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, Kleinfelters, 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