Chapter 11 & 14 test: What to know

- Genes, alleles, traits
- Mendel
  - Explain P, $F_1$, $F_2$ generations for single trait and 2-factor cross
  - Monohybrid & dihybrid crosses: typical phenotype ratios for $F_2$ generation
  - Principle of dominance and concept of "carrier"
  - Principle of independent assortment
- Probability principles - basic
- Homozygous, true breeding
- Heterozygous, hybrid, "carrier"
- Punnett squares
  - For single factor crosses: Given a written description, be able to assign symbols to dominant & recessive traits, show the cross that is described, draw a Punnett square and plot the gametes from each parent, list the phenotypic ratios and genotypic ratios of the offspring
  - Be able to create a Punnett square for a 2-factor cross. Be able to interpret a 2-factor cross Punnett square
- Beyond dominant & recessive: incomplete dominance, codominance, multiple alleles, polygenic traits
- Meiosis: haploid (N) , diploid (2N), crossing over. How are the results of meiosis different than the results of mitosis? What kind of cells are produced by meiosis? Nondisjunction and its result.
- Human genetics: karyotype, normal number of chromosomes in a human karyotype, sex chromosomes (X & Y, probability of male or female offspring), autosomal chromosomes, chromosomal abnormalities (Down syndrome, Turner's syndrome, Klinefelter's syndrome, XY females)

Possible topics (time permitted, I will let you know if these will or will not be on the exam):

- Blood group genetics (Rh group and ABO group), universal donors, universal recipients
- Gene maps & gene linkage
- Pedigrees: know how to read them, be able to assign genotypes for autosomal and sex-linked traits, be able to determine phenotype from genotype, why X-linked recessive traits more often expressed in males