**Biology III – Genetics Quiz #3 Study Guide**

**DNA Structure, Mutations and Protein Biosynthesis**

Be able to explain DNA’s antiparallel structure.

*How* do genes become physical traits? Can you give an example?

Know the processes of Transcription and Translation.

Specifically, how is RNA generated?

What are the different types of RNA and their functions?

How are mRNA strands “read?”

What are the building blocks of proteins?

How are proteins assembled?

What are codons and anticodons?

What are the differences between DNA and RNA, in terms of structure and *functions*?

Be able to explain DNA’s antiparallel structure.

Be able to interpret the Genetic Code, understanding how to determine which codons correlate to which proteins.

What is a Mutation?

Be able to describe the different types of point mutations discussed in class.

What is a Frameshift Mutation? How does a mutation cause a “frameshift?” Which type of mutations cause “frameshifts?”

What is the purpose of a chi-square analysis? How is it applied to data?

How do sex-linked traits work?

**Biotechnology**

Gel Electrophoresis

What is the purpose of this technology? How are the results from a G.E. experiment read? How/why does it work? What are restriction enzymes? What is the function of the restriction enzymes in these types of experiment?

Polymerase Chain Reaction (PCR)

What is the purpose of this technology? What components are involved in PCR and what are their functions? What are the different cycles/stage of PCR and why are they at different temperatures?

What is the purpose of a chi-square analysis? How is it applied to data?

How do sex-linked traits work?