Semester II Topics for Review Biology 2012

**Chapter 9 – The Cellular Basis of Inheritance**

* Describe the structure of a chromosome
* Name and be able to describe the events of the stages of the cell cycle.
* Describe mitosis
* Know the major events that occur during each phase of mitosis
* Know the differences between plant and animal cell division
* Know cytokinesis and the differences between plant and animal
* Know what is the result of cell division
* Know what is the result of meiosis
* Know and explain crossing over and how it contributes to genetic variation.

**Chapter 10 – Patterns of Inheritance**

         Describe the methods Mendel used in his plant-breeding experiment,

         What is Mendel’s principle of segregation

         Describe how probability applies to genetics

         Be able to compare and contrast genotype and phenotype

         Know what an allele is

         Know the following terms: heterozygous, homozygous, dominant, recessive, F1 generation, F2 generation, polygenic traits.

         Be able to use a Punnett square and figure out genotypic and phenotypic ratios

         Explain sex-linked disorders and how they are passed on. ( include carrier)

**Chapter 11 – DNA and the Language of Life**

* Know the components of DNA
* Describe DNA’s structure and the rules for base pairing in DNA
* Know transcription and translation and where they occur in the cell.
* Know the three type of RNA
* Know the differences between RNA and DNA
* What is a codon and why is it important?
* Know how many amino acids there are.
* Know why there are 64 different codes.
* Be able to describe protein synthesis and know its importance.

**Chapter 12 – Human Genetics**

* Know Recessive trait disorders and how they are passed on
* Know Dominant trait disorder and how they are passed on
* Know what a pedigree chart is and why it is used
* Know what all the symbols mean in a pedigree chart

**Chapter 13**

* Explain how the use of bacteria has contributed to the development of DNA technology.
* Explain the role of plasmids in engineering bacteria.
* Explain how biologists “cut and paste” DNA.
* What are restriction enzymes and how are they used
* Understand DNA fragments
* Describe what gel electrophoresis and how it is used.
* Describe the use of DNA fingerprinting and how it is used

**Chapter 14 Evolution: A History and a Process:**

* Identify Darwin’s work and the two main points of his theory.
* Describe information the fossil record contains about life on Earth
* Explain how similarities in structure and development among different species are evidence for evolution.

**Chapter 15: Origins of Biological Diversity**

* What is a species
* Know geographic isolation
* Know speciation
* What is taxonomy? How and why is it used
* Know the Linnaean System of Classification
* Know how to use a dichotomous key

**Chapter 30 – The Circulatory and Respiratory Systems:**

* Know the organs of the circulatory system and their functions
* Be able to trace the flow of blood through the heart.
* Know both the pulmonary and systemic circuit.
* Explain how blood pressure is measured.
* Know the instrument used to measure blood pressure.
* Identify the main components that make up blood.
* Know the organs of the Respiratory system and their function.
* Be able to label the tracheobronchial tree.