation (i.e. calculate)
- Know what a Punnett square is and how to use it
- Be able to determine if an individual is homozygous or heterozygous by looking at the genotype
- Be able to determine the phenotype from a genotype and vice versa
- Be able to determine the expected outcome of a cross using probability
- Know that a larger number of offspring means the predicted results will mirror the actual results

### Section 3

- Definitions

Independent assortment	Codominance	Polygenic traits
Incomplete dominance	Multiple alleles	

- Be able to do a two-factor cross (i.e. a cross with two traits)
- Be able to determine the expected outcome of a cross using probability
- Know what independent assortment is and why it is important
- Know Mendel's principles
- Be able to compare complete dominance, incomplete dominance, codominance, multiple alleles and polygenic traits
- Be able to determine the pattern of inheritance if given a family tree
- Know who Thomas Hunt Morgan is and what he did for the field of genetics
- Know the phrase "nature v. nurture" and its flaws

### Section 4

- Definitions

Homologous  
Diploid

Haploid  
Meiosis

Tetrad  
Crossing-over

- Know what the two things are that Mendel's principles require
- Be able to determine which sets of chromosomes are homologous
- Know what haploid and diploid are and what types of cells are haploid and diploid
- Know what meiosis is and what its purpose is
- Know what happens in each division of meiosis (i.e. meiosis I and II)
- Be able to describe the process of crossing-over and its purpose
- Be able to recognize diagrams of meiosis and know what the step is
- Know what type of gamete is produced by a female and a male
- Know how the production of female gametes differs from male gametes
- Be able to compare mitosis and meiosis

### **Section 5**

\*\*\* I have decided to delete this section from the exam.