**Honors Biology Syllabus**

1. The Science of Life
   1. Introduction to science
   2. Tools used in science
   3. Scientific method
2. The Chemistry of Life
   1. Properties and characteristics of matter
   2. Matter and energy, interdependence in nature
      * 1. What is ecology?
        2. Energy, producers and consumers
        3. Energy flow in the ecosystems
        4. Cycles of matter
        5. How do abiotic and biotic factors shape ecosystems?(interdependence in nature)
           1. Climate
           2. Niches and community interactions
           3. Succession
           4. Biomes
           5. Aquatic ecosystems
        6. What factors contribute to changes in nature?(interdependence in nature)
           1. How populations grow
           2. Limits to growth
           3. Human population growth
        7. How have human activities shaped local and global ecology?(Interdependence in nature)
           1. A changing landscape
           2. Using resources wisely
           3. Biodiversity
           4. Meeting ecological challenges
3. Cell Biology
   1. The structure and function of the cell
   2. Homeostasis and transport
   3. Cellular reproduction
   4. Photosynthesis
   5. Cellular respiration
4. Genetics
   1. Fundamentals of genetics
   2. Inheritance patterns and human genetics
   3. Nucleic acids and protein synthesis
   4. Gene expression
   5. DNA technology
   6. Research paper (genetics topic assigned in class)
5. Reproduction
   1. A general survey of reproductive methods in all kingdoms
   2. Basic reproductive anatomy
   3. Advantages and disadvantages of sexual and asexual reproduction
6. General embryology of vertebrates and invertebrates
7. Evolution
   1. The origin of life
   2. Evolution: Evidence and Theory
   3. The evolution of populations and species
8. Taxonomy
9. Viruses and prokaryotes
10. Fungi and Protista – (general survey)
11. Introduction to invertebrates(general survey)
12. Introduction to vertebrates(general survey)
13. Research Project
14. End of Course Test