

## Biology 3201 Unit Checklist

Each student is expected to be able to do the following from Unit Three (Part “B”) : “Modern Genetics”

You should be able to...

- Explain how Mendel and Sutton contributed to the Chromosome theory
- Describe Morgan’s experiments with fruit flies, and how this supported the chromosome theory
- Explain the concept of crossing over and linked genes
- State Mendel’s Law of Independent Assortment in modern terms
- define sex linked traits and know examples, and why they’re more common in males
- differentiate between autosomal dominant, autosomal recessive, sex linked dominant, and sex linked recessive traits
- define polygenic trait
- be able to interpret karyotypes, and use them to identify disorders (handout)
- describe the work of Mendel, Sutton, Levene, Griffith, Hershey/Chase, McClintock
- describe the DNA double helix structure
- explain the current “semiconservative” model of DNA replication (4 steps)
- compare and contrast DNA with RNA
- explain the process of transcribing and translating DNA into a protein
- explain what a mutation is, and its effects on making a protein
- distinguish between somatic and germ mutations
- explain the different types of mutations
- explain how “jumping genes” influence diversity
- identify diseases caused by chromosomal mutations (Downs, Turner, Klinefelters, Jacobs, XXX)
- describe the role of a genetics counsellor
- define genetic engineering, know examples of GMF’s and GMO’s, risks and concerns
- describe ways of detecting disorders in a fetus, and what gene therapy is
- have a basic understanding of some engineering techniques (PCR, gel electrophoresis, etc)
- basic knowledge of the human genome project, its findings, risks, uses